INDIAN ECONOMY

B.A.(Economics) – Second Year

Paper Code : BAEC1923

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INDIAN ECONOMY

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Indian Economy during the colonial period

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UNIT – I

Lesson 1.1- Colonial India

Structure

1.1.1 Objective

In this chapter, the reader will be enlightened on the structure of the colonial economy of India and the landholding pattern of India. In addition, the chapter will trace the role of industrialization during the colonial period. Finally, it helps to identify the economic consequences of Indian society during the colonial period.

1.1.2 Lesson Outline

- Impact of Colonialism on Village Life: Social Life, Political Life, and Economic Life
- Land and Agriculture: Zamindari System, Ryotwari System, and Mahalwari System
- Agricultural Cropping Pattern and Irrigation
- Traditional Industries and Handicrafts
- Urban Infrastructure: Urban Centers, Roadways, Railways, and Ports
- Economic Consequences of the Colonial Rule
- Review Questions

1.1.3 Introduction

In India, a village signifies a rural community with traditional and conventional cultures. During the rule of the Mauryas, Guptas, Cholas, Kshatrapas, Mughals, and even the British, village life grew and changed drastically. The impact of rulers and their rule had a profound impact on village life. Until the Mughal era, villages were strictly traditional in social, political, and economic aspects. In villages, the barter system was prevalent, with trade mostly being conducted in kind rather than coin. Social gatherings were conducted on auspicious occasions, but caste discrimination was prevalent and strictly followed. Caste discrimination and many other evil customs were part of social life due to a lack of modern education. The upper caste had sole decision-making authority in village councils, resulting in a kind of dualism. The concepts of modernization, laws based on reasoning (such as the abolition of the Sati custom by William Bentinck), and westernization were introduced by the British. The concepts of government, suffrage, law, and its interference in the daily conduct of business and village life were introduced by the British in India. Unlike previous conquerors who merely replaced Indian political powers without altering the socio-economic structure, the British disrupted the traditional socio-economic fabric of Indian villages. With British rule, significant changes occurred in the political and economic landscape. The colonial government did not substantially modify the village infrastructure but instead promoted a class of non-agricultural intermediaries to facilitate administration. The British inherited the agrarian system's institutional framework from the Mughals but imposed a new system aligned with British customs, laws, and interests.

1.1.4 Impact of Colonialism on Village Life

1.1.4.1 Social Life

As we have discussed earlier, before the British occupation, the social life of women and the lower classes was tiresome and mortifying. The upper caste brutally harassed the lower classes based on caste discrimination and the widely acknowledged custom of slavery. Women were harassed by men in their households. Both women and the lower classes were not allowed education and were subjected to several evil customs.

With the arrival of the British, the condition of both women and the

lower class improved. The legislative efforts of the British provided relief to the lower class, such as the abolition of slavery by Lord Ellenborough in 1843. With the implementation of the Abolition of Slavery Act (Rule V), many lower-class people left villages and came into the cities. The British established factories in the city and initiated various construction activities like roads, railways, canals, etc. This increase in employment opportunities provided a gateway for the lower classes. They came to the city and took lower-paid jobs. Although the working conditions were not good either, it at least gave them a chance to live a valued life. This was the first wave of urbanization stimulated by caste discrimination.

The lives of women were brutal in both the lower and upper classes. They were subjected to several evil customs. The system of dowry, lack of education rights, and exclusion of women from fertility decisions were profound and considered traditions. The practice of sati was the epitome of brutality against women. The impact of colonialism, in some way, provided relief to women. In 1829, due to the efforts of Raja Rammohan Roy and Lord William Bentinck, the company abolished the custom of sati in the Bengal presidency through Law XVII. In 1830, the law was adopted and implemented by the Bombay and Madras presidencies as well.

In 1849, J.E.D. Bethune started a women's school in Calcutta. The British opened dedicated schools and colleges for women in cities. This created a trickle-down effect on women residing in villages as they were allowed to attend primary schools. In 1854, Charles Wood's dispatch on education, called the "Magna Carta on Education," was passed. The provision of establishing a primary-level school in every village increased literacy among women.

1.1.4.2 Political Life

In 1885, the Indian National Congress came into existence. Over time, the organization grew and created a stronghold in villages as well. The arrival of Gandhi meant a new beginning for the political structure in 'colonized village India'. The members of the organization were from upper and lower castes in villages as well. This marked a new beginning in village politics. The educated leaders provided a stage for the lower classes in villages. This assimilation of lower classes and women in decision-making helped the agitation grow against the British. Religious differences also took a backseat in the political scenario. The best example of religious

harmony was when Hindu soldiers acknowledged a Mughal as their king during the 1857 revolt. This harmony and brotherhood were the result of colonial brutalities.

1.1.4.3 Economic Life

India has long been recognized for its involvement in trade and business. While villages primarily relied on agricultural activities for personal consumption, the sale of certain crops and spices (i.e., black cardamom) grown along the west coast of India has attracted traders from Europe and the Arabs for centuries. This indicates India's historical connection to international markets. The East India Company of Great Britain played a significant role by purchasing spices and agri-products like turmeric, cotton, and jute from Mughal India. The colonial government later established processing industries in various cities with ports (like Chennai, Kolkata, Surat, etc.), leading to rapid urbanization and the cultivation of crops necessary for raw material-based industries in England. The British introduced commercial crops such as tobacco, indigo, rubber, tea, and coffee, which gradually replaced traditional crops and reduced the focus on food crops.

In the past, buyers would go to villages to meet producers, discuss prices, and buy goods using cash. Sometimes, prices were decided before harvest, and buyers had the upper hand. In colonial times, these buyers acted as go-betweens, selling to city exporters who traded overseas. As transport improved, farmers dealt directly with Indian businessmen who sold to foreign companies. This links villages to global markets.

1.1.5 Land and Agriculture

To effectively govern a country, substantial financial resources are required. Governments acquire these funds through taxation, which applies to both their citizens and non-citizens engaged in business activities within their jurisdiction. Historically, agriculture was the predominant occupation worldwide before the Renaissance period, and the income of nations relied heavily on agricultural productivity. However, agricultural output is subject to various factors. To ensure a consistent revenue stream from farmers, different regions adopted suitable systems. During the Mughal era, the well-known "*Zabt* system" was widely employed, although specific measurements for land revenue collection varied across regions.

In 1765, the Treaty of Allahabad, involving Mughal Emperor Shah Alam II and Robert Clive, granted land revenue collection rights over Bengal, Orissa, and Bihar to the East India Company. As a result, the company's income doubled, enabling them to meet their war expenses and benefit from the spoils of war. Additionally, company officers experienced significant personal financial gains through their collection rights.

Until 1772, the *Zabt* system remained in practice. However, in 1772, the Regulation Act was enacted, vesting supreme authority in the Governor of Bengal Presidency. Warren Hastings assumed the role of Governor-General of Bengal and implemented a monopoly system for tax collection from farmers. This system, known as *ijaredari* or the monopoly system, was short-lived due to its negative consequences, including collection uncertainties and the exploitation of farmers in India's most fertile lands. Under this system, a five-year contract was awarded to the highest bidder. Zamindars, taking advantage of the system's structure, exploited farmers to surpass the bid amount, paying only the contracted sum to the company. Although the contracted amount remained fixed, the company's operational expenses and costs of war continued to rise. Consequently, in 1777, the contract duration was reduced to one year, exacerbating the exploitation of farmers by zamindars.

The declining revenue prompted the appointment of Cornwallis as the next Governor-General of Bengal by the company. From 1786 onward, the company implemented three distinct land tenure systems for tax collection:

1. Permanent system (also called the Zamindari system)
2. Ryotwari system
3. 3. Mahalwari system

These systems marked different approaches to revenue collection and land management strategies employed by the company during this period.

a. Zamindari System

In 1786, Lord Cornwallis assumed the position of Governor-General of Bengal and was held accountable for the British failure in the American Revolution. During this period, the British treasury faced challenges. The shortcomings of the monopoly system led to inquiries

about determining the appropriate amount of produce to be collected as rent or tax, determining the optimal contract duration, and addressing the issue of zamindar management. Cornwallis, along with John Shore and Charles Grant, convened in 1790 to address these concerns, agreeing upon a ten-year settlement with landlords. This settlement, known as the Permanent Settlement, was officially established in 1793. It encompassed regions such as Orissa, Bengal, Bihar, parts of Awadh, and some areas in northern Karnataka, covering approximately 19 percent of British India's territory. The Permanent Settlement ensured a consistent revenue flow to the British treasury with reduced fluctuations.

The Zamindari system included the following features:

- Zamindars governed the allotted land for ten years, having the right to pass it down to heirs or sell it while adhering to the fixed rent payment.
- Peasants lost their ownership rights, becoming landless agricultural laborers.
- The rent for peasants remained fixed for a decade.
- The government refrained from interfering in the affairs of zamindars and peasants.
- The government received 10/11th of the produce, while the zamindars retained 1/11th.
- Zamindars could retain any excess money collected beyond the fixed rent, resulting in increased exploitation of farmers.
- Failure to pay the fixed rent promptly would lead to the auctioning of the zamindari to others.

The company's objectives were twofold:

1. Stabilize revenue flow from India to finance wars and operational expenses throughout the region.
2. Establish a landlord class similar to that in England, which would aid in effective governance and extend the company's influence beyond its physical presence.

b. Ryotwari System

In 1790, Colonel Reed of the East India Company implemented a direct system of land tax collection in Karnataka's Baramahal district, personally engaging with farmers and collecting taxes without

intermediaries. This approach was later adopted by Thomas Munroe in 1820, when he served as the Governor of Madras. Munroe expanded the system to regions in Madras, Eastern Bengal, Assam, and parts of South India. Lord Elphinstone deserves credit for implementing this system in Bombay.

Under the ryotwari system, the government directly interacted with farmers, referred to as "ryots," who held the land rights. Farmers assumed the responsibility of paying taxes directly to the government. This system was implemented in regions where the landlord system was uncommon, such as South and Southwest India. The East India Company directly entered into rent agreements with ryots, resulting in reduced operational costs and increased company revenue by eliminating intermediaries. With farmers holding land rights, it was expected that they would willingly pay a fair amount of taxes. Therefore, this system should not have been a cause for exploitation.

However, in practice, the exploitation of farmers under the Ryotwari system was no different from the Zamindari system. It contributed to the erosion of collective land ownership in rural areas, replacing landlords with the British government. The government arbitrarily sets land tax rates, often exceeding fair rates. Moreover, the company employed force during tax collection to maximize revenue and maintain control over the ryots. Farmers retained ownership as long as they paid the arbitrarily determined taxes on time, otherwise risking the loss of their land title.

b. Mahalwari system

This system, known as the Mahalwari system, was proposed by Holt Mackenzie. It was implemented in the Central Provinces (except Banaras and Gazipur), Madhya Pradesh, and Punjab, covering approximately 30% of the land. Under this system, the term "mahal" referred to the entire village, and the land tax was determined for the entire village. An appointed mahal head acted as an intermediary, representing the mahal and being responsible for the timely submission of the land tax to the government.
In theory, the land belonged to the entire village, but in practice, farmers divided the land amongst themselves to cultivate crops. They would then pay their share to the mahal head, who would submit it to the government. However, despite the concept of collective ownership, this system was as exploitative as others.

1.1.6 Agricultural Cropping Pattern

Agriculture has served as the foundation of India's economy for countless generations.. This sector still contributes a significant amount to our GDP growth and employs more than half of India's labor force. During the colonial period, the basic agricultural system was more or less similar to the Mughal period. The British stressed this sector even more because agriculture in India fed their home endeavors, such as providing raw materials to British manufacturing firms and facilitating their trade in agricultural products worldwide. There are several instances where

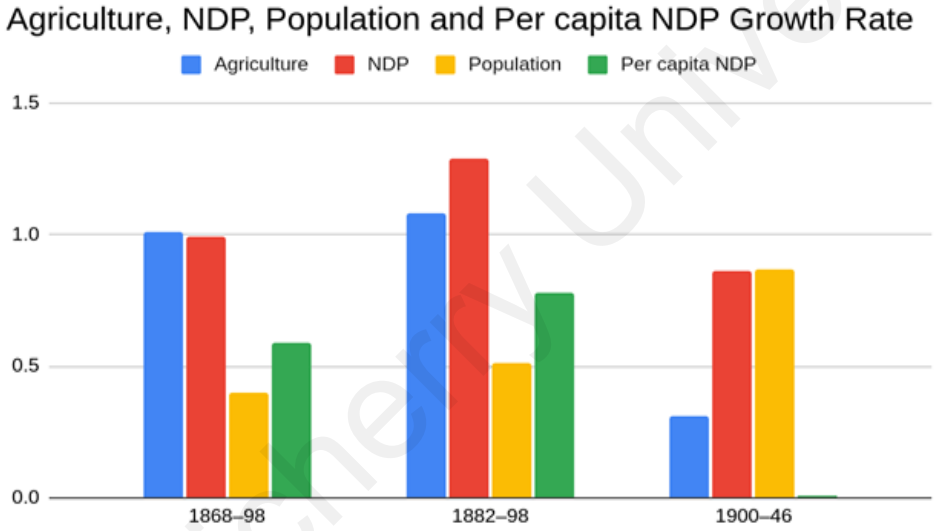

Figure 1.1: Growth in agriculture, NDP, population and per capita NDP

The available data for measuring agricultural change in the nineteenth century is limited. Serious collection of land use data began in the late nineteenth century, and even then, the statistical abstracts for 1870 only provide partial and patchy figures for cultivated area. These figures are likely an underestimation. However, despite the data's limitations, it suggests a significant increase in cultivated area between 1870 and 1939, with the growth potentially being even larger when accounting for multiple cropping facilitated by canals in certain areas. The basic reason for the increase in land use was a legislative framework that established them as the sole proprietors of agricultural land and forest products. The advent of this proprietorship started with the "Mughal Farmaan of 1717," which is also known as the "Magna Carta for the company." This official Mughal order gave them freedom to conduct their trade and use their own currency as a medium of exchange. The expansion primarily benefited food crops like wheat, rice, and pulses, as well as industrial crops such

as cotton, jute, sugarcane, oilseeds, and groundnuts. On the other hand, millets (jowar, bajra, and ragi) did not witness substantial gains in terms of land allocation. These kinds of economic liberties, when complemented by law, came into force from time to time and did wonders for the company. Until 1890, the reason behind low agricultural produce was a lack of attention due to several wars, such as the Anglo-French War, the Anglo-Maratha War, and the two Anglo-Sikh Wars. From 1890 onwards, there was an improvement in crop output data, although it remained challenging to utilize. The period between 1891 and 1946 saw a decrease in the earlier dynamism, with an average growth rate of only 0.4% for crop output. Non-food and commercial crops performed better than food crops, but overall, the growth rate remained very low. These disappointing results raise the question of why there was agricultural stagnation despite the growth in exports and trade. One possible answer is that production conditions in agriculture impose limitations on growth.

In the tropical monsoon region, the presence of a rainy season makes it relatively easy to cultivate one crop. However, the long, dry, and hot periods for the rest of the year make it challenging to grow anything else. This drawback restricts growth potential unless there's irrigation in the winter or summer for year-round crop production. Moreover, a large part of the Indian subcontinent doesn't have fertile and nutrient-rich soil. While the Indo-Gangetic plains usually have good soil and water conditions, the same isn't true for peninsular India. In this region, there's often a lack of sufficient or good-quality soil and water, unless there are deposits of alluvial soil or black cotton soil.

Economists and agricultural scientists in the early 20th century discovered that India's total produce was significantly lower than that of similar crops in East Asia, Europe, and North America, though the exact reasons for this disparity were unclear but could be explained by the low use of technology by farmers, their inclusion in the freedom struggle, and British attention towards World War I and World War II. However, it was evident that most organic methods to increase yield, such as applying manure, required water, and water scarcity was a significant issue in India.

The monsoon rains provided most of the water for agriculture, but the monsoon season lasted only about three months. The remaining months were characterized by extreme heat and aridity, resulting in the drying up of surface water in many areas. Except for a few regions, like the Bengal Delta, seasonal dryness was widespread throughout India. Irrigation, therefore,

necessitated either transporting water over long distances or accessing underground water, both of which were costly options. Figure 1.2 shows the increase in the area irrigated with different sources of irrigation. From 1890 onwards, there was an improvement in crop output data, although it remained challenging to utilize. The period between 1891 and 1946 saw a decrease in the earlier dynamism, with an average growth rate of only 0.4% for crop output. Non-food and commercial crops performed better than food crops, but overall, the growth rate remained very low. These disappointing results raise the question of why there was agricultural stagnation despite the growth in exports and trade. One possible answer is that production conditions in agriculture impose limitations on growth.

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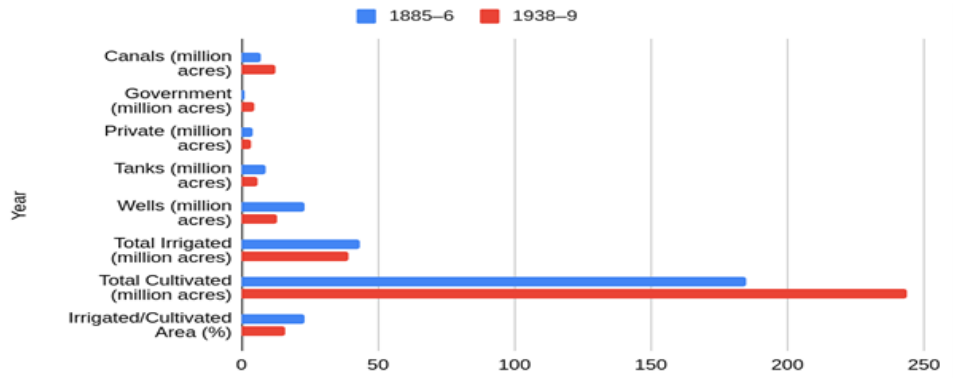

Figure 1.2: Area irrigated with different sources of irrigation from 1885-1938 (excluding Burma)

The only modes of irrigation were wells and canals. Canals required large-scale funding and couldn't be constructed with private money, while wells were expensive to build, particularly in the Deccan Plateau. Despite these challenges, the percentage of cropped area under irrigation increased from 12% to 22% between 1885 and 1938, which is a significant development (according to Tables 2 and 3). However, this expansion was insufficient to transform agriculture nationwide. Canals and wells were established primarily in regions with access to perennial water sources, including Punjab, deltaic Madras, western Uttar Pradesh, and Sindh. Except for deltaic Madras, these areas were located in the Ganges or Indus basins, where the Himalayan rivers supplied water throughout the year due to snowmelt, in contrast to reliance solely on the monsoon. The following figure 1.3 shows the increase in different irrigated areas due to the increase in canals and wells.

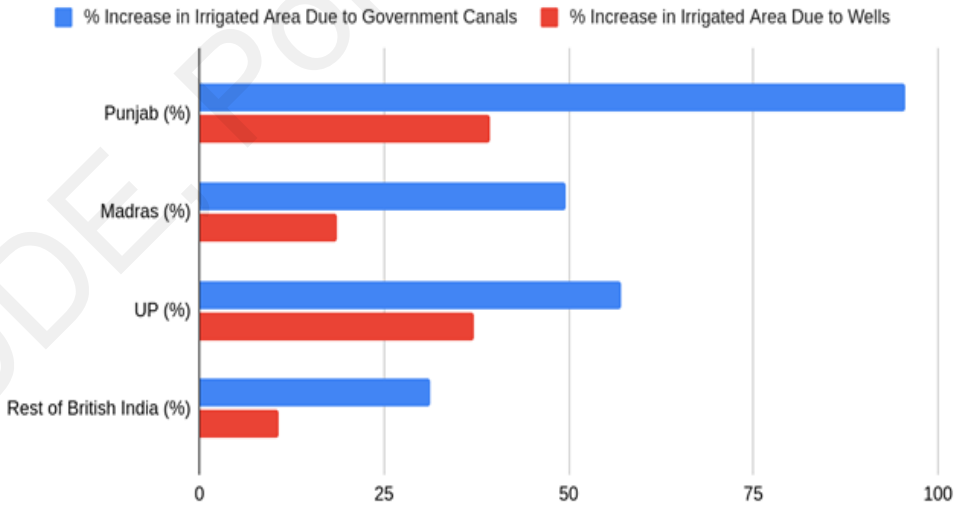

Figure 1.3 Percentage increase in irrigated areas due to canals and wells

1.1.6.1 Irrigation

The findings of the Stretchy Commission (for famine) inquiries conducted in 1876 established a fundamental principle that India, with its tropical monsoon climate characterized by intense heat and a short rainy season, experienced severe water scarcity during specific seasons. It became evident that any important attempt to enhance total agricultural produce and ensure the well-being of the people would require the implementation of projects that could provide a reliable water supply. However, the government faced limitations in pursuing such initiatives due to financial constraints and limited engineering expertise. They could only utilize rivers with abundant water supplies throughout the year and construct canals from these sources, unable to address areas where water scarcity was extreme. Also, during this period, total attention was given to the manufacturing sector. From 1881 to 1922, a total of four factory acts were passed to drain the natural wealth, such as iron ore, as fast as possible and establish British manufacturing supremacy in the sub-continent region to counter Russia and Japan from India. The iron ore from India supplemented the production of bombs, guns, and other war machines because the stage was set for the First World War.

Efforts were made to increase the amount of irrigated land compared to cultivated land. By 1938, the percentage of irrigated land had increased from about 5 or 6 percent in the early 1800s to 22 percent. Government-funded canals played a significant role in irrigating about 60 percent of the additional irrigated area. Notable irrigation projects included building canals from rivers in the Himalayas in Punjab, Sindh, and Uttar Pradesh (UP), as well as constructing barriers on important rivers (mostly perennial) in South India. The Punjab canals transformed dry areas, while South Indian canals mainly redistributed water from the monsoon, and UP canals added surface water to areas that already had enough groundwater. Important projects included the Godavri and Krishna river delta deposition project (1868), serving nearly a million hectares of land; the Western Jumna (Yamuna) Canal system (1892), covering half a million hectares of agricultural land; the Sirhind canal (1882), irrigating one million hectares of agricultural land; the Cauvery delta deposition system (1889), spanning 425,000 hectares; the Upper and Lower Ganges canals (1854-1878), covering 1.3 million hectares; and the Sarda canal (1926), irrigating around half a million hectares. There were also smaller projects like the Sone canal system in Bihar (1879), the Nira valley system

in Maharashtra (1938), the Mettur project in Tamil Nadu (1934), and the Upper Bari Doab canal in Punjab (1879) that had significant impacts in specific areas.

The Punjab canals helped migrant farmers settle on large areas of previously unused land. One of the earliest canals, the Bari Doab (1850-1860), provided irrigation to the land between the Beas and Ravi rivers and offered employment to former Sikh soldiers. The Sirhind Canal (1869-1887), located along the Sutlej River, played a crucial role in irrigating lands in Ferozepur, Ludhiana, and the princely states of Nabha, Patiala and Jind, contributing to prosperity of the city of Ludhiana. The Western Yamuna Canal, an earlier initiative that underwent revitalization, previously provided irrigation to the areas in and around Karnal and Delhi. The Chenab Canal, which was finished in 1887, was constructed with the purpose of irrigating the arid Barr region located between the Chenab and Ravi Rivers in the Rechna Doab. The Chenab Colony, consisting of Gujranwala, Jhang, and Montgomery districts, was established in 1892 and grew to have a population of 800,000 people by 1901. The canal covered an area of over 20 million acres, and the main town in the Chenab Colony was named Lyallpur after Charles James Lyall, the lieutenant-governor of Punjab from 1887 to 1892. During the time of the East India Company, canal construction was managed by the army's engineering department, but later the responsibility was transferred to the Public Works Department.

Major irrigation projects in the Godavari and Cauvery deltas in Madras (present-day Tamil Nadu) showed favorable returns, as did projects in Sindh. However, irrigation works in North India yielded positive but not substantial returns. On the other hand, poorly planned projects in Bengal, Orissa, and the Deccan resulted in negative returns. Some of these projects were initially constructed by private companies with government-guaranteed rates of return, similar to agreements for railway construction, but the government later purchased them at unreasonably higher prices. In general, there was a prevailing sentiment against private corporations in irrigation policy, as involving the private sector could complicate the issue of water rights.

The variation in rates of return partly stemmed from the nature of the projects and the topography of different regions. Works in southern India, built by the East India Company, were generally profitable. In contrast, the Ganges Canal, one of the major projects in northern India,

operated at a loss in the 1860s. The primary cause for this inequality was the geographical features of Madras, which facilitated the construction of economically cost-effective, low-height barrages on shallow riverbeds to irrigate extensive regions. In such a setup, the canals remained navigable even in periods of low water flow. Another probable reason for losses in the Ganges Canal was high population pressure and the ploughing of commercial crops, which require more water than their southern counterparts. In northern India, due to topographical differences, extensive masonry work and numerous bridges were necessary for irrigation over a large area. Moreover, canal navigation did not generate enough money income as road transportation was already well established in the region.

The impact of canal irrigation plans had both positive and negative consequences. While they provided benefits like famine relief and increased prosperity for cultivators but the outcomes varied. In some regions, like Madras and Punjab, canals irrigated a similar percentage of land, but Madras still faced famines, indicating that canals alone couldn't solve water scarcity in areas with low rainfall. The effectiveness of canals in preventing famines depended on the availability of natural water sources. Although canal-irrigated areas experienced improvements in wealth and income, the extensive projects also had significant human and economic costs. Problems like inadequate drainage causing saline deposits in parts of North India and increased malaria in other areas arose from the projects. Authorities acknowledged these costs but believed that the overall advantages outweighed them.

The impact of canal irrigation is still debated. In regions like Sind and Punjab, canals transformed barren lands into fertile ones, benefiting farmers and landowners. However, these areas initially faced water shortages. In the Ganges-Yamuna Doab region of Uttar Pradesh, where big rivers surrounded the area and water levels were high, canals had negative effects on the environment. They disrupted natural drainage, resulting in issues such as water logging, saline soil deposits, reduced fertility, and increased cases of malaria. Canals also led to excessive farming and attracted people who had previously raised livestock to become farmers, contributing to a decline in animal quality. Additionally, the expenses associated with using canals, higher rents, and changes in crop types contributed to growing inequality in rural areas. Despite these environmental challenges, canals had positive effects on farmers' profits. They increased crop yields per acre, reduced the risk of unpredictable harvests, improved living conditions,

and even supported limited industrial development, particularly in sugar refining.

In conclusion, canal irrigation projects had mixed outcomes. They provided benefits such as famine relief and increased prosperity but also incurred costs like environmental degradation and rising inequality. The overall impact of canals varied depending on the region and the natural water supply. While they played a significant role in transforming wastelands and increasing agricultural productivity, their effects on the environment and social dynamics require careful consideration.

1.1.7 Traditional Industries and Handicrafts

The trade in textiles and spices played a very vital role in the European traders' engagement with India, spanning from the seventeenth to the eighteenth centuries. The European powers, including Britain, were attracted to India for its valuable resources and potential for profitable trade. Textiles, particularly Indian cotton and silk, were highly sought after in Europe. Indian textiles were known for their quality, intricate designs, and vibrant colors. They were in high demand among the European elite and fetched high prices in European markets. The textile trade between India and Europe, especially Britain, flourished during this period. Spices were another essential commodity that drove European traders to India. During this time, spices such as pepper, cloves, cinnamon, and nutmeg were highly prized in Europe for their flavoring properties. They were used not only to make food tasty but also in medicine. Therefore, the spice trade became very profitable, so European traders wanted direct access to spice-producing regions, including India, but these trade partners were Arab and Venetian middlemen earlier. Therefore, the British were engaged in the triangular trade; they used to sell slaves from Africa to America for work in agriculture and labor-intensive work, and profit from this trade was used to purchase Indian manufactured goods. As a result, trade increased, and therefore more profits were accumulated.

The raw cotton was imported from America by Britain before 1860. But when a civil war broke out in 1861 in America, the imports fell to less than 3 percent; therefore, Britain started searching for another country. Therefore, Britain encouraged the Indian cotton merchants to increase the supply of cotton. Hence, money lenders and urban Sahukar were advised to provide credit to farmers to increase the supply of cotton. Hence, there was a tremendous increase in the production of raw cotton.

As a result, by 1862, more than 90 percent of Britain's cotton demand had been fulfilled by India. But in a few years, the American Civil War ended and cotton production in America started again; therefore, there was a drastic decline in India's cotton exports. The quality of cotton produced in America was better than that produced in India. Therefore, the British stopped importing cotton from India and started importing it from America. Hence, they stopped credit facilities to Indian traders. Therefore, the merchants and Sahukars stopped giving credit to farmers, and they also started asking to repay their outstanding debt. As a result, farmers and craftsmen were impoverished in British India.

The Industrial Revolution started in Britain around 1760, and with the invention of spinning yarn in 1764, the production of cloth increased at an accelerated rate. Therefore, with improved technology and increased control of the world market, Britain started importing raw materials from their colony, including India, and manufacturing clothes at a cheap rate, which they then exported to the markets of their colony. Therefore, two profit sources were cheap raw materials and a market for finished clothes in colonial British India. Hence, the demand for traditional craft industries has declined significantly. Therefore, the traditional craft industry started shutting down because traditional industry-prepared clothes were expensive compared to British-manufactured clothes. The devastating famines, over-taxation, and drain of wealth were the main factors that deteriorated the Indian craft industry.

In the 1900s, the majority of industries were labor-intensive, and the use of machinery was at a minimal scale. However, the use of machinery in the small-scale industry started rising after this. The handicraft industry declined shortly after the arrival of machine-made goods imported from Britain.

The advent of mechanization and mass production systems resulted in unemployment among producers of various goods such as metals, cotton, thread, pigments (dyes), wool products, jute products and silk products. These new methods could now produce these goods at significantly lower rates. However, certain skill-intensive craft producers benefitted from foreign trade as they gained access to cheaper raw materials and tools. It is important to note that the displacement of workers from one handicraft industry to another did not guarantee a smooth transition due to a mismatch in skills. Simply put, the unemployed workers could

not easily shift to new industries because their skills did not align with the requirements of those industries. The number of industries, large-scale industries and small-scale industries was 13.9 million, 0.6 million, and 13.3 million in 1900, and these numbers increased to 15 million, 3.1 million, and 11.9 million, respectively, in 1945.

India had a rich tradition of craftsmanship and a diverse range of traditional industries that catered to both domestic and international markets. However, colonial rule had a profound impact on these industries, leading to significant changes and challenges.

1. Textiles: India was renowned for its textile production, including cotton, silk, and wool. Handloom weaving was a widespread occupation, and regions like Bengal, Gujarat, and Madras were famous for their distinct textile traditions. However, British policies such as the imposition of high tariffs, promotion of British textiles, and restrictions on Indian textile exports had a detrimental effect on the indigenous textile industry. Therefore, many weavers and artisans have to close down their works.
2. Metalwork and Jewelry: India had a long-standing tradition of metalwork, including the production of intricately crafted jewelry, utensils, and decorative items. Indian goldsmiths, silversmiths, and blacksmiths were highly skilled. However, the British dominance in trade and the influx of machine-made goods from Europe had adverse effects on the metalwork industry. British manufacturers supplied the cheaper, mass-produced goods; therefore, Indian artisans have lost their livelihoods.
3. During the pre-colonial period, the availability of iron ore and charcoal was notable along the fringes of the Deccan Plateau and in certain parts of the Himalayan areas. Since it was very far from cities and ports, only people living in the vicinity had access, and therefore, they were engaged in the process of acquiring and manufacturing iron tools and supplies in India.
4. However, with the arrivals of British-manufactured iron tools and goods, the traditional iron industry has lost its significance; therefore, the local iron industry soon became obsolete.
5. Carpets and Rugs: Carpet weaving was a significant handicraft industry in India, particularly in regions like Kashmir and Uttar Pradesh. Indian carpets were renowned for their elegant designs

and fine craftsmanship. However, competition from machine-made carpets from Europe impacted the Indian carpet industry. The British also encouraged the production of cheaper imitations of Indian carpets, which further affected the traditional artisans. Therefore, traditional local people have lost their livelihoods.

6. Pottery and Ceramics: India had a rich tradition of pottery and ceramics, with various regional styles and techniques. Potters create a variety of utilitarian and decorative items, including earthenware, terracotta, and porcelain. The British introduced modern machinery and industrial methods, which affected the traditional pottery industry. Moreover, imports of British ceramic goods created tough competition for Indian artisans.
7. Woodwork and Furniture: Wood carving and furniture-making were prevalent traditional industries in India. Skilled artisans crafted intricately carved furniture, decorative panels, and architectural elements. However, the British colonial administration introduced machine-made furniture, which impacted the demand for traditional wooden crafts. The decline in patronage and changes led to a decline in the traditional woodwork industry in British India.

The colonial period brought significant challenges to India's traditional industries and handicrafts. British policies, industrialization, and competition from mass-produced goods had a detrimental effect on the livelihoods of traditional artisans. Many artisans faced economic distress, unemployment, and the loss of traditional skills. Nonetheless, some traditional industries managed to survive and adapt to changing circumstances, and today, they continue to contribute to India's cultural heritage and economic diversity.

An increase in the productivity of handicraft was witnessed during 1900-1939, and the share of handloom textiles in the provision of employment in small scale industry was about one-third. Productivity has increased with the advancement of technology and the shift of work from home to workshop.

According to the National Income of India report, textiles and chemicals had a percentage share of 26.2 percent and 3.9 percent, respectively, of total industrial employment in 1931. The combined share of food, drink and tobacco were 9.4 percent, while the hides and skins was

2 percent. The combined share of metal and machinery was 11.1 percent, and wood, stone, and glass comprised about 10.4 percent. From 1795 to 1820, the production of handloom cloth remains relatively stable, with a slight decrease from 1102 million yards to 1065million yards.

From 1820 to 1940, there was a gradual decline in handloom cloth production. The decline becomes more significant from 1880 onwards, with production dropping from 1035 million yards in 1860 to 1945 million yards in 1940. Indian mill cloth production started at zero in 1795 and remained at zero until 1880. From 1880 onwards, there was a substantial increase in Indian mill cloth production. The cloth production up from 122 million yards in year 1880 to 3905 million yards in year 1940.

Imported cloth production was initially zero until 1840, when it reached 199 million yards. From 1840 to 1900, imported cloth production experienced significant growth, increasing from 199 million yards to 2005 million yards. However, after 1900, there was a decline in imported cloth production, dropping to 579 million yards in 1940.

The trends indicate a shift in the cloth production landscape over time. The dominance of handloom cloth decreased significantly, with Indian mill cloth production replacing it as the primary source of cloth. Additionally, while imported cloth experienced growth in the mid-19th century, it later declined as domestic production expanded. This suggests a shift towards industrialized textile manufacturing within India.

1.1.8 Urban Infrastructure: Urban Centers, Roadways, Railways and Ports

a. Towns and Cities in pre-colonial Period:

Towns and rural areas were frequently contrasted in definitions. People residing in rural areas are engaged in cultivation of land, hunting in forest, and rearing of animals, while people residing in towns are craftsmen, traders, administrators, and rulers. Towns that benefitted from the surplus and taxes generated by agriculture predominated over the rural population. Usually, peasants travelled long distances to town for pilgrimages and during famines. People residing in urban areas also used to come to villages during attacks in cities. Traders from cities used to come to sell their goods in the rural areas.

The towns built by Mughals during the sixteenth and seventeenth

centuries were densely populated. Lahore, Delhi, and Agra were very important places for controlling and administering the kingdom. In towns, all types of services were available; different religious buildings, educational institutions, and the treasury of the king were also located in the urban centers. The famous urban centers of South India were Madurai and Kanchipuram. These towns also served as significant commercial hubs. Religious cultural programs were usually celebrated along with fairs and pilgrimages. In most cases, the king had supreme power, and the king was the primary patron of religious organizations. His place in society and the town was determined by his relationships with other classes and groups (Roy, 2013).

With political and business realignments, old towns were replaced by new ones. The decline of Mughal-associated towns was caused by the gradual loss of power. Delhi and Agra, the Mughal capitals, lost political power. The famous urban centers such as Hyderabad, Lucknow, Seringapatam, Poona, Nagpur, Baroda, and Tanjore (Thanjavur) all gained prominence as new regional powers emerged. In search of work and patronage, traders, merchants, artists, and others have shifted from the old Mughal centers to these new capital cities.

During 1891-1941, fluctuations in the percentage of urban inhabitants to the total inhabitants have been observed, but there is no clear linear trend. The percentage varies between 9.4 percent and 12.8 percent without a consistent upward or downward pattern.

In the colonial era in India, many urban centers emerged as important hubs for colonial administration, trade, and cultural exchanges.

- Calcutta was the capital of British India from 1772 to 1911, serving as the center of British power. It played a crucial role in trade, administration, and culture, contributing to the growth of British India.
- Bombay was a prominent port city in colonial India that facilitated British trade. It emerged as a thriving center for commerce, industry, and finance, particularly in the cotton textile industry.
- Madras, now Chennai, was a notable trading center and the administrative capital of the Madras Presidency, a British-governed province. It played a vital role in fostering trade and commerce.

- Delhi held historical significance in colonial India as the capital of British India from 1911, symbolizing British power and serving as the political center in the northern region.
- Lahore, now in Pakistan, was a vibrant cultural and intellectual hub in Punjab. It saw the establishment of numerous educational institutions during the British rule.
- Bangalore gained prominence during the British era, initially as an administrative center and military cantonment. It later became an important hub for trade, industry, and education.

(b) Railways

Railways have played a transformative role in transportation in India. Prior to the mid-nineteenth century, pack animals and small sailing vessels were the primary means of transporting goods over long distances. Local roads were used for travel and trade within shorter distances. However, the introduction of railways brought about a major shift in transportation.

The railway network was established through a combination of private enterprise and government involvement. Private companies built the rail routes on a 99-year lease, with the option for the Indian government to buy the railway lines after twenty-five years. The government guaranteed a minimum return on capital if the companies failed to achieve a 5% return. This arrangement allowed the government to oversee and advise on railway operations and development.

Railway construction began with British capital, resulting in the opening of over 4,000 miles of rail lines between 1853 and 1870. By 1925, a total of 15,000 miles of railroad tracks had been built. The expansion of the railway network led to a significant increase in the length of railway lines, miles per square mile, and the number of people travelling by train.

The impact of railways on the Indian economy was twofold. Firstly, it stimulated various economic activities, creating employment opportunities for both Indians and the British. Secondly, it greatly reduced transportation time and costs, resulting in a substantial increase in trade.

However, the railways also had some drawbacks. Payments for railway guarantees to companies led to a drain of wealth from India. Critics argued that British capital benefited from trade and railway construction,

while the increased dependence on railways for grain transportation exacerbated the frequency and severity of famines in India. Despite these concerns, the overall impact of railways on market exchange and the welfare of the people was significant and positive.

In summary, the introduction of railways revolutionized transportation in India, replacing traditional means of transport. It stimulated economic activities, reduced transportation costs and time, and had a transformative effect on trade and people's livelihoods. However, it also led to a wealth drain and had some negative consequences related to famines.

(c) Road

Data on roads and road transport during colonial and pre-colonial periods in India is limited. The East India Company invested in major infrastructure projects, such as crucial roads for military purposes, regular funding for roads began in the 1830s. Constructing metal roads in the early nineteenth century was costly due to the challenging terrain, including mountains, rivers, and forests.

The emergence of railways partially addressed the transportation issue, leading to a lower priority for road investment. Consequently, the growth of road length lagged behind that of railways. The ratio of metal roads to the population was as low as 0.4 miles, with government expenditure favoring railways.

There were several reasons for the limited focus on road construction. Firstly, the challenging terrain and high costs associated with maintenance during the monsoon season made road construction expensive. Secondly, railways offered more financial benefits compared to roads. The government did not thoroughly explore private initiatives for building a network of well-maintained roads. Thirdly, influential groups, such as the Lancashire mills, lobbied the government to prioritize cost-effective bulk transportation over long distances. This emphasis on specific forms of transportation may have contributed to disparities between local and long-distance commerce.

In eater and northern part of India, river transport has long been favored for cargo movement. It was a cheaper and more efficient option compared to roads. However, rivers played a significant role in long-

distance commerce, primarily in the Gangetic plains. The trade route from Bengal to western and northern parts of India passed through town of Mirzapur, transporting cargo along the current Bombay-Agra railway line and further south via the Ganges.

(d) Ports

During the colonial period, ports that served as intersections for railways and modern harbors played a crucial role in international trade. Major ports like Mumbai, Chennai, Kolkata, Karachi, and Yangon (Rangoon) acted as hubs for trade, sourcing commodities from vast hinterlands. The American Civil War, along with the inauguration of the Suez Canal, further enhanced commerce among ports in western India. Calcutta and Bombay also evolved into industrial centers during this time. Despite facing setbacks for private businesses during World War I, the military significance of these ports remained prominent. In the early years of World War II, efforts were made to modernize the docks in Bombay.

Initially, these ports lacked extensive infrastructure. The lack of interest from the local (tertiary level) government, public works, and merchant marine in developing infrastructure is evident in their history during the 19th century. Calcutta, for example, experienced a fourfold increase in maritime traffic between 1833 and 1863 but lacked all-weather and deep-water docks with modern loading and unloading systems, such as wharves, jetties, landing stages, or mechanized cranes.

The port infrastructure has remained unchanged in appearance since the beginning of the 18th century. Much of the labor-intensive work was carried out manually with the help of low-wage workers. However, a significant turning point came with the devastating 1864 typhoon in Calcutta, which exposed the vulnerability of the port. Boats were torn from their moorings and thrown around in the floodwaters, causing significant damage to the European areas of the city. A few months later, the merchants of Calcutta expressed their disbelief in a report that criticized the port, leading to serious efforts to construct modern docks only after this calamity.

1.1.9 Economic Consequences of the Colonial Rule

The first time the British arrived, they were dependent on local merchants to acquire the goods they required. They paid in gold and

silver. When they formally established their first temporary factory in Masulipattanam, they started purchasing as well as exporting. But they still needed the help of local merchants such as Chettiyars, Marwari Banias, Jagathseth's, and others because the hold of British merchants was limited due to language barriers, currency difference, and their inability to judge the true value of products. With time, the British established their political hegemony and military dominance. Indian merchants conspired the company to gain a significant position. Initially, they were successful but, in the end, they lost as the company established itself as a banker, insurer, exporter, purchaser, and producer.

For instance, the esteemed banking house of Jagat Seth lost its position as the state banker when the English East India Company took control of Bengal. They were lost because they tried to conspire against the Bengal Nawab initially, but then they tried to do it against the company. The English gradually stripped away their authority, including the right to mint coins, and Indian banks saw their European clients shift to English banks in Calcutta.

Towards the end of the 18th century, a significant shift occurred in the export trade of commodities, particularly cloth in Bengal. The English East India Company replaced independent Indian merchants with agents called Gomastas, who relied on English commissions. This change, along with the Battle of Plassey, solidified English dominance and reduced Indian merchants to mere brokers. The "contract system" further tightened English control, eventually eliminating Indian middlemen through the "direct agency" system. Indian businessmen were left powerless, with subordinate roles or exclusion from certain industries.

As the 19th century began, export industries declined, limiting opportunities for Indian businessmen. They were pushed into subordinate positions within English business houses in emerging industries like jute and opium. The overtaking of Indian houses helped the company turn its trade deficit into a trade surplus over time. Indian businessmen adapted by focusing on petty money lending, internal trade, and the sale of imported goods. This opening of trade also did wonders for Indian conglomerates such as Tata, Birla, and Dalmia. They gained a significant amount of money with their trade with the rest of the world.

India has faced many major famines throughout its history, occurring in different regions and periods. North India experienced famines in various years, such as 1759 in Sind, 1783 in Uttar Pradesh, Kashmir, and Rajasthan, 1800-1804 in Uttar Pradesh, and 1837-1838 in Uttar Pradesh, Punjab, and Rajasthan. Western India, specifically Maharashtra and Gujarat, had famines in 1787, 1790-1792, 1799-1804, 1812-1813, 1819-1820, 1824-1825, and 1833-1834. South India faced famines in 1781-1782, 1790-1792, 1806-1807, 1824-1825, 1833-1834, and 1853-1855. Although Eastern India experienced famines less frequently, the Bengal famine of 1770 was one of the most catastrophic events, causing the loss of approximately one crore lives, equivalent to one-third of Bengal's population.

These famines were either man-made or the outcome of colonial exploitation. The conflicts between the British and regional powers during the 18th and early 19th centuries played a significant role in worsening the famine situation. Under British administration, land revenue demands increased, and revenue collection became stricter compared to the pre-British era. This inflexible revenue policy, combined with failed seasonal rains, contributed to the devastating Bengal Famine of 1770. English traders and agents engaging in speculative grain trading may have further intensified the impact of famines in some cases. Additionally, the British focus on cultivating commercial crops for export, neglecting food grains, and the disregarding pre-existing irrigation systems from the pre-British era made farmers more vulnerable to drought.

In the mid-19th century, the newly established Public Works Department began improving irrigation infrastructure, recognizing its importance for agricultural stability. From 1880 onwards, the revenue policy became more flexible, and systematic measures for famine relief were implemented. However, British rule did not necessarily demonstrate a superior ability to mitigate the impact of crop failures and prevent significant famine mortality compared to previous administrations.

Regarding urban areas, two notable trends emerged. Older urban Centres experienced a decline in population and economic activity, while new cities and towns rapidly emerged to serve British commerce and administration. Examples of these colonial metropolises were Calcutta, Bombay, and Madras. Smaller towns also expanded as administrative centre and trading hubs. However, this urban growth did not follow the

industrial production-focused pattern observed in Europe. Instead, most towns and cities in the first half of the 19th century engaged primarily in the service sector, including marketing, transportation, and administration.

Older cities like Agra and Delhi and regional power centres such as Deccan, Murshidabad, Patna, Seringapatam, and Hyderabad experienced a decline or stagnation in population and economic significance. This decline can be attributed to the changing political landscape and trade markets. De-urbanization was particularly noticeable in northern India and certain parts of western India. Assessing whether the decline in population in older cities was offset by the growth in new ones nationwide is a complex question. However, it's important to recognize that the cities remained centres for accumulating wealth for the British.

During the 17th and early 18th centuries, the East India Company shifted its trade strategy in India. Instead of importing gold and silver, they used tax revenue and local funds to buy goods, reducing their reliance on precious metals from England. This allowed them to invest in their own businesses and obtain Indian goods at no cost due to their influence. This marked the beginning of the "drain of wealth," as funds flowed mainly from India to England. The company's revenue from Bengal and other regions, called "territorial revenue," grew as they expanded their territorial holdings. They used this surplus to acquire more territories and finance profitable ventures independently of England. This system funded their exports to Europe and investments in China, but led to monetary issues in India due to silver exports.

After losing its monopoly in 1813, the company's business declined, and private traders took over. Funds continued to be sent to England through various channels, including non-English routes, and included not only business profits but also illicit earnings. Private wealth sent from Bengal to England averaged around ₹ 1 crore and 8 lakhs between 1813 and 1820. These remitted funds included payments to shipping companies, banks, and others, totaling approximately ₹ 57 lakhs annually. The company also sent funds for salaries, loan interest, and dividends. These remittances, known as 'Home charges,' represented the total sum sent to England after the company stopped trading in 1833.

Meanwhile, England's Industrial Revolution coincided with the development of this fund transfer system. The wealth gained from India contributed to England's capital accumulation for industrialization.

However, this was just one factor among many, and England's industrialization had significant consequences for India's trade patterns. Between 1758 and 1761, the English East India Company (EIC) exported cotton cloth from India valued at around ₹ 27.4 lakhs, accounting for about 81 percent of the total exports during that period. The remaining exports included raw silk, pepper, and saltpetre, making up less than twenty percent of the total.

Now let's explore the export trade scenario in 1850-1851, marking the end of the studied period. During this time, the prominent export items were opium, raw cotton, indigo, and sugar, constituting approximately 30, 19, 11, and 10 percent, respectively, of the total export value. Consequently, India had shifted its primary exports to raw or processed agricultural goods, with cotton pieces representing only 3.7 percent of the total exports. Turning to imports into India during 1850-51, a significant portion consisted of English factory manufactures. Mill cotton cloth accounted for 31.5 percent of the total import value, followed by cotton yarn at 9 percent, woollen cloth at 5 percent, and metals at 16 percent.of particular note are the imports of cotton cloth and yarn. In 1850-51, India imported cotton yarn and twist worth ₹ 1.13 crore, along with cotton cloth (piece goods) worth ₹ 3.37 crore. Comparing this to two decades earlier, in 1828-29, cotton yarn imports were merely ₹ 42 lakhs, and cotton piece goods were only ₹ 1.18 crore. Within approximately twenty years, imports from Manchester mills had tripled. Simultaneously, the export of Indian cloth had diminished to an insignificant quantity. This transformation resulted in India transitioning from an exporter of cotton cloth to an importer of cloth and yarn, while England ceased importing cloth from India and established a market for it within India.

Colonialism, particularly under British control, had far-reaching economic consequences for India. The British exploited India's rich resources, reducing it to a supplier of raw materials for their own industrial revolution. This led to the decline of traditional industries and deindustrialization. The land revenue system imposed heavy taxes on Indian farmers, causing landlessness, indebtedness, and poverty. Trade imbalances favored Britain, draining wealth from India and hindering its industrial growth.

Infrastructure development, such as railways and ports, primarily served colonial interests rather than the broader development of India.

Traditional industries like textiles and handicrafts suffered as British policies favored British manufactured goods, leading to the loss of livelihoods for artisans and workers. The introduction of new agricultural practices disrupted traditional farming methods, displacing communities from their lands.

India endured heavy taxation, both direct and indirect, with revenue often used to fund the British administration and wars, causing a significant financial drain. British policies discouraged industrialization in India, creating a dependence on Britain for manufactured goods.

Overall, colonialism stifled India's economic development and perpetuated socio-economic inequalities. It took India several decades after independence to reverse the damage and pursue its own path of economic growth.

1.1.10 Reference

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1.1.11 Review Questions

1. Explain the land tenure system during the colonial period.
2. Write about the irrigation development during the colonial period
3. Write about the de-industrialization of the Indian economy during the colonial period.
4. Explain the contribution of infrastructural development during the colonial period
5. Describe the economic consequences of the colonial period

UNIT – II

Lesson 2.1 - Indian Economy at the Time of Independence

Structure

2.1.1 Objective

After reading this chapter, the reader will understand the characteristics of the Indian economy. The reader also understands the existence of various natural resources in India, like land, forests, minerals, and fisheries. Further, the reader will be able to know the demographic transition in India through the analysis of population trends, growth rates, sex composition, and population density over the years. In addition, this unit will enlighten the readers on the different components of national income and its measurement, apart from describing the condition of social infrastructure prevailing in India.

2.1.2 Lesson Outline

- Characteristics of the Indian Economy
- Natural Resources in India: Land-Forest-Minerals-Fishery
- Demographic Transition in India: Population Trend and Growth of the Population, Sex composition, Density of the Population: Birth Rate and Death Rate
- National Income in India: Measurement of National Income
- Social Infrastructure in India
- Review Questions

2.1.3 Basic Characteristics of Indian Economy

a) Low Per Capita Income: A low per capita inc==ome is a pre-known sign of a developing country. In a comparative analysis among a few major countries, the per capita income of India is the lowest among all these countries (Table 2.1). The per capita income of an Indian was almost

$1906.6 in 2021. The economy of India has witnessed a faster pace of growth over the decades than that of developed countries. Despite this, the economy has a huge per capita income gap against the developed nations.

Table 2.1: GNI per capita for major countries

Country	GNI per capita (2021)		Growth (Annual %)
	Constant 2015 US$	PPP (constant 2017 international $)	
China	11087.4	17443.96	7.89
Germany	44104.7	44104.7	2.14
U.S.	63279.7	64936.7	5.45
U.K.	44867.4	44879.73	8.84
India	1906.6	6488.91	7.61

Source: World Bank, World Development Indicators (2023)

Note: PPP-Purchasing Power Parity

However, it can be noted that the average per capita GNI of the USA (at constant 2015 US$) was approximately 33 times greater than that of India, while it was only 10 times greater at PPP rates. Precisely, the PPP figures provides a corrected position, where the GNI per capita (at constant 2015 US$) exaggerated the disparities. The annual growth rate of the country, on the other hand, shows a position ray to the economy. Where the USA and Germany stood at 5.45 % and 2.14% on 2021, India was at 7.61% of the annual growth rate, next to the UK (8.84%) and China (7.89%). Despite these facts, the standard of living of an average Indian was quite low and insignificant as compared to other major countries.

b) Occupational Pattern: Primary producing activities are a predominant characteristic of developing countries where significantly a high proportion of working population is engaged in agriculture and allied activities, and it contributes a large share to the country's national income.

Table 2.2: Percentage of population engaged in agriculture, industry and service

Country	Employment in Agriculture		Employment in Industry		Employment in Service	
	% of total employment*	% of GDP**	% of total employment*	% of GDP**	% of total employment*	% of GDP**
China	25.33	7.7	27.42	37.8	47.25	54.5
Germany	1.21	0.7	27.18	26.5	71.61	63.3
U.S.	1.36	1.1	19.91	18.4	78.74	80.1
U.K.	1.05	0.6	18.12	17.1	80.83	72.7
India	42.60	18.7	25.12	24.5	32.28	48.4

Source: World Bank, *World Development Indicators (2023)*

Note: *2019, ** 2020

In 2019, about 42.60% of the working population was engaged in agriculture in India, contributing about 18.7 % to GDP in 2020. According to the data published by the World Bank, in the Asia, Africa, and the Middle-East, from 2/3rd to more than 4/5th of the population earns their livelihood from agriculture and its related activities. Similarly, 2/3rd to 3/4th of most Latin American population depends on agriculture.

It can be noted from Table 2.2 that, proportion of the population engaged in agriculture in developing countries like India (42.60%) and China (25.33%) is much more than the proportion of people engaged in agriculture in developed nations like Germany (1.21%), USA (1.36%), and UK (1.05%).

c) High Population Pressure: India is the most populous country, surpassing China in 2022-23. The population pressure can be seen from the Table 2.3, where the density of the population continues to grow from 153.49 in 1961 to 469.66 in 2020. The main problem related to population in India is associated with high birth rate accompanied by a falling death rate. The population growth rate was 2.31% per annum in 1961and has fallen to 1.36% during 2011. Comparing to other countries, the percentage has fallen very slowly. While looking at the 2021 data, all the countries have witnessed a great fall in their population growth rate, accounted for by Covid-19.

Table 2.3: Country-wise growth and density of population

Country	Series Name	1961	1971	1981	1991	2001	2011	2021* 2020**
China	Population growth (annual %)	-1.02	2.75	1.28	1.36	0.73	0.55	0.09*
	Population density (people per sq. km of land area)	70.06	89.25	105.5	122	135	142.7	149.72**
Germany	Population growth (annual %)	0.77	0.18	0.15	0.73	0.17	-1.85	0.04*
	Population density (people per sq. km of land area)	210.17	224.3	224.6	229	236	230.3	238.02**
India	Population growth (annual %)	2.31	2.22	2.28	2.11	1.81	1.36	0.8*
	Population density (people per sq. km of land area)	153.49	191.7	239.8	299	362.9	423	469.66**
U.K.	Population growth (annual %)	0.76	0.42	0.035	0.31	0.38	0.78	0.37*
	Population density (people per sq. km of land area)	218.25	231	232.9	237	244.4	261.5	277.27**
U.S.	Population growth (annual %)	1.66	1.26	0.98	1.34	0.99	0.73	0.12
	Population density (people per sq. km of land area)	20.06	22.67	25.05	27.6	31.1	34.06	36.24*

Source: World Bank, *World Development Indicators (2023)*

Table 2.4: Birth and death rate from 1960-2020

Country	Per '000 people	1960	1970	1980	1990	2000	2010	2020
China	Death rate	25.43	7.6	6.34	6.67	6.45	7.11	8.52
	Birth rate	20.86	33.43	18.21	21.06	14.03	11.9	7.07
Germany	Death rate	12	12.5	12.2	11.6	10.2	10.5	16.57
	Birth rate	17.3	13.4	11.1	11.4	9.3	8.3	7.35
India	Death rate	19.63	17.23	13.68	10.69	8.70	7.38	10.9
	Birth rate	42.50	39.53	36.21	31.82	27.00	21.44	10.3
U.S.	Death rate	9.5	9.5	8.8	8.6	8.5	7.995	10.2
	Birth rate	23.7	18.4	15.9	16.7	14.4	13	10.4
U.K.	Death rate	11.5	11.8	11.7	11.2	10.3	8.9	9.3
	Birth rate	17.5	16.2	13.4	13.9	11.5	12.9	11.9

Source: World Bank, World Development Indicators (2023)

From Table 2.4, India has shown a continuous falling death rate from 1960 at 19.63% to 2010 at 7.38%, except for 2020 due to an abnormal year (same for birth rate). A decrease in the death rate means improvements in health facilities. However, the birth rate has also decreased over the years, which shows an increase in family planning awareness, but the falling birth rate is not high enough to reduce population pressure. Economist suggested, a high birth rate puts impetus to an economy by supplying cheap labour force and a huge working age population. The theory is also critically acclaimed by another group of economists on the ground that a higher population means higher exploitation of resources and hampers the sustainable development goal.

d) Prevalence of Chronic Unemployment: India is a labour-abundant country. Thus, providing gainful employment to the entire working population is a very difficult task. The unemployment phenomenon in India is structural in nature and results from the deficiency of capital, whereas the unemployment phenomenon in developed countries is cyclical in nature and occurs due to a lack of effective demand. Due to the deficiency in capital, the utmost expansion of the industrial sector could not be made in India in order to absorb the entire working labour force.

Indian agriculture is marked by 'disguised' or 'concealed' unemployment. Therefore, the marginal productivity of labour is either zero or even negative. The disguised unemployment in the rural economy

is a remarkable phenomenon that occurs mainly due to heavy population pressure on agricultural land and a lack of alternative employment opportunities.

Table 2.5: Prevalence of unemployment and unemployment with advanced education

Country	Unemployment (% of total labor force)				Unemployment with advance education (% of total labor force with advanced education)
	1991	2001	2011	2021	2019
China	2.37	3.8	4.55	4.55	Na
Germany	5.32	7.77	5.82	3.57	1.81
U.S.	6.8	4.73	8.95	5.35	2.38
U.K.	8.55	4.7	8.04	4.826	2.48
India	6.737	7.957	8.168	7.713	15.73

From Table 2.5, it can be noted that the unemployment rate in India has risen from 6.737% in 1991 to 8.168% in 2011. Until 2021, the economy showed a falling rate of unemployment, to 7.173%. Despite this, the comparative analysis of Indian Economy with the other major economies shows that the falling percentage of the unemployment rate in India is much lower than in these countries. The Indian economy is facing the problem of employing those with advanced educational qualifications, which has become a matter of concern. The 2019 data of World Bank provides that 15.73% of the total labor force with advanced education is unemployed, as against a variation of 1-2% of unemployed with advanced education in the other major countries.

e) Low Level of Human Development and Poverty: India is one of the fastest-growing countries and has emerged as the 3rd largest economies in the world. However, looking at the human development report, the quality of human capital is dismal. The various indicators, viz., low life expectancy, low education Quality, and lack of affordability, accessibility and distribution of primary healthcare facilities, reflect the low level of human development in the nation.

It can be noted from the HDI report (Table 2.6) that India has the lowest HDI and inequality-adjusted HDI value compared to other countries. HDI indicators of life expectancy at birth (67.2%), expected years of schooling (11.9%), and mean year of schooling (6.7%) indicate that India has a lot to grow to reach that dimension compared to other major countries. The poor status of women in the country is reflected in

the Maternal Mortality Rate (MMR), where for every 100,000 live births, 133 women die from pregnancy-related issues.

Table 2.6: Indicators of human development

Country	Life expectancy at birth	Expected years of schooling	Mean years of Schooling	HDI	Inequality-adjusted HDI	MMR (2017)
						Death per 100,000 live births)
China	78.2	14.2	7.6	0.768	0.651	29
Germany	80.6	17	14.1	0.942	0.883	7
U.S.	77.2	16.3	13.7	0.921	0.819	19
U.K.	80.7	17.3	13.4	0.929	0.850	7
India	67.2	11.9	6.7	0.633	0.475	133

Source: UNDP, *Human Development Report, 2020-21 (2019-21 data)*

Table 2.7: Multidimensional Poverty Index

Contribution of deprivation in dimension to overall multidimensional poverty			Population living below income Poverty Line (%)	
Health	Education	Standard of Living	National Poverty Line	PPP $1.90 a day
31.9	23.4	44.8	21.9	22.5

Source: UNDP, Human Development Report, 2020-21 (2015-2020 estimates)

India is home to the world's largest number of poor people. According to the 2015-2020 estimates of the Human Development Report, 21.9% of the population of India was below the poverty line. The greatest contributor of deprivation in dimension to overall multidimensional poverty was the standard of living, which contributed 44.8% to multidimensional poverty, followed by health at 31.9%, and education at 23.4%.

I. Natural Resources In India

a) Land

India has the seventh largest landmass in the world, accounting for 3,287,260 km² of the total land area of the world, which is 2.21 % of

the total earth's area. Such a vast landmass has considerable significant on account of the resources.

Forest area, as defined in all the India State of Forest Report (ISFR), is "*all land, more than one hectare in area, with a tree canopy density of more than 10 percent irrespective of ownership and legal status. Such land may not necessarily be a recorded forest area. It also includes orchards, bamboo and palm*", The forest cover in India in 2018-19 is 23.4 % of the total geographical land as against 14.24 % in 1950-51, indicating an increase in forest land over time.

Area under non-agricultural uses constitutes the area for industry and housing, and land occupied by villages, towns, roads, railways, or under water like rivers, lacks, canals, tanks, ponds, etc. Similarly, barren and unculturable land areas include land covered by mountains, deserts etc. Therefore, these lands are not available for cultivation, which accounted for 17. 71 % of the total land area of the country in 1950-51 and decreased to 14.46% in 2018-19.

Table 2.8: Land utilization pattern, 2018-19

Agricultural land by use in India		**Area (million hectares)**
S. No.	**Classification**	**2018-19**
I	Total Geographical Area	328.73
II	Reporting area for land utilization statistics	307.79
	1) Forest (%)	72.01 (23.4)
	2) Not available for cultivation	44.51
	a) Area under non agricultural uses (%)	27.34 (8.88)
	b) Barren & Un-culturable land (%)	17.17 (5.58)
	3) Other Uncultivated land excluding Fallow Land	25.75
	a) Permanent Pastures & other Grazing Land (%)	10.38 (3.37)
	b) Land under miscellaneous Tree crops & Groves not included in Net Area Sown (%)	3.15 (1.02)
	c) Culturable waste Land (%)	12.22 (3.97)
	4) Fallow Land	26.16
	a) Fallow lands other than Current Fallows (%)	11.63 (3.78)
	b) Current Fallow (%)	14.53 (4.72)
	5) Net area sown (%)	139.35 (45.28)
	6) Gross cropped area	197.32

	7) Area sown more than once	57.97
	8) Cropping Intensity	141.6
III	Net Irrigated Area	71.55
IV	Gross Irrigated Area	102.67

Source: Agricultural Statistic at a Glance, 2021

Note: Values in the parenthesis indicates percent

"Culturable wasteland includes land available for cultivation, whether taken up or not taken up for cultivation once, but not cultivated during the last 5 years or more in succession including the current year for some reason or the other. Such land may be either fallow or covered with shrubs and jungles which are not put to any use. They may be accessible or inaccessible and may lie in isolated blocks or within cultivated holdings." The area under this type of land has reduced from 8.07% of the total geographical area in 1950–1951 to 3.97% in 2018–2019.

With the initiation of land reform measures like the abolition of the Zamindari system and tenancy reform, conferring the ownership right of land to tenants resulted in the rapid reclamation of waste and fallow lands during the 1950s.

"Fellow land includes all land which was taken up for cultivation but is temporarily out of cultivation for a period of not less than one year and not more than five years." Fallow lands are further classified into two type viz. fallow lands other than current fallow and current fallows. Current fallow is represented as the cropped area that is kept fallow during the current year, for example, to recover the soil fertility. While cropped areas that remain fallow for 2–5 years are classified as fallow other than current fallow. The possible reasons might be unprofitable farming, poverty among cultivators, inadequate water supply facilities, etc. In 2018-19, the fallow land accounted for 8.5% of the total reporting area.

The net sown area *"represents the total area sown with crops and orchards. Area sown more than once in the same year is counted only once."* In India, net sown area is around 45.28% of the total reporting area for the year 2018-19. The gross/total cropped area is *"the total area sown once and/or more than once in a particular year, i.e. the area is counted as many times as there are sowings in a year"*. About 64.11% of the total reporting area is counted as the total cropped area in 2018-19. The area sown more than once is 18.83 % of the reported area.

b) Forest

Forests, the "*green lungs,*" are vital natural resources for a nation. Directly or indirectly, it influences both the ecology and economy of the world in general and of countries in particular. Forests provide direct benefits through the provision of various ecological services and also act as a savior against environmental degradation on account of decarbonization of the atmosphere, check for climate change and global warming, prevent desertification, land degradation, etc. Besides, the requisite raw materials for various industries, including drugs and pharmaceuticals, domestic staff, defense and communications, are supplied by forests. These, on the other, hand contribute to the exports of the country and create a large volume of employment in the primary, secondary, and tertiary sectors. Therefore, from the perspective of national and human wealth and prosperity, monitoring the status of forests has become crucial to economies.

In India, forest cover has been classified and mapped into three canopy density classes: Very Dense Forest (VDF with a canopy density of 70% and above), Moderately Dense Forest (MDF with canopy a density of 40% and more but not less than 70%), and Open Forest (OF with a canopy density of 10% and more but not less than 40%). Table 2.9 presents the figures for the above classes of forest cover.

Table: 2.9: Forest Cover in India (2021)

Class	Area (km2)	Percentage of geographical area
Very Dense Forest	99,779	3.04
Moderately Dense Forest	3,06,890	9.33
Open Forest	3,07,120	9.34
Total Forest Cover	7,13,789	21.71

Source: State of Forest Report, Govt. of India, 2021

The total forest cover as per the 2021 assessment is 7,13,789 km2, which is 21.71% of the total geographical area of the country. In terms of land area, Madhya Pradesh possesses the largest forested area, spanning 77,493 square kilometers, followed by Arunachal Pradesh with 66,431 square kilometers and Chhattisgarh with 55,717 square kilometers. The most significant growth in forest cover occurred in Andhra Pradesh (647

square kilometers), Telangana (632 square kilometers), and Odisha (537 square kilometers). However, when considering the percentage of a state's total land area, Mizoram boasts the highest forest coverage at 84.53%. Conversely, Haryana has the smallest forested area, covering 1,603 square kilometers, which accounts for just 3.63% of the state's overall geographical expanse. Among Union Territories, Lakshadweep takes the lead with a forest cover equivalent to 90.33% of its total geographical area.

Forest Policy: An Overview

The Forest Policy 1894 was initiated solely to direct forest management towards promoting the well-being of the nation. Thus, adequate forest maintenance was focused primarily on preserving the climate and physical condition of the nation for people's needs.

The government of India has enunciated a new NFP post-independence viz., Foreign Policy 1952. The policy laid emphasis on raising the land area under forest cover to 100 million, or 33%, as a target to wildlife conservation. The policy laid stress on the concept of self-sustenance and thus provided for control of forest under private ownership, encouraged afforestation measures and creation of social forestry, farm forestry, public woodlots and community woodlots to meet the deficient supply of wood. Recognizing the multiple functions and emphasizing the importance of forests in improving soil fertility, watershed management, and wildlife conservation, the Forest Policy 1952 promoted methods for increasing forest productivity. In order to attract finance for forest development, thegovernment has set up 17 autonomous Forest Development Corporations in various states and UTs. A National Wastelands Development Board (NWDB) was again set up in 1985 to bring 5 million hectares of wasteland per year under fuel wood and fodder plantations.

However, the plantations were mainly meant for commercial investment. The local needs of the people were not fulfilled which led to the failure of the Forest Policy 1952. Practically, the prime focus was on producing timber and other forest items, where industry's demand for raw materials was preferred to the masses' demand. Understanding the imperativeness of a new strategy for forest conservation against the massive depletion under earlier policies, the Ministry of Environment and Forests of the Government of India introduced a new Forest Policy in 1988. The policy laid primary focus on meeting local needs and local

participation in conservation, protection, and management of forests. The key highlights of the Forest Policy 1988 are as follows:

1. ***Tribal people and forests:*** Developing a symbiotic relationship between the people and forest by associating them closely in the practice of protection, regeneration, and development of the forest on the one hand and generating employment for people living in and around the forest on the other.
2. ***Shifting cultivation:*** Shifting cultivation has an adverse impact on the environment and reduces soil fertility. Thus, under this policy, an alternative measure for income generation, combined with suitable harmonization for right land use practices, was initiated to discourage shifting cultivation. Confinement of the already affected areas was encouraged in addition to rehabilitation of such damaged areas through social forestry and energy plantations.
3. ***Damage to forests from encroachments, fires, and grazing:*** To arrest the increasing trend of encroachment on forest lands, effective actions have been taken. Moreover, special precautions were taken during the fire season to protect against the large-scale destruction of standing trees, fodder, and natural regeneration. The policy also enunciated the adoption of improved and modern management practices to deal with forest fires. Grazing in forest areas was been regulated with the involvement of the community. Special conservation areas, young plantations, and regeneration areas were fully protected. An adequate grazing fee was levied to discourage people in forest areas from maintaining large herds of non-essential livestock.
4. ***Forest-based industries:*** Forest-based industries were discouraged on the ground that, except for village and cottage industries such industries, require certain norms regarding the assured availability of raw materials. The industry must get its raw materials through a partnership with the local people with the provision of supporting inputs, viz., credit, constant technical advice, and finally harvesting and transport services. The Forest Policy 1988 asserts that the practice of suppling of forest produce to industry at a concessional rate would cease. Again, the import of wood and its related products would be liberalized and at the same time, the use of alternative raw materials was encouraged.

5. ***Forest education and research:*** Infusing forestry both as a scientific discipline and a profession through the development of curricula in agricultural universities, promoting post-graduation research and professional excellence. Acknowledging the significance of forests in regulating environmental health, energy, and employment, weightage has been put forward to strengthen R&D with a special attention to increase productivity of wood and other forest produce, revegetation of barren/marginal/waste/mined lands, and watershed areas.

The Forest Policy of 1988 placed significant importance on strengthening ecological security, sustainable forest management, and participatory forest management. As a result, there has been an increase in forest and tree cover and a reduction in the conversion of forest land for other purposes. However, over the years, concerns related to the low quality and productivity of natural forests, the impacts of climate change, human-wildlife conflicts, water scarcity, air and water pollution, and environmental degradation have gained recognition at various national and international summits and conferences.

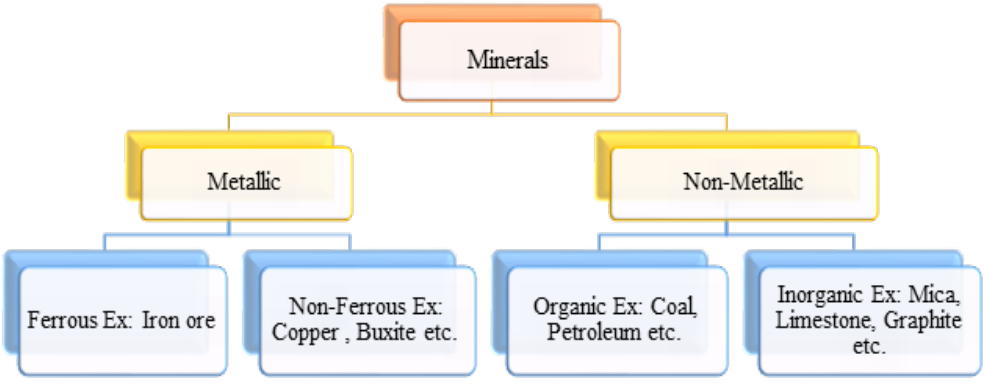
In response to these challenges, the Ministry of Environment, Forest, and Climate Change formulated a new draft National Forest Policy in March 2018. The revised policy aims to address the emerging issues and set new objectives and goals. The highlights of the draft National Forest Policy, 2018, are as follows:

- The policy's objective is to ensure that one-third of the total land area in the country and two-thirds in mountainous regions are covered with forests, thereby contributing to national eco-security goals.
- Strategies have been implemented to sustainably manage forests by addressing various threats such as encroachment, illegal logging, forest fires, invasive weeds, and grazing. This is achieved through the development of working plans/management plans and active community participation.
- Efforts are made to improve the quality and productivity of forests, as they often face degradation and alteration due to factors like land conversion, pollution, overexploitation, deforestation, and their negative impacts on biodiversity and local livelihoods.

- The National Community Forest Management (CFM) Mission has been launched to strengthen participatory forest management. Additionally, agro-forestry, farm forestry, and urban green initiatives, such as woodlands, wetlands, parks, institutional areas with wood resources, gardens, avenue plantations, and block plantations, are promoted outside of forests.
- The policy encourages commercial timber production to achieve self-sufficiency. Moreover, the implementation of credible certification processes is encouraged to increase the value of forest products by providing a premium for certified products.
- Strategic actions, aligned with the REDD+ (Reducing Emissions from Deforestation and Forest Degradation) reference document, are undertaken to enhance forest-based climate change mitigation and adaptation efforts in a sustainable manner.
- The development of a national forest ecosystem management information system is undertaken to facilitate effective forest management.
- Multilateral agreements, commitments, regional instruments, and protocols that directly relate to sustainable forest management, biodiversity conservation, climate change, and the country's commitment to the Sustainable Development Goals are integrated and incorporated into forestry programs, strategies, and plans.

c) Mineral Resources

Minerals are vital natural resources that play a crucial role in the industrial growth of a nation through the provision of raw materials to the core sectors. Minerals are finite and non-renewable in nature and are further categorized as follows:



Over the past seven decades since 1947, the value of mineral production in India, including metallic, non-metallic, and minor minerals, reached ₹ 1,12,632 crores, in 2017-18. The index of mineral production, based on the 2011-12=100 index, increased from 102.5 in 2016-17 to 104.9 in 2017-18, indicating a growth of 2.3% compared to the previous year.

In 2017-18, metallic minerals accounted for ₹ 50,440 crores, or approximately 86% of the total value of mineral production, while non-metallic minerals accounted for ₹ 8,197 crores, or 14%. The production of key minerals such as coal, lignite, crude petroleum, bauxite, chromite, copper ore, iron ore, lead and zinc concentrates, manganese ore, silver, diamonds, limestone, phosphorite, and sillimanite increased during 2017-18 compared to 1947. However, there was a decline in the production of gold and kyanite.

Table 2.10 provides a decade-wise growth in the value of mineral production categorized by groups.

Table 2.10: Decennial growth in the value of mineral production, 1947 to 2017-18@ (By groups) in ₹ Crore

Year	Total	Fuels	Metallic Minerals	Non-Metallic and Minor Minerals
1947	58	45	7	6
1957	127	85	30	12
1967	370	260	47	63
1977	1479	1076	192	211
1987	12221	10539	731	951
1997-98	44193	36498	3284	4411
2007-08	159658	102119	29182	28357
2017-18$ (P)	112632	N.A.	50440	62192

Source: Indian Mineral Industry at a Glance, 2017-18

@ Excluding atomic minerals

$: Excludes the value of fuel minerals for 2017-18

Mineral Policy: An Overview

The management of mineral resources in India is governed by both the central and state governments. The National Mineral Policy was first introduced in March 1993 with the goal of increasing mineral production and attracting private and foreign investments. In 2008, the National Mineral Policy 1993 was replaced by the National Mineral Policy 2008, which brought significant changes to mining laws and regulations.

The introduction of the Mines and Minerals (Development and Regulation) Amendment Act, 2015, led to the implementation of a new auction regime in the mining industry. However, challenges were encountered in the speedy process of mine allotment through auctions. As a result, the Mineral (Auction) Rules, 2015, were amended in 2017, along with the amendment of the Minerals Concession Rules, 2016, and the Mineral Conservation and Development Rules, 2017.

In February 2019, the National Mineral Policy 2019 was approved by the government. The key points of this policy include strengthening the Indian Bureau of Mines and State Directorates of Mining and Geology, incorporating e-governance and remote sensing applications, and extending the role of the state in facilitating and regulating exploration and mining activities.

The policy emphasizes the use of advanced technologies for exploration, encourages private sector exploration, and focuses on the exploration of critical minerals, precious metals, and deep-seated minerals. Collaboration between the Ministry of Earth Sciences and the Geological Survey of India is encouraged for exploration in exclusive economic zone area.

The policy promotes collaboration between national and international scientific and research bodies, universities, professional bodies, and industry to address mineral exploration challenges. Efforts are being made to establish a mining tenement system and a legal framework for zero-waste mining and collaborative mining.

Incentives and permits are provided for equipment and machinery that improve productivity, efficiency, and safety in mining operations. The policy promotes local evacuation networks, eco-friendly modes of evacuation, and the use of coastal waterways and inland shipping.

It emphasizes the development of small mineral deposits to provide

employment opportunities and encourages the extraction of replenishable deposits of beach sand minerals. Rehabilitation and resettlement measures are provided for displaced and affected persons, particularly those belonging to tribal and weaker sections.

The policy establishes the District Mineral Foundation for the devolution of mining benefits to affected areas and focuses on research and development in robotics, automation, deep-sea mining, and the production of high-purity materials for advanced technology applications.

d) Fisheries

India is the second largest fish-producing nation in the world next to China, accounting for 7.56% of global production and contributing about 1.24% to the country's Gross Value Added (GVA) and over 7.28% to the agricultural GVA. The fishery is a rising sector that plays a significant role in the economic growth of the nation. The blue revolution of 1985-1990 in India demonstrates the importance of the sector. The sector provides employment opportunities to the coastal population and a livelihood for over 28 million people in India, especially marginalized and vulnerable communities.

During 2019-20, the fisheries sector witnessed export earnings of ₹ 46,662.85 crores. The average annual growth rate in the fisheries sector has been 7% over the last few years. The sector has produced 162.53 lakh tonnes of fish in FY 2020-21.

In the recent past, Indian fisheries have witnessed a paradigm shift from marine-dominated fisheries to inland fisheries, with the latter emerging as a major contributor to fish production from 36% in the mid-1980s to 70% in the recent past. Within inland fisheries, a shift from capture to culture-based fisheries has paved the way for a sustained blue economy. The absolute growth of inland fisheries has been realized, but potential development is yet to be witnessed as vast and varied resources remain unutilized and underutilized: 191,024 km of rivers and canals, 1.2 million Ha of floodplain lakes, 2.36 million Ha of ponds and tanks, 3.54 million Ha of reservoirs, and 1.24 million Ha of brackish water resources.

Schemes and programmes:

a)***Pradhan Mantri Matsya Sampada Yojana (PMMSY):*** On May 20, 2020, the cabinet approved the Pradhan Mantri Matsya Sampada Yojana (PMMSY) as part of the Aatmanirbhar Bharat COVID-19 relief

package. This scheme aims to bring about a Blue Revolution by promoting sustainable and responsible development of the fisheries sector. It was officially launched on September 10, 2020. The total investment in the scheme is ₹ 20,050 crores, which includes a central share of ₹ 9,407 crores, state share of ₹ 4,880 crores, and beneficiaries' contributions of ₹ 5,763 crores. The implementation of the scheme will span a period of five years, from FY 2020-21 to FY 2024-2025, covering all states and Union Territories.

The Pradhan Mantri Matsya Sampada Yojana (PMMSY) is a scheme launched as part of the Aatmanirbhar Bharat COVID-19 relief package to promote the development of the fisheries sector. It involves a significant investment of ₹ 20,050 crores over a period of five years, with contributions from the central government, state governments, and beneficiaries themselves. The scheme aims to bring about sustainable and responsible growth in the fisheries sector.

b)Implementation of FIDF: In 2018-19, the Department of Fisheries and Ministry of Fisheries, Animal Husbandry, and Dairy established the Fisheries and Aquaculture Infrastructure Development Fund (FIDF) to address the infrastructure needs of the fisheries sector. The fund has a size of ₹ 7,522.48 crores. The main objective of FIDF is to provide concessional finance to Eligible Entities (EEs), including state governments/union territories and state entities, for the development of identified fisheries infrastructure facilities. The fund is administered through Nodal Loaning Entities (NLEs), namely the National Bank for Agriculture and Rural Development (NABARD), the National Cooperatives Development Corporation (NCDC), and all scheduled banks. Under FIDF, the Department of Fisheries provides an interest subvention of up to 3% per annum on concessional finance provided by the NLEs, ensuring that the interest rate is not lower than 5% per annum. The loan period under FIDF is five years, from 2018-19 to 2022-23, with a maximum repayment period of 12 years, including a moratorium of 2 years on the repayment of the principal. The Fisheries and Aquaculture Infrastructure Development Fund (FIDF) was created to address the infrastructure requirements of the fisheries sector. It provides concessional finance to eligible entities for the development of fisheries infrastructure facilities. The fund is managed by NLEs, including NABARD, NCDC, and scheduled banks. The Department of Fisheries offers interest subventions to ensure affordable financing, and the loan repayment period is spread over several years. The objective is to

improve the infrastructure supporting the fisheries sector's growth and development.

c)***National Fisheries Policy, 2020:*** Following are the highlights of National Fisheries Policy 2020 related to marine and inland fisheries:

Marine Fisheries:

2.2 Enhancing fishers' skills and capacities to exploit deep-sea resources.

2.3 Protecting biodiversity in production processes, reviewing Marine Protected Areas, and safeguarding traditional fishers' livelihoods.

2.4 Implementing the Ecosystem Approach to Fisheries Management, considering the marine ecosystem and stakeholders' well-being.

2.5 Promoting participatory or co-management approaches.

2.6 Encouraging entrepreneurship, technology availability, public-private partnerships, and institutional finance for the marine fisheries sector.

2.7 Establishing an effective monitoring, control, and surveillance (MCS) system in coordination with coastal states and involving the community.

2.8 Combating illegal, unreported, and unregulated (IUU) fishing by national and foreign vessels.

Inland Fisheries:

1. Reducing pollution in rivers and tributaries to protect the ecosystem.
2. Ensuring sufficient water flow in rivers to sustain fisheries.
3. Restoring connections between rivers and floodplains to utilize their ecosystem services.
4. Protecting riverine stretches and floodplains to sustain endemic species through protected areas and management measures.
5. Revitalizing rivers and floodplains to utilize their ecosystem services effectively.
6. Implementing leasing policies and empowering local communities in resource management.
7. Providing the necessary infrastructure for seed production and stocking.

Ii. Demograpgic Transition In India

Theory of Demographic Transition

The theory of demographic transition suggests that economic development is accompanied by a three-stage sequence of changes in birth and death rates. In the first stage, which corresponds to an agrarian economy, both death and birth rates are high. During this stage, the high death rates can be attributed to factors such as poor nutrition, limited access to sanitation, and inadequate medical care. These conditions particularly affect infants and young children, leading to increased mortality rates. At the same time, the high birth rates at this stage are influenced by various factors. Illiteracy and a lack of knowledge about family planning methods make it challenging for individuals to control their fertility. Early marriages contribute to longer reproductive periods, resulting in higher fertility rates. Cultural beliefs and customs also play a role, with larger families seen as desirable or children considered a form of security in old age. Despite the high birth rates, the overall population growth during this stage is not necessarily rapid. The high death rates offset the high birth rates, resulting in relatively low actual population growth. Although there is a potential for significant growth due to the large number of births, the reality is different due to the mortality rates.

During the second phase of the demographic transition, an increase in income levels allows people to enhance their dietary choices. Economic development also leads to overall improvements, including advancements in transportation that ensure a regular supply of food. These factors collectively result in a decrease in the death rate. Consequently, although the birth rate remains high, the declining death rate significantly contributes to its rapid reduction. This acceleration in population growth stems from realizing the first stage's high growth potential, primarily driven by the decline in mortality rates. The combination of a high birth rate and a declining death rate contributes to the growth of the average family size in the second stage.

The third stage of demographic transition occurs due to economic development, which transforms the economy from predominantly agrarian to partially industrialized. With industrialization, the population tends to shift away from rural areas towards industrial and commercial centers. Urbanization increases, and the development of economic roles for women outside the home leads to the possibility of achieving economic

prosperity with smaller families. In an urban setting, children are often seen as more of a burden and less of an asset compared to rural areas. Economic development typically brings a consciousness of maintaining a reasonable standard of living, which leads to a reduction in family size. Since the death rate is already low, achieving a reasonable standard of living can only be possible if the birth rate decreases. Therefore, the characteristics of the third stage include low birth rates, low death rates, small family sizes, and a low population growth rate. This stage marks the beginning of a decline in population.

a) Population trend:

India has witnessed a slow pace of population growth in recent years.

Table 2.11: Annual population growth rate of India (%)

Year	1961	1971	1981	1991	2001	2011	2021
Growth Rate (%)	2.30471	2.21701	2.27589	2.10189	1.80845	1.36159	0.79722

Source: World Bank

Table 2.11 shows a gradual decrease in the growth rate of poulation over the years. In 1961, the growth rate was 2.30%, which gradually decreased to 0.80% in 2021. This indicates a decreasing trend in population growth. During the initial period from 1961 to 1981, India experienced relatively high population growth rates, ranging from 2.21% to 2.28%. This was a time when birth rates were high, and the country was undergoing social and economic changes. However, from 1991 onwards, the growth rate started to decline consistently. By 2021, it had dropped to 0.80%. This decline can be attributed to various factors, such as increased awareness and accessibility to family planning methods, improved healthcare facilities, better education, and urbanization.

It is noteworthy that the historically recognized high-populated states of Bihar, Uttar Pradesh, Rajasthan, and Haryana have observed a declining population growth rate (Annexure 1). While states such as Chandigarh, Dadra and Nagar Haveli, and Nagaland experienced exceptionally high population growth rates during various decades. Chandigarh had a remarkable growth rate of 394.13% from 1951-1961, indicating rapid urbanization and migration to the city. Dadra and Nagar

Haveli witnessed significant growth rates, suggesting factors like migration and favourable demographic dynamics. Nagaland experienced a surge in population growth in the earlier decades, possibly due to increased birth rates, reduced mortality, and migration. Many states, including Andhra Pradesh, Assam, Bihar, Gujarat, Karnataka, Madhya Pradesh, Maharashtra, Punjab, Rajasthan, Tamil Nadu, and Uttar Pradesh, had moderate growth rates during different periods. These states exhibited steady population growth due to factors like natural increases, economic opportunities, and regional development. Again, some states, such as Kerala, Mizoram, and Tripura, had relatively lower growth rates compared to the national average. Kerala's growth rate has consistently declined over the decades, reflecting the state's success in achieving social development, education, and effective family planning programs. Mizoram and Tripura experienced a decline in growth rates, possibly due to improved healthcare, awareness, and socioeconomic conditions.

b) Sex Composition

The sex composition of the human population is a fundamental demographic characteristic that is crucial for conducting meaningful demographic analysis. One key measure used to describe the sex composition is the sex ratio, which represents the number of females per 1000 males. The sex ratio for India as a whole has shown a gradual improvement over time, moving closer to parity. This can be attributed to efforts made to address gender inequalities, awareness campaigns, and legal interventions.

Table 2.12: Sex ratio in India

Year	Females per 1000 males
1901	972
1911	964
1921	955
1931	950
1941	945
1951	946
1961	941
1971	930
1981	934
1991	927
2001	933
2011	940

Source: Census of India, 2011

From 1901 to 1951, there was a gradual decline in the sex ratio, indicating a decreasing number of females per 1000 males. This decline may be attributed to various factors, including cultural preferences for male children, gender-based discrimination, and social practices such as female infanticide. Between 1951 and 1981, the sex ratio remained relatively stable, with a slight improvement noticed in certain years. Government initiatives and societal awareness campaigns during this period may have contributed to the stabilization of the sex ratio. From 1981 to 2011, the sex ratio in India showed some fluctuations, but overall, there was a slight increase. These fluctuations could be attributed to changing social dynamics, an increased focus on gender equality, and efforts to combat gender-based discrimination. Despite the slight improvement over the years, the sex ratio in India still indicates a gender imbalance, with fewer females than males in the population. Socio-cultural factors, such as son preference, the dowry system, and limited access to education and healthcare for women, continue to contribute to this imbalance.

There are significant variations in sex ratios among different states (Annexure 2), indicating diverse socio-cultural and demographic factors at play. States like Kerala and Punjab consistently show higher sex ratios, indicating a relatively better gender balance. States like Himachal Pradesh, Rajasthan, and Haryana consistently exhibit lower sex ratios, suggesting gender imbalances and deep-rooted cultural biases.

The sex ratio is influenced by various socio-cultural factors such as son preference, the dowry system, female infanticide, and gender-based discrimination. Regions with stronger patriarchal norms and practices tend to have lower sex ratios, while those with progressive social attitudes and women empowerment initiatives tend to have higher ratios. Again, economic development and education can contribute to improved gender ratios by reducing gender-based discrimination and providing better opportunities for women. States with higher levels of economic development, such as Kerala and Tamil Nadu, tend to have higher sex ratios, reflecting the positive impact of social and economic factors.

Government policies and interventions, such as implementing laws against sex determination tests and promoting girls' education, can positively impact the sex ratio. Efforts to create awareness about gender equality, women's rights, and the consequences of gender imbalances have

also played a crucial role. Factors related to healthcare, access to prenatal services, and maternal health can also influence the sex ratio. States with better healthcare infrastructure and awareness programs regarding the importance of gender balance may have more favorable sex ratios. Rapid urbanization and migration patterns can also affect the sex ratio within states. Urban areas may witness higher gender imbalances due to social and economic factors, including labor migration and skewed sex ratios in certain occupations.

c) Density of population

The density of population is an important measure that represents the number of people per square kilometre of land area. In the case of India, according to the 2011 census, the density of population in the country was 382 persons per square kilometre, indicating that India is one of the most densely populated countries in the world. The density of population helps determine the burden that land carries and its future growth potential. India is already considered a highly crowded populated nation, and further additions to the population are likely to increase the burden on the land. Whether a particular region is deemed to be densely populated, sparsely populated, or adequately populated is contingent upon both its population size and the region's capacity to support that population.

Table 2.13: Density of population (percentage share)

Census year	Density of population (per sq. km)
1901	77
1911	82
1921	81
1931	90
1941	103
1951	117
1961	142
1971	177
1981	216
1991	267
2001	325
2011	382

Source: Census of India, 2011

It is important to note that the density of the population is not a definitive indicator of either poverty or prosperity. Countries with low population densities can have both high and low levels of development, while densely populated countries can exhibit different economic outcomes. Other factors such as resource availability, economic development, and quality of life also play significant roles in determining the overall well-being of a population.

d) Birth Rate, Death Rate, and Infant Mortality Rate

The birth rate represents the number of births per 1,000 individuals in a population. It is an indicator of population growth. The age of marriage among females highly influences the fertility rate. According to "The American College of Obstetricians and Gynaecologists" the age between late teens and late 20s is the peak reproductive years of a woman and by age 30, fertility starts declining. Generally, the mean age of marriage in India is comparatively lower than in most developed nations. However, the passing of the Sharda Act, or the Child Marriage Restraint Act, in 1929 made some impact and increased the mean age of marriage for females to 14 years and later up to 15 years in 1955. In 2006, the Prohibition of Child Marriage Act was passed, which further improved the median age of first marriage (among women 20–49 years of age) to 19.2 years in 2019-21 as against 17.2 years in 2005-06.

In 2010, Uttar Pradesh had the highest birth rate at 28.3, followed by Bihar and Madhya Pradesh. In 2020, Uttar Pradesh still had the highest birth rate at 25.1, followed by Bihar and Madhya Pradesh (Annexure 4). Overall, birth rates have declined from 2010 to 2020 in most states and union territories, indicating a general trend of decreasing fertility rates across the country. The decline in birth rates can be attributed to factors such as increased urbanization, improved education, women's empowerment, and better access to family planning services. These factors contribute to a decline in the desired family size and increased use of contraception.

The death rate represents the number of deaths per 1,000 individuals in a population. It indicates the overall mortality level. In both 2010 and 2020, Chhattisgarh had the highest death rate, followed by Odisha and Madhya Pradesh. The death rates have generally decreased from 2010 to 2020 in most states and union territories, suggesting improvements in healthcare infrastructure, access to medical facilities, advancements in medical technology, and awareness about disease prevention have

contributed to the decrease in death rates. Additionally, government initiatives focusing on healthcare and sanitation have played a crucial role in reducing mortality rates.

The infant mortality rate represents the number of deaths of infants under one year of age per 1,000 live births. It reflects the health and well-being of newborns. In 2010, Madhya Pradesh had the highest IMR at 62, followed by Odisha and Assam. In 2020, Madhya Pradesh still had the highest IMR at 43, followed by Odisha and Assam. Infant mortality rates have decreased from 2010 to 2020 in most states and union territories, indicating improvements in healthcare and infant survival rates. Efforts to improve maternal and child healthcare, immunization programs, better access to healthcare facilities, and awareness about prenatal and postnatal care have helped reduce infant mortality rates. Government schemes and initiatives targeting maternal and child health have also played a significant role in improving infant survival rates.

e) Life expectancy at birth and Total Fertility Rate (TFR)

The declining TFR is a key driving force behind the steady decline in population growth rate. Annexure 3 shows the TFR across states and UTs in India. It reveals that Indian states and UTs are following a declining trend in their total fertility rate.

Table 2.14: Life Expectancy at birth & total fertility rate of India

	Life expectancy at birth (in years)						**Total fertility rate (TFR)**	
All India	2010-14			2014-18			**2010**	**2020**
	Male	Female	Total	Male	Female	Total	Total	Total
	66.4	69.6	67.9	68.2	70.7	69.4	2.5	2.2

Source: Office of the Registrar General of India, Ministry of Home Affairs

For the period 2010-2014, the life expectancy at birth for males was 66.4 years, and for females, it was 69.6 years. The overall average life expectancy for this period was 67.9 years. During the period 2014-2018, there was an improvement in life expectancy. The life expectancy at birth for males increased to 68.2 years, and for females, it increased to 70.7 years. The overall average life expectancy for this period was 69.4 years.

In 2010, the total fertility rate in India was 2.5, indicating that on average, each woman would have 2.5 children in her lifetime. By 2020, the total fertility rate had decreased to 2.2, suggesting a decline in the average number of children born per woman.

The data shows a positive trend in life expectancy at birth in India. Both males and females experienced increased life expectancy between 2010-2014 and 2014-2018. This indicates improvements in healthcare, access to medical facilities, and overall well-being. The total fertility rate in India has been decreasing. This decline can be attributed to various factors, such as increasing urbanization, education, and women's empowerment. A lower total fertility rate often indicates improved access to family planning services, increased awareness about contraception, and a shift towards smaller family sizes. These trends in life expectancy and total fertility rate are significant for India's population dynamics. Increasing life expectancy suggests a need for healthcare and social support for the ageing population, while a declining total fertility rate has implications for future population growth, resource allocation, and demographic transition in the country.

III. National Income

2.8.1.1 Meaning of National Income

National income represents the total value of all goods and services produced within a country's borders during a specific period, typically a financial year. It encompasses both tangible goods like clothes, cars, and food items as well as intangible services such as banking, healthcare, and education.

In India, the government's financial year runs from April 1 to March 31. The Central Statistical Office (CSO) is responsible for computing national income and categorizing the Indian economy into three sectors: the primary sector, the secondary sector, and the tertiary sector. The combined value of all the goods and services produced in these sectors during a financial year represents the national income. This indicator provides an overall measure of the economic output and productivity of a country.

It is important to note that national income can be influenced by various factors, such as changes in production levels, consumption patterns, investment activities, government policies, and external economic conditions. Monitoring national income helps in assessing the economic

growth and development of a nation and serves as a basis for formulating economic policies and planning future strategies.

b)National income indicators

National income indicators are important measures used to assess the overall economic activity and performance of a country. Some key indicators include:

1. Gross Domestic Product (GDP): GDP is the total value of all final goods and services produced within a country's borders during a specific period, usually a year. It encompasses the output of agriculture, industry, and the service sector.

2. Gross National Income (GNI): GNI takes into account the net income from abroad. It adjusts GDP by adding the income earned by domestic factors of production abroad and deducting the income earned by foreign factors of production within the domestic economy.

3. Net National Product (NNP): NNP is derived from GNI by subtracting depreciation. It represents the aggregate income available to residents after accounting for the wear and tear of capital goods.

4. Net Domestic Product (NDP): NDP is obtained by deducting depreciation from GDP. It reflects the net value of output produced within the domestic economy after accounting for capital consumption.

GDP and GNI are commonly used indicators, while NNP and NDP provide a measure of income adjusted for depreciation.

The calculation of GDP and GNI can be done at market prices or factor costs. ***Market price GDP*** includes indirect taxes but excludes subsidies, while ***factor cost GDP*** accounts for subsidies but excludes indirect taxes. Similarly, GNI, NNP, and NDP can be calculated at market prices or factor costs, with adjustments made for indirect taxes and subsidies. Another important concept is ***Gross Value Added (GVA),*** which measures the value generated by an economic unit (such as a company or industry) through production. GVA at basic prices is derived from GDP at market prices by subtracting production taxes and adding production subsidies. Overall, these indicators put forth a complex view of a nation's economic achievements and help analyze income distribution, savings, and capital formation.

c)Methods of calculating national income

In India, national income can be measured using three methods: Expenditure method, Product method and Income method.

i) Expenditure Method: This method calculates national income by adding up the total expenditure on final goods and services within the economy. It takes into account consumption expenditure, investment expenditure, government spending, and net exports (exports minus imports). The formula for GDP under the expenditure method is:

$$GDP = C + I + G + (X - M)$$

This method helps capture aggregate demand and spending patterns within the economy. It is commonly used in calculating national income in the construction sector.

ii) Product Method: The product method measures national income by summing up the total value of all final goods and services produced within the economy. It involves adding up the value of output from all sectors and deducting the value of intermediate goods and services (those used in the production process). This method helps assess the overall production activity in the economy. However, there is a potential issue of double-counting if the value of intermediate goods is not properly accounted for. The product method is commonly used in calculating national income in the agriculture sector.

iii) Income Method: The income method measures national income by considering the total income earned by factors of production, such as wages, profits, interest, and rent. It focuses on the distribution of income among different factors and sectors of the economy. The formula for GDP using the income method is:

$$GDP = Wages + Profits + Interest + Rent$$

This method provides insights into the income distribution and helps analyze the contribution of different factors to the national income. It is the most widely used measure of national income.

d) Trend of National Income Growth

During the period 1951-1980, India experienced a slow growth rate in its national income. The growth rate during the first five-year plan was higher than the desired growth rate. However, in the subsequent plans,

the realized growth was lower than the targeted growth. This period is often referred to as the "Hindu rate of growth," characterized by a sluggish growth rate of around 3.5% and per capita income growth of 1.3%. The period from 1980-1990 is the phase of economic buoyancy and recovery. In the 1980s, India witnessed a higher growth rate compared to the previous decade. The sixth and seventh five-year plans saw growth rates of 5.3% and 5.8%, respectively. This growth was attributed to higher government expenditure, liberalized import policies, and increased production in various sectors.

After implementing economic reforms in 1991, India experienced higher growth rates during the eighth five-year plan (1992-1997) with a growth rate of 6.5%. However, the growth rate dipped in the ninth plan (1997-2002) due to the failure of the manufacturing and agriculture sectors. The tenth plan (2002-2007) witnessed a great turnaround with a growth rate of 7.6%, driven by the services, construction, and manufacturing sectors.

In recent years, India's GDP growth averaged 7.3% from 2014-2015 to 2017-2018, which was higher than the global average and the average growth achieved by emerging markets and developing economies. However, the actual growth rate during the 11th (2007-2012) and 12th (2012-2017) five-year plans was lower than the targeted growth rates.

IV. Social Infrastructure

Concept

The ultimate goal of planned development is to ensure the well-being of people through sustainable development, focusing on improving the quality of life for the poor and vulnerable populations. In terms of specific measures, there is a need to prioritize the development of social sectors and programs. Investing in education and healthcare is crucial for achieving this objective.

To develop the education sector, substantial investment is required in primary, upper primary, secondary, and higher secondary schools to enable people to access education. This necessitates investment in school buildings, equipment, and the provision of teachers and support staff. Efforts have expanded from urban to rural, hilly, and tribal areas to ensure education reaches all regions. Since independence, the government

has taken on the responsibility of expanding education. At the higher education level, investment is required in colleges, universities, and research institutions to enhance the knowledge and skills of students. Additionally, vocational education should be improved by expanding institutes of technology, engineering colleges, medical institutions, and other specialized institutes to train technical professionals at various levels.

To improve healthcare, there is a need to establish hospitals for allopathic, homeopathic, unani, and ayurvedic medicines. In rural areas, the expansion of medical facilities necessitates the establishment of Community Health Centers (CHCs), Primary Health Centers (PHCs), and sub-centers (SCs). Rural populations can benefit from district and sub-district hospitals for more serious illnesses. To achieve all these goals, training programs for doctors, nurses, and paramedical personnel are necessary to provide services to the people. This implies the development of both physical and human infrastructure.

a) Education

Education is an investment made in human resources, which further acts as a catalyst for factors that contribute to economic development. In order to provide free and compulsory education for all children until the age of fourteen, the Indian government established the Education Commission in 1966. The commission, led by Dr. D.S. Kothari, emphasized the crucial relationship between education and productivity, as well as the importance of education for national and economic development. It was recommended that education expenditure be gradually increased to 6% of GDP over a 20-year period.

The 42nd Amendment to the Constitution in 1976 made education a concurrent responsibility of both the central and state governments. Subsequently, the 86th Amendment introduced Article 21-A, which made free and compulsory education a fundamental right for children aged 6-14. In line with this legislation, the Right to Education Act was enacted in 2009.

The government also issued several National Policy Statements on education in 1968, 1986, and 1992, highlighting the need to eradicate illiteracy and provide universal elementary education in the shortest possible time. Vocational and technical education at the secondary level, as well as the improvement and expansion of higher education,

have been emphasized. Equity in education based on gender, caste, and socioeconomic groups, particularly for Scheduled Castes and Scheduled Tribes, has been a key focus. The government has made efforts to reduce regional disparities in educational planning.

Institutions:

Overall, the Indian government has prioritized education as an investment in human resources and an essential factor for economic growth. Various legislative amendments, policy statements, and initiatives have been implemented to ensure universal access to quality education.

Table 2.15 shows the number of institutions for the year 2010-11. Here, the number of institutions has been categorized into two major types: school education and higher education. The data provides a snapshot of the educational landscape in India in 2010-2011. It showcases the significant number of institutions dedicated to both school education and higher education. The number of primary schools is substantially higher than the upper primary, secondary, and senior secondary schools, indicating a larger emphasis on early education.

In the higher education sector, the presence of numerous universities, both central and state, highlights the availability of undergraduate and postgraduate programs across the country. The presence of open universities and institutions offering specialized diplomas reflects the diverse educational opportunities available to students.

Table 2.15: Number of education institutions by type (2010-11)

School Education	Type		Number
	Primary		748547
	Upper Primary		447600
	Secondary		128370
	Senior Secondary		71814
	Total		1396331
Higher Education	Universities	Central University	41
		State Public University	281
		Deemed University	131
		State Private University	87
		Central Open University	1
		State Open University	13
		Institution of National	
		Importance	59
		Institutions under State	
		Legislature Act	5
		Others	3
		Total	621
	College	32974	
		Diploma Level Technical	3586
		PGDM	496
	Stand Alone Institution	Diploma Level Nursing	2133
		Diploma Level Teacher	
		Training	4929
		Total	11144

Enrolment:

The data provided in Table 2.16 gives an overview of the enrollment in schools and higher education at various levels. In terms of school

education, there is a significant enrollment at the primary level, indicating efforts to provide access to basic education for both boys and girls. The enrollment decreases at the upper primary and secondary levels, which could be due to various factors such as dropouts or transitions to other educational streams.

In higher education, enrollment is relatively lower compared to school education. The number of students pursuing Ph.D., M.Phil, postgraduate, and undergraduate programs indicate the focus on advanced studies and specialization. Enrollment in diploma and certificate programs suggests the inclusion of vocational and skill-based education.

The gender distribution shows that both boys and girls are actively participating in education at all levels, with relatively equal enrollments. This highlights the importance of promoting gender equality in education. Overall, the theoretical analysis indicates that efforts have been made to provide education at different levels, from primary to higher education. The data reflects the engagement of both boys and girls in the pursuit of education, emphasizing the significance of inclusive and accessible educational opportunities.

Table 2.16: Level wise enrolment in schools & higher education (2010-11)

Level	All Categories (in '000')		
	Boys	Girls	Total
Primary (I-V)	70468	64849	135317
Upper Primary (VI-VIII)	32808	29248	62056
Elementary (I-VIII)	103276	94097	197373
Secondary (IX-X)	17453	14326	31779
I-X	120729	108423	229152
Senior Secondary (XI-XII)	10848	8568	19416
I-XII	131577	116991	248568
Ph.D	48	30	78
MPhil	12	13	25
Post Graduate	1814	1456	3270
Under Graduate	12118	9854	21972
PG Diploma	90	50	140
Diploma	1281	532	1813
Certificate	67	77	144

Integrated	36	21	57
Higher Education - Total	15466	12033	27499

b) Health

The health of the population is a matter of great national importance and is closely linked to overall development. A healthy population is not only a goal in itself but also crucial for social and economic progress. India's healthcare system is currently facing significant changes in disease patterns, influenced by demographic shifts and the control of communicable diseases. Since independence, there have been notable improvements in health conditions and the healthcare sector, driven by advancements in knowledge, technology, and the political and economic landscape. Life expectancy has increased from 32 years at the time of independence to 61 years in 1996. Infant mortality rates have decreased from 146 deaths per 1000 births in the 1950s to 72 in 1998. However, progress in reducing infant mortality has slowed down since1990s, and the nutritional status of children under five has improved slowly. Malnutrition affects nearly half of all children under five, and a significant number of children and women suffer from anemia. Emerging health threats, such as HIV, are straining the capacity of the healthcare system. It is estimated that 3.7 million people in India are living with HIV, and the virus has spread beyond high-risk groups to the general population in some states.

Despite improvements, India still faces significant challenges in healthcare. The country initiated a national population control program in 1951, and although the total fertility rate has declined, it remains higher than in most other Asian countries. Given the uncertainties and the emergence of new epidemic diseases, it is crucial to closely monitor and direct healthcare programs to meet the population's health needs. An efficient health information system is essential for effective healthcare administration and achieving the goal of "Health for All". This system should not only include health-related information like population health status, morbidity, availability of healthcare facilities, and healthcare professionals but also encompass demographic, environmental, and socio-economic data. These data are necessary for assessing current conditions, setting goals, and evaluating achievements. A robust system for collecting health and related statistics is vital for preparing effective health plans, administering and coordinating healthcare programs, studying health-related issues, and evaluating program effectiveness and efficiency.

Medical Infrastructure:

Table 16 shows a total of 13,01,319 registered allopathic doctors. However, it's important to note that this number represents registered doctors, and the actual number of actively practicing doctors may be lower. The doctor-population ratio of 1:834 indicates the number of doctors available per 834 individuals in the population. This ratio provides a rough estimate of the doctor-to-patient ratio, which gives an idea of the overall availability of medical practitioners. A lower ratio generally indicates better access to healthcare services, while a higher ratio may indicate potential challenges in accessing timely medical care.

The presence of 5.65 lakh Ayush (Ayurveda, Yoga, Unani, Siddha, and Homoeopathy) doctors highlights the integration of traditional and alternative medicine systems in India's healthcare framework. Ayush practitioners offer non-allopathic treatment options, focusing on holistic approaches to health and wellness.

Table 2.17: Health facilities

Registered Allopathic doctors*	13,01,319
Doctor Population Ratio	1:834
Ayush Doctors	5.65**
Registered Dentists	2.84**
Nursing Personals	32.63**
Allied and Healthcare Professionals	13**

Source: Ministry of Health and Family Welfare, GOI

Note: * with state medical council and National Medical Commission, 2021, ** in lakh

With 2.84 registered dentists, there seems to be a relatively lower number of dental professionals compared to allopathic doctors. This could imply that dental care may face some challenges in terms of availability and access, especially in certain regions or rural areas.

The availability of 32.63 nursing personnel indicates the presence of a substantial workforce to support medical care delivery. Nurses play a critical role in providing patient care, assisting doctors, and contributing to various healthcare settings. Their presence is vital for the smooth functioning of healthcare facilities.

The presence of 13 allied and healthcare professionals highlights the diversity of roles and expertise in the healthcare sector. These professionals include medical technologists, radiographers, physiotherapists, occupational therapists, and other specialists who support the diagnosis, treatment, and rehabilitation of patients.

Again, the government has initiated an increase in the total number of seats at undergraduate and postgraduate levels in order to increase the availability of doctors in the country.

Table 2.18: Availability of seats

Seats	Before 2014	After 2014	% increase
UG seats	51348	89875	75
PG seats	31185	60202	93

Source: Ministry of Health and Family Welfare, GOI

From Table 2.18, it can be observed that after 2014, there has been a 75% increment in the seats for undergraduate courses in medical colleges. Similarly, postgraduate seats have increased by 93%.

New Initiatives:

- A total of 157 new medical colleges have been approved under the centrally sponsored scheme; 71 are already functional.
- A total of 75 projects have been approved under the central sector scheme, and 55 have been completed for upgradation of government medical colleges by the construction of super specialty blocks.
- Under the same scheme, a total of 22 new AIIMS have been set up, and undergraduate courses have been started in 19 AIIMS.
- The age limit for the appointment/ extension/ reemployment against the posts of teachers/ dean/ principal/ director in medical collages have been enhanced to 70 years.

ANNEXURE 1

STATE-WISE DECADAL GROWTH RATE OF POPULATION

(Per cent)

States/Union	1951-1961	1961-1971	1971-1981	1981-1991	1991-2001	2001-2011
Andaman and Nicobar	105.19	81.17	63.93	48.7	26.9	6.86
Andhra Pradesh	15.65	20.9	23.1	24.2	14.59	10.98
Arunachal Pradesh	-	38.91	35.15	36.83	27	26.03
Assam	34.98	34.95	23.36	24.24	18.92	17.07
Bihar	19.79	20.91	24.16	23.38	28.62	25.4
Chandigarh	394.13	114.59	75.55	42.16	40.28	17.09
Chhattisgarh	22.77	27.12	20.39	25.73	18.27	22.61
Dadra and Nagar Haveli	39.56	27.96	39.78	33.57	59.22	55.88
Daman and Diu	-24.56	70.85	26.07	28.62	55.73	53.76
NCT of Delhi	52.44	52.93	53	51.45	47.02	21.21
Goa	7.77	34.77	26.74	16.08	15.21	8.23
Gujarat	26.88	29.39	27.67	21.19	22.66	19.28
Haryana	33.79	32.22	28.75	27.41	28.43	19.9
Himachal Pradesh	17.87	23.04	23.71	20.79	17.54	12.94
Jammu and Kashmir	9.44	29.65	29.69	30.89	29.43	23.64
Jharkhand	19.69	22.58	23.79	24.03	23.36	22.42
Karnataka	21.57	24.22	26.75	21.12	17.51	15.6
Kerala	24.76	26.29	19.24	14.32	9.43	4.91
Lakshadweep	14.61	31.95	26.53	28.47	17.3	6.3
Madhya Pradesh	24.73	29.28	27.16	27.24	24.26	20.35
Maharashtra	23.6	27.45	24.54	25.73	22.73	15.99
Manipur	35.04	37.53	32.46	29.29	24.86	24.5
Meghalaya	27.03	31.5	32.04	32.86	30.65	29.95
Mizoram	35.61	24.93	48.55	39.7	28.82	23.48
Nagaland	73.2	39.88	50.05	56.08	64.53	-0.58
Odisha	19.82	25.05	20.17	20.06	16.25	14.05
Puducherry	16.34	27.81	28.15	33.64	20.62	28.08
Punjab	21.56	21.7	23.89	20.81	20.1	13.89
Rajasthan	26.2	27.83	32.97	28.44	28.41	21.31
Sikkim	17.76	29.38	50.77	28.47	33.06	12.89
Tamil Nadu	11.85	22.3	17.5	15.39	11.72	15.61
Tripura	78.71	36.28	31.92	34.3	16.03	14.84
Uttar Pradesh	16.38	19.54	25.39	25.61	25.85	20.23
Uttarakhand	22.57	24.42	27.45	23.13	20.41	18.81
West Bengal	32.8	26.87	23.17	24.73	17.77	13.84
ALL INDIA	**21.51**	**24.8**	**24.66**	**23.87**	**21.54**	**17.7**

Source: Office of the Registrar General and Census Commissioner, Ministry of Home Affairs, Government of India.

ANNEXURE 2

SEX RATIO (FEMALES PER 1000 MALES) IN MAJOR STATES OF INDIA						
State	Sex Ratio					
	1931	1961	1981	1991	2001	2011
Kerala	1022	1022	1032	1040	1058	1084
Tamil Nadu	1027	992	977	972	986	995
Andhra Pradesh	987	981	975	972	978	992
Odisha	1067	1001	981	972	972	978
Himachal Pradesh	897	938	973	996	970	974
Karnataka	965	959	963	960	964	968
West Bengal	890	878	911	917	934	947
Assam	874	869	910	925	932	935
Madhya Pradesh	973	953	941	932	920	930
Rajasthan	907	908	919	913	922	926
Maharashtra	947	936	937	936	922	925
Gujarat	945	940	942	936	921	918
Bihar	994	994	946	912	921	916
Uttar Pradesh	904	909	885	882	898	908
Punjab	815	854	879	888	874	893
Haryana	844	868	870	874	861	877
India	**950**	**941**	**934**	**927**	**933**	**940**
Source: Census of India (2011)						

ANNEXURE 3

LIFE EXPECTANCY AT BIRTH & TOTAL FERTILITY RATE FOR MAJOR STATES								
State	Life expectancy at birth (in years)						Total fertility	
	2010-14			2014-18			2010	2020
	Male	Female	Total	Male	Female	Total	Total	Total
Andhra Pradesh	66.3	70.8	68.5	68.7	71.4	70	1.8	1.5
Assam	62.7	65.5	63.9	66.1	67.9	66.9	2.5	2.1
Bihar	67.8	68.4	68.1	69.4	68.7	69.1	3.6	3
Gujarat	66.6	71	68.7	67.8	72.3	69.9	2.5	2
Haryana	66.3	71.3	68.6	67.7	72.3	69.8	2.3	2
Himachal Pradesh	69.3	74.1	71.6	69.6	76.8	72.9	1.9	1.5
Jammu & Kashmir	70.9	74.9	72.6	72.2	76.2	74	2	1.5
Karnataka	66.9	70.8	68.8	67.9	70.9	69.4	2	1.6
Kerala	72	77.8	74.9	72.5	77.9	75.3	1.8	1.5
Madhya Pradesh	62.5	66	64.2	64.8	68.5	66.5	3.2	2.6
Maharashtra	69.9	73.6	71.6	71.3	73.8	72.5	1.9	1.5
Odisha	64.7	67.1	65.8	68	70.8	69.3	2.3	1.8
Punjab	69.7	73.8	71.6	71	74.8	72.7	1.8	1.5
Rajasthan	65.5	70.2	67.7	66.5	71.6	68.7	3.1	2.4
Tamil Nadu	68.6	72.7	70.6	70.2	74.2	72.1	1.7	1.4
Uttar Pradesh	62.9	65.4	64.1	64.8	65.8	65.3	3.5	2.7
West Bengal	68.9	71.6	70.2	70.7	72.6	71.6	1.8	1.4
All India	**66.4**	**69.6**	**67.9**	**68.2**	**70.7**	**69.4**	**2.5**	**2.2**
Source: Office of the Registrar General of India, Ministry of Home Affairs, Government of India.								
Note: Andhra Pradesh includes Telangana till the year 2014 and Jammu & Kashmir includes Ladakh for the year 2020.								
TFR: Number of children a woman would bear during her reproductive years on an average.								

ANNEXURE 4

STATE WISE BIRTH RATE, DEATH RATE & INFANT MORTALITY RATE						
States/UTs	Birth rate		Death rate		Infant mortality rate	
	2010	2020	2010	2020	2010	2020
Andhra Pradesh	17.9	15.7	7.6	6.3	46	24
Assam	23.2	20.8	8.2	6.2	58	36
Bihar	28.1	25.5	6.8	5.4	48	27
Chhattisgarh	25.3	22	8	7.9	51	38
NCT of Delhi	17.8	14.2	4.2	3.6	30	12
Gujarat	21.8	19.3	6.7	5.6	44	23
Haryana	22.3	19.9	6.6	6.1	48	28
Jammu & Kashmir	18.3	14.6	5.7	4.6	43	17
Jharkhand	25.3	22	7	5.2	42	25
Kamataka	19.2	16.5	7.1	6.2	38	19
Kerala	14.8	13.2	7	7	13	6
Madhya Pradesh	27.3	24.1	8.3	6.5	62	43
Maharashtra	17.1	15	6.5	5.5	28	16
Odisha	20.5	17.7	8.6	7.3	61	36
Punjab	16.6	14.3	7	7.2	34	18
Rajasthan	26.7	23.5	6.7	5.6	55	32
Tamil Nadu	15.9	13.8	7.6	6.1	24	13
Telangana	-	16.4	-	6	-	21
Uttar Pradesh	28.3	25.1	8.1	6.5	61	38
Uttarakhand	19.3	16.6	6.3	6.3	37.9	24
West Bengal	16.8	14.6	6	5.5	31	19
Arunachal Pradesh	20.5	17.3	5.9	5.7	31.2	21
Goa	13.2	12.1	6.6	5.9	10.3	5
Himachal Pradesh	16.9	15.3	6.9	6.8	40.4	17
Manipur	14.9	13.3	4.2	4.3	13.6	6
Meghalaya	24.5	22.9	7.9	5.3	55.4	29
Mizoram	17.1	14.4	4.5	4.2	37.2	3
Nagaland	16.8	12.5	3.6	3.7	23.3	4
Sikkim	17.8	15.6	5.6	4.1	29.9	5
Tripura	14.9	12.6	5	5.7	27.2	18
A & N Islands	15.6	10.8	4.3	5.8	25.5	7
Chandigarh	15.6	12.9	3.9	3.9	22.3	8
Dadra & Nagar Haveli	26.6	20.3	4.7	3.7	37.9	16
Daman & Diu	18.8	-	4.9	-	22.7	-
Lakshadweep	14.3	14.6	6.4	6.5	24.9	9
Ladakh	-	14.3	-	5	-	16
Puducherry	16.7	13.1	7.4	5.4	22.2	6
India	**22.1**	**19.5**	**7.2**	**6**	**47**	**28**
Source: Office of the Registrar General of India, Ministry of Home Affairs, Government of India.						
Note: 1. Andhra Pradesh includes Telangana for 2009 and Jammu & Kashmir includes Ladakh for 2010.						
2. Birth rate and Death rate per 1000 population and IMR in infants death per 1000 live births.						

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Review Questions

1. Elucidate the characteristics of the Indian economy
2. Explain the demographic transition in India
3. Write a short note on: (a) Life expectancy in India, (b) birth rate in India, (c) Death rate in India
4. Explain the measurement of National Income in India
5. Discuss the significance of social infrastructure in India

UNIT – III

Lesson 3.1 - Economic Planning in India

Structure

3.1.1 Objective

In this unit, the reader of the chapter will comprehend the concept of planning, the need for economic policies and planning in India, including the objectives of planning for economic development of the country. Subsequently, the chapter will describe the overview of economic planning in India, wherein it deals with the approaches of the Indian government, outlays of Five-Year Plans (FYPs), targets, and priorities of the FYPs. To have a better understanding of the economic planning process, this chapter will also highlight the salient achievement and failures in achieving the set target(s).

3.1.2 Lesson Outline

- Economic Planning in India – The Need and Objectives
- Overview of Five-Year Plans – Approaches, Outlays, Targets, and Priorities
- Broad Achievements and Failures of the Five-Year Plans
- Review Questions

3.1.3 Economic Planning in India – The Need and Objectives

3.1.3.1 What is Planning?

"Planning is a technique, a means to an end being the realization of certain pre-determined and well-defined aims and objectives. The end may be to achieve economic, social, political, or military objectives". As per Prof. Robbins, planning means "a collective control or supersession of private activities of production and exchange". Prof. Hayek defines planning as "the direction of productive activity by a central authority". In the words of Prof. Dickinson, planning is defined as "the making of major economic decisions about what and how much to be produced, how, when, and where it is to be produced, to whom it is to be allocated, by the conscious decision of a determinate authority, on the basis of a comprehensive survey of the economic system as a whole". Overall, planning can be understood as the "deliberate control and direction of the economy by a central authority for the purpose of achieving definite targets and objectives within a specified period of time".

3.1.3.2 The Need for Planning in India

Economic plans – formulated under a central authority – are needed to direct the nation to spearhead the path of development as per the set targets and goals within a specific time period. The following are the needs for economic planning in India:

- To address the extent of poverty and level of inequality: A substantial share of the population in India lives in poverty and faces economic inequality. For such a large population, economic planning helps to address the aforementioned issues by optimal allocation of resources and framing development and/or economic policies that target to reduce poverty and in addition aim to promote inclusive growth.
- To bring balanced development across regions: India is a diverse country with a significant level of disparities across regions. Economic planning shall induce balanced development across regions by different interventions like investing in social and economic infrastructure, creating job and employment opportunities, and facilitating better access to basic needs and services viz., health, education, and sanitation.
- To encourage modernized industries and their development: Economic planning in India helps to promote industrialization

and modernization by recognizing the ideal sectors that have the potential to grow and develop. In addition, it supports them through policy interventions like subsidies, rebates, tax incentives, and infrastructure development.

- To ensure steady and even growth of the economy: Economic planning can warrant steady, even, equitable, and sustainable growth of the economy by setting scalable targets. In addition, economic planning helps to frame policies that aim to accomplish them within the stipulated time period. Such measures help India to avoid imbalances in the economy like growth fluctuations and instability.
- To strengthen the role of the government in development: Economic planning shall strengthen the role of the government (national and regional) in the economy by providing a framework for intervention by these governments and regulating economic activities intended for development. This will help to promote public welfare and address market failures.

Overall, economic planning plays a pertinent role in an economy, and it envisages achieving India's development goals and promoting social and economic progress.

3.1.4 Overview of Five-Year Plans – Approaches, Outlays, Targets, and Priorities

In India, economic planning antecedes to the pre-Independence period. During the pre-independence era, various stakeholders of the economy, viz., renowned leaders of India's freedom movement, eminent entrepreneurs and industry personalities, and prominent academicians, came forward and deliberated on the future progress of the Indian economy post-independence. Among them, Shri. M. Visvesvaraya – a prominent engineer (civil) and plan administrator – has been viewed as a forerunner of economic planning in India. He suggested a ten-year plan mechanism in his popular book, "Planned Economy for India" that got published way back in 1934. He proposed the economic plan document with an outlay of ₹ 1000 crore. In addition, 600% of planned growth per annum in the output of industries was targeted based on the economic conditions that existed during that period. Consequently, in 1948, the Industrial Policy Statement was published, and it recommended the establishment of a 'Planning Commission'. In addition, it also suggested to adopt a mixed economic growth model for tracking the progress of the economy.

The following are the milestones one should remember with respect to Indian Planning.

- 15th March, 1950: The Planning Commission was Set Up
- 9th July, 1951: 1st Five-Year Plan (FYP) was implemented
- 17th August, 2014: Dissolution of the Planning Commission
- 1st January, 2015: NITI (National Institution for Transforming India) Aayog was Set Up

During the economic planning made at different phases, establishing the NITI Aayog was regarded as one of the flagship activities in India post the economic reforms initiated during the early 1990s. This was done because the Planning Commission's top-down approach turned redundant owing to the changing scenario of the economy and prevailing conditions during that time.

3.1.4.1 Approaches of Economic Planning in India

Economic planning in India is formulated and executed by the 'NITI Aayog' through a 'consultative approach' since it was set up by taking suggestions from various state governments and think tanks giving thrust on different aspects of the economy (Fig. 3.1) viz., agriculture, industries, creation of employment opportunities, regional development and improving the social welfare.

Fig. 3.1: Approaches of Indian Economic Five-Year Plans (FYPs)

3.1.4.2 Outlays, Targets, and Priorities of Five-Year Plans

This section outlines the FYP outlays, plan-wise targets, and priorities for economic development. Before endowing the aforesaid information, the knowledge on the list of FYPs in India becomes pertinent (Table 3.1).

Table 3.1: List of five-year plans in India

S.No.	Five Year Plan (FYP)	Period
1.	I (First) FYP	1951 to 1956
2.	II (Second) FYP	1956 to 1961
3.	III (Third) FYP	1961 to 1966
4.	Plan Holidays	1966 to 1969
5.	IV (Fourth) FYP	1969 to 1974
6.	V (Fifth) FYP	1974 to 1978
7.	Rolling Plan	1978 to 1980
8.	VI (Sixth) FYP	1980 to 1985
9.	VII (Seventh) FYP	1985 to 1990
10.	Annual Plans	1990 to 1992
11.	VIII (Eighth) FYP	1992 to 1997
12.	IX (Ninth) FYP	1997 to 2002
13.	X (Tenth) FYP	2002 to 2007
14.	XI (Eleventh) FYP	2007 to 2012
15.	XII (Twelfth) FYP	2012 to 2017
16.	Suggestive 3-year plan period	2017-18 to 2019-20
17.	Annual Plans	2020-21 onwards

In the above FYPs, mainly 3 growth models were used for tracking the progress of the economy. The following are the 3 growth models:

1. Harrod and Domar Model (1st FYP)
2. Mahalanobis Four Sector Model (2nd and 3rd FYP)
3. Input-Output or Leontief Inter-Industry Model (4th FYP)

The in-depth understanding of this model is a bit complex, and it will be enlightened to the readers at a higher level.

1. There was war with Pakistan in 1965 and hence Annual plans were introduced for the years 1966,1967,1968-69.
2. Another annual plan was introduced in 1990-91 due to the volatile political scenario.

First Plan (1951–1956)

- The objectives of this plan were to rehabilitate the refugees, achieve self-sufficiency in food production through rapid agricultural development, increase the per capita income, focus on the rapid development of irrigation, establishment of multi-purpose power projects.
- In the first FYP, the targeted growth rate was 2.1%, and major emphasis was given to agriculture with a plan outlay of ₹ 1960 crore. In this FYP, the Harrod-Domar model was adopted to achieve the targeted growth. However, the achieved economic growth was found to be more than the set growth i.e., 3.6% by the planners.

Second Plan (1956–1961)

- The objectives of the second FYP were to emphasize rapid industrialization and creation of basic and heavy trade industries, increase the production of iron and steel and chemical fertilizers, raise the national income to the tune of 25%, create more employment and job opportunities, to reduce the existing level of disparities in income and wealth.
- In this plan, the major emphasis was given to rapid industrialization with an overall plan outlay of ₹ 4600 crore.
- During the plan period, Mahalanobis four sector model was used to track the progress of the economy's output and growth. The targeted growth was 4.5%, but the achieved growth was 4.27%, marginally lower than the target.

Third Plan (1961–1966)

- In the third FYP, the main plan objectives were to achieve a 5.6% increase in the national income, achieve food grains self-sufficiency, expand rudimentary industries of the economy like iron and steel, followed by fuel, chemicals, and power, utilize manpower resources of the country, and substantially increase the employment opportunities by establishing progressive employment options and bring about a reduction in income disparity levels.

- A major emphasis was given to self-sustained growth. This plan is also called as called 'Gadgil Yojana' (as envisioned by the Social Scientist Shri. Dhananjay Ramchandra Gadgil), which aimed to develop agricultural output in general and to raise the production of wheat in precise.
- During the plan period, the war in 1962 put the economy's condition at a low level and hence the thrust shifted to the Defence industry. The purpose of 'Gadgil Yojana' was to recover the economy from the war crisis.
- The plan outlay was ₹ 10400 crore which adopted the Mahalanobis Four Sector Model to track the growth progress. In this plan the targeted growth rate was 5.6%, but only 2.84% was achieved due to the war with China.

Plan Holiday Period (1966–1969)

- Subsequent to the 3rd FYP, a plan holiday period was given due to the Indo-Pakistan war occurrence as well as the unexpected failure of the 3rd FYP. During this gap (1966-1969), yearly plans were formulated and implemented wherein equal significance has been given to priority sectors like agriculture and industries.

Fourth Plan (1969–1974)

- In the fourth FYP, the following objectives were set: Stable economic growth and progressive attainment of self-reliance. This FYP laid much prominence on increasing the socioeconomic status of the underprivileged class groups and society's weaker sections.
- In this plan, it was proposed to provide better employment as well as education. However, a major emphasis was given to development with economic stability and self-reliance with a plan outlay of ₹ 24882 crore. In this plan, the 'Leontief Inter-Industry Model' was used to accomplish the targeted growth of 5.7%. However, India achieved only 3.3% growth rate.

Fifth Plan (1974–1978)

- The draft of the 5th FYP has been formulated and launched by Shri. D. P. Dhar. In this plan period (1974–1978), poverty eradication, accomplishing self-reliance coupled with higher growth, and improved income distribution were set as the objectives.

- Of the sectoral development, agriculture got the top priority, followed by industrial sector and mines. Overall, this plan was considered to be successful as it achieved 4.8% growth against the set target of 4.4%. This FYP faced a lot of economic challenges like the oil crisis and the plan ended in 1978 itself.

Rolling Plan (1978–1980)

- The rolling plan (1978–1980) was initiated with an annual plan commencing from 1978-79 and serving as a continuation of the terminated 5th FYP (1974–1978).

Sixth Plan (1980–1985)

- The prime objective of the sixth FYP was to eradicate poverty and to attain technological self-reliance. This proposal was based on the "Investment Yojana", infrastructural changes, and trends to the growth model. Under this plan, the growth target was set at 5.2%, but able to achieve a marginally higher growth of 5.7%.

Seventh Plan (1985–1990)

- During the 7th FYP, the set objectives include the establishment of a self-sufficient economy, and opportunities for productive employment. The other objectives were to increase the growth of food grain production, increase employment opportunities and productivity, and reduce the unemployment levels and the incidence of poverty.
- Special programs like 'Jawahar Rozgar Yojana' were initiated in addition to the already existing ones. For the first time, the private sector got the priority over public sector. The set growth target was 5.0% but 6.0% was achieved.

Annual Plans (1990–1992)

- Subsequent to the seventh-FYP, the eighth plan could not take place due to the volatile political situation that prevailed in the economy. So, to compensate the gap, two annual plan programmes were formulated in 1990-91 and 1991-92.

Eighth Plan (1992–1997)

- The objectives of the eight-FYP plan are: adequate employment generation to achieve the near full-employment level by the end of the century, control of the burgeoning population through active co-operation from the stakeholders, universalisation of elementary education and complete removal of illiteracy among the people falling under the age group of 15-35 years, provision of safe drinking water and primary health care facilities, growth and diversification of agricultural output to achieve self-sufficiency in food production and generate surplus for exports, and strengthening the infrastructure in order to support the growth process on a sustainable basis.
- In this plan, the top priority was given to the development of human resources i.e. employment, education, and public health. This plan period is of significance in the history of economic planning since during this plan, the Government of India has launched the 'New Economic Policy' of India.
- The eight-FYP plan was regarded as successful and registered an annual growth rate of 6.8% against the target of 5.6% growth rate.

Ninth Plan (1997–2002)

- The objectives are: focus on agriculture and rural development, accelerating the growth rate of the economy coupled with stabilization of price fluctuations, ensuring food and nutrition security for all, providing the basic amenities like safe drinking water, primary health care facilities, universal primary education, shelter and connectivity to all within a given timeframe, ensuring environmental sustainability, containing the burgeoning growth of population, empowerment of women, promoting and developing Panchayat Raj institutions, co-operatives and self-help groups, and strengthening efforts to build self-reliance, strengthening sound foreign trade.
- In the ninth-FYP, the main focus was given for "growth with justice and equity" and the launch of this plan coincided with the 50th year of India's independence.
- For this plan period (1997–2002), the growth target was set as 7% and but the economy grew at the rate of 5.6% only.

Tenth Plan (2002–2007)

- The prime objectives of this plan are as follows: to reduce the poverty ratio from 26% to 21%, to bring down the decadal growth of population to 16.2% in 2001-2011, to attain gainful employment growth, to provide universal access to primary education, to increase the overall literacy rate to 75%, to reduce the maternal mortality ratio to 2% and infant mortality rate to 45 per 1000 live births, to ensure the provision of portable drinking water across Indian villages, to increase the area under the forest and tree cover to 25%, to clean the major polluted rivers flowing within India, to create 50million job opportunities, and to reduce the regional disparities in development.
- The aim of the tenth-FYP was to double the Per Capita Income (PCI) of Indian citizens in the next 10 years of the plan period.
- The plan growth target was set at 8.0%, but the economy had achieved only 7.2%.
- Eleventh Plan (2007–2012)
- The eleventh FYP was prepared by Prof. C Rangarajan with a main theme of "faster and more inclusive growth". The objectives of the plan are as follows: To foster more inclusive growth, to focus on the priority areas like agriculture, irrigation, and water resources; education, health, infrastructure, and employment, to emphasize programs for the upliftment of SCs/STs, other backward classes, minorities, women and children.
- In this plan, the growth target was set at 8.1% but achieved only 7.9%.

Twelfth Plan (2012–2017)

- The main objectives of the twelfth-FYP were: to create 50 million new job opportunities in the non-farm sector, to remove the gender and social gap with respect to school enrolment, to enhance the access to higher education, to reduce malnutrition prevailing among children (below 3 years), to provide electricity connection to all villages in India, to ensure 50% of the rural population have better accesses to basic amenities like drinking water, to increase the green cover to the tune of 1 million hectare every year, and to

provide better access to the banking services for around 90% of the households.

- The main theme of this plan is "Faster, More Inclusive and Sustainable Growth" with a set target growth rate of 8%.

Table 3.2: Public sector expenditure during FYPs in India

S.No.	Five Year Plan (FYP)	Period	Expenditure (in ₹ crores)
1.	First FYP	1951–1956	1960
2.	Second FYP	1956–1961	4672
3.	Third FYP	1961–1966	8577
4.	Annual Plans	1966–1969	6625
5.	Fourth FYP	1969–1974	16160
6.	Fifth FYP	1974–1978	42300
7.	Sixth FYP	1980–1985	109953
8.	Seventh FYP	1985–1990	222169
9.	Eighth FYP	1992–1997	434100
10.	Ninth FYP	1997–2002	941041
13	**Tenth FYP**	**2002–2007**	**1525639**
14	**Eleventh FYP**	**2007–2012**	**3644718**
15	**Twelfth FYP**	**2012–2017**	**4333739**

Source: Dhingra (2009)

3.1.5 Broad Achievements and Failures of the Five-Year Plans

The FYPs in India are considered a series of comprehensive and inclusive economic development initiatives that are proposed and implemented by the Government of India for promoting the growth as well as the development of the economy across all sectors, regions, and social classes. These FYPs were initiated by India's first Prime Minister, Sh. Jawaharlal Nehru with the establishment of the 'Planning Commission' by which the plans were proposed and implemented. These five-year plans were implemented from 1951 to 2017 (Table 3.1), and they played a substantial role in shaping India's economy and society's welfare. In the subsequent section, some of the broad achievements and failures of these plans were outlined.

3.1.5.1 Achievements of FYPs

The broad achievements of all FYPs are briefed below:

- Increased the Growth of Agriculture: The FYPs helped to achieve the set food production targets across commodities and thereby facilitated to reach self-sufficiency in food production. Such success was made possible owing to the implementation of the Green Revolution technologies in the 1960s and 1970s that increased agricultural productivity and food availability.
- Increased Industrial Growth: The FYPs promoted industrialization and its growth. During the plan periods, diversified industrial units and several new industries were established. This led to creating more job opportunities and reducing poverty. A shift from an agriculture-based to an industries-based economy was noticed.
- Development of Infrastructure Facilities: The economic planning in India focused on building and developing critical infrastructure facilities like railways, roads, ports, power plants, and airports. The infrastructure development has become vital for improved connectivity and facilitated trade and commerce, which has contributed to economic growth.
- Reduction in Poverty: Several poverty alleviation programs and initiatives were launched in India, and they resulted in significant poverty reduction. The percentage of people living in the 'BPL' category (i.e., below the poverty line) has decreased from 55% in the 1970s to around 20% in recent years. In addition, these programs aimed at improving the living standards of the poor and marginalized sections of society.
- Access to Education and Healthcare: The FYPs expanded the horizon of education and health sectors which resulted in the improvement of overall education and health. During the plan period, the literacy rate has increased, and life expectancy has improved significantly. From a mere 37 years of life expectancy in 1951, it has improved to 67 years in recent years.
- Investment in Science and Technology: Investment in research and development has witnessed a sharp increase in the post-plan period, leading to advancements in science and technology. For instance, India's space and nuclear programs have gained significant momentum during this period.

3.1.5.2 Failures of FYPs

India while experienced the success in economic planning, the FYPs also witnessed certain failure, and they are outlined below:

- Inefficiency in Implementation of the Plan Programs: Despite the efforts taken by the economy to raise the country's output and income, there have been inefficiencies in planning and implementation. Several plan projects during the economic plan period have been delayed or couldn't be completed owing to several socio-economic-political factors like lack of adequate funding, poor management in monitoring and evaluation, bureaucratic red tape, and corruption. All these factors in one way or another affected the plan programs and project implementation.
- Late Implementation and Slow Stride of Economic Reforms: In comparison to other countries, India being a developing nation implemented the economic reforms a bit late in the early 1990s, which had delayed the growth potential of the country. Despite the implementation of the reforms after strenuous efforts from all stakeholders, the economy was regulated heavily across sectors without giving much space and freedom for the private sector to operate.
- Unequal Development or Regional Inequalities: Despite the overall progress of the Indian economy, the benefits accrued owing to the economic planning over the years have not been evenly distributed across regions or sectors. The nation witnessed regional disparities, with some sectors, states, and social groups prospered while the rest didn't get the desired benefit from economic development.
- Burgeoning Population: Despite the improvement in development aspects like the healthcare system and family planning, the population has grown rapidly and has put enormous pressure on the utilization of resources and infrastructure. This hindered the development process and made India difficult to attain the planned targets and goals under development planning.
- Environmental Degradation and Concerns: Rapid industrialization and urbanization owing to the economic policies at different plans produced negative effects on the environment and associated factors. Such phenomena, in the long run, created pollution, an increase in the deforestation level, and other ecological problems.

- Black Money Transaction: As the economy progressed over the years, income levels started to increase across sectors and social groups. This led to black money transactions especially to evade taxes.
- Inadequate Employment Opportunities: While industrialization and economic growth occurred owing to economic planning over the years, employment opportunities and job creation didn't match with the increasing labor force as a result of the rapid rise in the population. This in the long-run led to underemployment and unemployment issues.

Table 3.2: Salient achievements and failures of the FYPs in India

S.No.	Achievements	Failures
1	➢ Foodgrains production increased by around 4 times since the first FYP	➢ Population growth rose to 1.7%
2	➢ GDP growth witnessed a rise up to 6% during the 1990s in comparison to 3.5% during the 1950s	➢ Unemployment levels are too high in comparison to employment growth estimated at 2%
3	➢ Industrial growth rate increased up to 8% per annum during the 1990s and 2000s	➢ Rapid urbanization (~ 320 million) resulting in challenges to provide basic amenities.
4	➢ Capital raised from the market increased up to ₹ 40000 crore during 2007-08	➢ Stagnation in savings with the saving rate hovering between 22 and 24% of the GDP with the exception of the period 2005-09.
5	➢ Percentage of BPL reduced to 25% in the 2000s in comparison to 54% during 1961.	➢ Sticky incremental capital-output ratio (4.3)

6	➢ Inflation reduced to 4% (an indicator of economic performance estimated from the wholesale price index)	➢ Failure to evolve a society based on equity and social justice

Source: Dhingra (2009)

3.1.6 Reference

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3.1.7 Review Questions

3. What is meant by economic planning? Why it is needed for a developing country like India?
4. Highlight the objectives of economic planning for India.
5. Write a note of planning history in India and what are different approaches through which planning was targeted for development.
6. Briefly discuss the salient features of all Five-Year Plans in India.
7. What are the broad achievements and failures of economic planning in India?

Lesson 3.2 New Economic Reforms

Structure

3.2.1Objective

In this chapter, the reader will be enlightened on the scenario before the economic reforms followed by the need for economic reforms in India, including the philosophy and three pillars of reforms viz., Liberalization, Privatization, and Globalization, popularly termed as 'LPG' that triggered the economy's growth and overall development. In addition, the chapter will describe the rationale behind the implementation of economic reforms, followed by the progress of the nation since the execution of the reforms.

3.2.2 Lesson Outline

- New Economic Reforms – An Overview
- Philosophy and Rationale behind New Economic Reforms
- Liberalization, Privatization and Globalization
- Progress during the Post-Reform Period
- Review Questions

3.2.2.1 New Economic Reforms – An Overview

Indian economic policy after independence led to diversified and expanded output, especially during the first four decades (Dhingra, 2009). It was largely under the influence of the colonial experience of the pre-independent India. Despite the growth shared by all the sectors of the Indian economy, it has been regarded as exploitative in nature by a

majority of the Indian leaders with their exposure to Fabian socialism . In this context, leaders like Jawaharlal Nehru and others in independent India sought an alternative approach to the extreme facets of both capitalism and socialism. They envisioned India as a socialist society characterized by a robust public sector while still preserving elements of private property and democracy. This vision involved the adoption of a centralized planning approach, policies favoring protectionism, a strong focus on import substitution, industrialization under state supervision, extensive state involvement in various industries, especially in labor and financial markets, the establishment of a sizable public sector, and the regulation of businesses. India, by 1985, began encountering balance of payment (BOP) problems, with expenditures surpassing income. Additionally, significant disparities existed between income and expenditure. By the end of 1990, the country found itself in a severe economic crisis, on the brink of government default, and facing the refusal of new credit by its central bank. In 1991, India confronted an economic crisis primarily related to external debt as it struggled to make repayments on its foreign borrowings. Foreign exchange reserves, crucial for importing essential items like petroleum, dwindled to levels insufficient to sustain even a two-week period. To address this crisis, India turned to international financial institutions such as the International Bank for Reconstruction and Development (IBRD), commonly known as the World Bank, and the International Monetary Fund (IMF). India secured a seven-billion-dollar loan from these agencies. As part of this agreement, India had to pledge 20 tonnes of gold to the Union Bank of Switzerland and 47 tonnes to the Bank of England. Furthermore, in exchange for the bailout, the IMF required India to undertake economic liberalization measures, opening up its economy and removing trade restrictions with other countries. This marked the initiation of new economic reforms, often referred to as the New Economic Policy (NEP) in 1991.

Fabian socialism is a form of "socialism that promotes a nonviolent and incremental shift from capitalism (an economic system rooted in private ownership of production means and their operation for profit) to socialism, as opposed to a tumultuous revolution". The name has its origin in the Fabian Society, which is a British socialist organization founded in 1884. The aim of the organization is to promote socialist principles via non-revolutionary means. Fabian socialists espouse the idea that socialism can be attained through a step-by-step approach of reform, as opposed to

a sudden dismantling of the prevailing capitalist framework. They endorse the utilization of democratic mechanisms to realize their objectives and assert that the government should take an involved stance in overseeing the economy and advancing social well-being.

"There is no time to lose. Neither the Government nor the economy can live beyond its means year after year. The room for manoeuvre, to live on borrowed money or time, does not exist anymore.... We need to expand the scope and the area for the operation of market forces" by Dr.Manmohan Singh during his Budget Speech on 24 July, 1991 (before proposing the reforms).

3.2.2.2 Philosophy and Rationale Behind New Economic Reforms

The introduction of India's new economic reforms was underpinned by two key philosophical principles: firstly, to alleviate the economy from the constraints of socialist equality, which manifested in extensive state intervention in production, low productivity, a distorted and dysfunctional pricing system, and an overly sheltered private sector; and secondly, to emphasize the importance of individual empowerment and economic freedom. As depicted in Figure 3.2, the foundational elements of the Indian economic reforms are illustrated.

Fig. 3.2: Pillars of economic reforms in India

The term "New Economic Reforms" pertains to the neoliberal policies implemented by the Indian Government in 1991. These policies encompass a broad spectrum of government actions within the economic

realm, encompassing areas such as taxation levels, government budgeting, management of the money supply and interest rates, labor market regulations, national ownership, and various other facets of government involvement in the economy.

Indian economic reforms have three pillars – the foundational elements. The three primary pillars of these reforms consisted of Liberalization, Privatization, and Globalization, popularly known as 'LPG'. The overarching objective of these reforms was to stimulate economic growth and comprehensive development, considering both economic and non-economic factors.

A.Economic Factors

The following are the economic factors that aimed to increase economic growth under the implementation of the new economic reforms.

- Extent of availability and utilization of natural resources – Utilization of natural resources depends on factor endowment, and it varies across regions.
- Available human resources of the country vis-à-vis growth in population – As the population of the economy grows, the supply of labour to the total labour force increases. Proper capacity building will increase the quality of the labour (a part of the growing labour force) used in the production process. Increased use of quality labour from the available human resources will lead to an increase in national output and income.
- Capital formation and accumulation is one of the important economic factors that direct the production process for a higher level of output.
- Improved technology (technological progress) results in the outward shift of the production function. This implies higher level of output is produced with the same level of factor endowments.
- Role of Entrepreneurship – Entrepreneurs take calculated risks and enable innovation in the production process which results in higher output or less unit cost of production.
- Investment policies and regulation creates a favorable environment for investment, attracts capital flow, facilitates the development of infrastructure, and promotes innovation across sectors, all of which is expected to contribute to the increased output.

- Removing the market imperfections like reducing the role of monopoly producers will promote market competition which shall lead to a more dynamic and efficient economy. The outcome of such a policy will result in increased economic output. In addition, it is expected to encourage innovation in the production process, lower the price level, expand consumer choices and preferences, and create an inclusive and competitive business environment. All these together contribute to the overall economic prosperity.
- A high capital-output ratio (COR) is preferred as it increases the productivity per unit of capital.

B.Non-Economic Factors

- The following are the non-economic factors that facilitated increased economic growth under the initiated reforms during the early 1990s.
- Self-propelling desire for development in the right direction becomes an important non-economic factor for the economic development of a country.
- Literacy is a fundamental variable for development, and its growth helps society to grow at a faster rate. It empowers individuals, strengthens social groups and communities, and drives the economy towards progress. All stakeholders like governments, organizations, communities, individuals, and societies across the world recognize literacy as a vital variable in improving the quality of life.
- 'Social reforms' is another variable that helps to reduce the disparity and inequality existing in the society, leading to progress. They are integral to development since the reforms address various challenges posed in the process of social and human development. This can be done by improving access to basic amenities like education, healthcare, and social services.
- Good governance creates a stable environment for the implementation of development policies, transparency in the system, accountability in the functioning of the system, and efficiency in operation that attracts investments. Ultimately, it promotes economic growth and ensures that all the objectives viz., social, economic, and political are addressed for development.

- The major objectives of the new economic reforms or new economic policy in India that aimed to improve the economic progress are given in the following illustration (Figure 3.3).

3.2.2.1 Objectives of New Economic Reforms

The major objectives of the new economic reforms or new economic policy in India that aimed to improve the economic progress are given in the following illustration (Figure 3.3).

Objective 1	• Consolidation of the past economic gains
Objective 2	• Strengthening the economic growth impulses
Objective 3	• Enabling efficient production units for higher productivity
Objective 4	• Facilitate healthy competition among the production units
Objective 5	• Use of global resources for India's progress and development

Source: Dhingra (2009)

Fig. 3.3: Objectives of Indian economic reforms

The main focus of the new economic policies or reforms was to foster a highly competitive economic environment in India, aiming to augment overall productivity, output, and efficiency. This objective was set to be achieved by eradicating the barriers to entering the business and addressing the constraints in the growth of the firm. The key challenges faced by the economy in the new economic policy are given below:

- The presence of various regulatory mechanisms and controls had rendered the economy dysfunctional.
- Entrepreneurs who take calculated risks were hesitant to establish new industries, as the implementation of the MRTP (Monopolies and Restrictive Trade Practices) Act of 1969 discouraged them.
- On the contrary, the prevalence of various controls and regulations led to an increase in corruption, prolonged delays, and inefficiencies.
- Owing to this, the economic growth rate of the country had declined.
- Given this challenging economic landscape, the introduction of economic reforms was aimed at reducing the constraints on the economy.

Despite the challenges, the new economic reforms have been implemented. The rationale behind the implementation is outlined here:

A. Ineffectiveness in the Functioning of the Public Sector

- The public sector was assigned a significant role in framing and implementing development policies from 1951 to 1990. However, a majority of the public enterprises underperformed. This led to substantial losses which is attributed to inefficient management practices.

B. Imbalance in the Balance of Payments (i.e., imports > exports)

- Imports grew at a faster rate without corresponding growth in exports. Despite imposing higher levels of tariffs and quotas, the government couldn't restrict imports. Exports were limited due to their inferior quality and higher prices relative to foreign goods.

C. Reduction in Foreign Exchange Reserves

- Foreign exchange reserves, typically held by the government for vital imports like petroleum products, fell to low levels that were insufficient even for a 2-week period. During such difficult times, the government struggled to meet its foreign borrowings.

D. Mounting Government Debts

- Government spending on various development projects has surpassed its tax revenue. Consequently, the government has to resort to borrowing from various organizations like banks within India, the public in the form of bonds, and international financial institutions like the International Monetary Fund (IMF).

E.Rise in Price Inflation of Essential Commodities

- A consistent upward trend in the general price level i.e., inflation of essential goods persisted for a substantial time in the economy. Controlling such inflation becomes mandatory, and it necessitates the formulation and implementation of a new set of economic policies.

F. Terms and Conditions set by the World Bank and the IMF

- As per the agreement to declare its New Economic Policy (NEP), India received financial assistance amounting to $7 billion from the World Bank and the IMF.

The reforms aimed to foster increased involvement of the private

sector in India's economic growth process. These policy changes were proposed to address issues related to technological advancement, industrial licensing, elimination of constraints on the private sector, foreign investments, and foreign trade.

3.2.3 Liberalization, Privatization, and Globalization

3.2.3.1 Liberalization

Liberalization means giving more freedom to economic agents or relaxing the government

https://dde.pondiuni.edu.in/files/StudyMaterials/MBA/MBA1SemesterCommon/2ManagerialEconomics.pdf

restrictions on different socio-economic policies to take their decision(s). It can be of several forms like giving additional opportunities to the private players and capital accumulation, removal of the restrictions on goods and services movement, producers fixing the prices themselves for their product produced, distributing the goods freely i.e., producers deciding when to sell and where to sell, and reducing the tax rates. Alternatively, liberalization refers to the reduced role of the government with a greater role played by the market forces. Liberalization doesn't mean a market economy, but it leads to a market-oriented economy. In such an economy, producers don't get subjected to any government controls and restrictions. There won't be any limit on production, i.e., higher or lower level, and producers can decide the prices.

It is interesting to know the rationale behind the liberalization. Our country has abundant natural resources along with a significant share of the workforce i.e., manpower owing to the large population. Despite these advantages, the contribution of India to global trade is very minimal, and often it's estimated to be less than 1%. On the other side, the per capita income of the country is very low in comparison to the rest of the world, especially the developed countries. Also, the net national product (NNP) is also relatively low despite owing a larger workforce. Hence, in order to have progress in the aforementioned indicators of development, liberalization has been recommended by various planners and policymakers. Subsequently, in the regime of former Prime Minister P. V. Narashima Rao, the economic reform process was initiated. Under the Prime Minister's direction, it was resorted to advance the economy from its existing position as well as to address the trade deficit issues.

To revive the economy, the Indian government liberalized the rules and regulations, especially the controls and restrictive trade practices that were in practice earlier. At this stage, it became a choice for the Indian government to adopt the strategy of globalization to pave the way for a liberalized economy. Subsequently, the LPG model i.e., Liberalization, Privatization, and Globalization, a brainchild (developed in 1991) of Dr. Manmohan Singh under the direction of former Prime Minister P. V. Narashima Rao was implemented, which brought several changes in the economy.

Liberalization – Major Changes in the Economic Policies

The major changes introduced by India during the process of liberalization are given below:

- Abolition of industrial licensing system implying that no license is needed from the government, including the private sector units.
- Producers can decide the size of the production and distribution.
- Privatization of loss-making public sector units. However, there were no buyers. Subsequently, the government opted for disinvestment.
- Lifting the ceiling on the investment level so as to invite more private players.
- Approval of 51% FDI with no state permission for hiring technical personnel from abroad and importing foreign technology.
- Liberalizing the MRTP Act to facilitate better trade
- Reconstruction of the sick public sector units via special schemes announcement exclusively for rehabilitation. In this context, the Board for Industrial and Financial Reconstruction (BIFR) was set up in 1987 under the Sick Industrial Companies (Special Provisions) Act, 1985 (SICA).
- Incentives for private enterprises to venture into infrastructure industries.
- Provision of autonomy to manage the Public Sector Units (PSUs).
- Opening of the economy for multinational corporations and increasing exports.
- Free imports (barring a few commodities) without any restrictions.
- Liberalization of foreign exchange regulations.

Overall, through liberalization, the economy has taken a U-turn.

There were several reasons attributed to liberalizing the economy. The readers should know that relaxing the restrictions imposed by the government in various social and economic policies will result in higher growth. One such intervention is trade liberalization. This refers to the removal of trade barriers like tariffs and quota restrictions that inhibit the free flow of goods and services between two or more nations. In addition, the act of liberalization serves as a pre-requisite for privatization.

3.2.3.2 Privatization

Privatization means a significant role for private capital and private units in the functioning of the economy (Dhingra, 2009). This implies the transfer of public sector assets or services to private parties. This can be materialized via disinvestment, lease, franchise, contract, etc. Through privatization, public sector can be modernized, it can be diversified in terms of production process, and ensure fair competition in running the business. Privatization also increases the organization's managerial competence in addition to reviving the sick production units. However, in the course of privatization, the economy may face inequalities in income distribution, along with lack of equality and equity in providing social justice and economic welfare.

Privatization can take different forms like selling a part of the nationalized units to the private parties, and selling of the individual assets of the government-controlled units to the private. Alternatively, it can foster competitive spirit when state resources are transferred to the private sector. Privatization, as a terminology, is closely associated with liberalization. Privatization usually results in the following policy actions:

- Disinvestment: It refers to the sale of a part of equity of public enterprises to private units. This implies the disposal of public sector equity to a private entity.
- Denationalization: It implies the transfer of the public enterprise ownership to private.
- Opening the economy to construct a greater number of industries governed by private parties and private capital.
- Imposing restrictions to set up a new public sector unit.

The prime objective of privatization is to utilize the resources owned by the private entities for collective public welfare. In this course of action, privatization has its own pros and cons. This section outlines

the advantages, and in the subsequent section, the disadvantages will be highlighted. The advantages of privatization are as follows:

- The unit cost of production gets reduced as the private sector operates with a better productive efficiency in comparison to the public enterprises in producing the good and services.
- Private sector is highly equipped with capital and so it can invest more on R&D. Such spending leads to production of diverse goods with a better quality. Also, producing varieties of good and services will help the customers to choose the best among the given alternatives, resulting in a better allocative efficiency.
- Private sectors inherently have the ability to innovate new production techniques, process and models.
- Owing to the operation of the free market forces, optimum resource allocation can be ensured in the process of production i.e., the invisible hand of the market.
- Privatization results in a vast spread of the ownership across the country implying the absence of ownership control by one or a few.
- Privatization results in the reduction of the government borrowing amount and total expenditure.

The disadvantages or challenges of privatization are as follows:

- Privatization might create monopoly power in certain sectors. Such monopolies – a case of imperfect market structure shall result in differential and inequality in pricing mechanism leading to negative externalities.
- Privatization creates competition. However, to manage such competition and address the associated issues, we should have a proper regulatory mechanism.

Despite the aforementioned merits of privatization, some economists argue that government should own and operate the firms. The reasons are elucidated below:

- Against the common notion, public sector enterprises were also efficient in the process of production (Eg., Indian Railways) and result in economies of scale.
- Government funded units or enterprises, relatively, have a better management system.

- Monopoly market power can be managed only by the public sector enterprises. In addition, regulations can be made as well in a situation of exploitation by the monopolies.
- The intention of a public sector unit is to provide the maximum net social benefits. Whereas, profit is the prime motive of private entities.
- Generally, a public sector unit can effectively control and address the needs of the economy by a larger extent, in comparison to a private entity.
- Management of production resources, its allocation and utilization are quite easy for the public sector unit since the resources are owned by the state.

3.2.3.3 Globalization

Globalization refers to increasing the integration of the domestic economy with the world economy, through which the economic gap existing among nations have been reduced. This economic policy facilitates the domestic country to move towards a new path of world economic order. Ultimately, globalization leads to integrated markets to facilitate and strengthen the trade. In this process, all the trade barriers viz., political, geographical and business will be removed and facilitate free movement of goods, services, capital and technology. It also helps to allocate the resources effectively. Further, expenditure can be rationalized to attain a targeted economic growth. Alternatively, globalization results in international division of labour.

In the real-world situation, several benefits have been accrued due to globalization. A classic example is the revolution in the information technology i.e., use of mobiles, internet, artificial intelligence tools etc. Despite such economic benefits, it is being viewed that globalization favored the developed countries in comparison to the developing economies. However, the nature of Indian business and its operation has been completely transformed owing to the globalization process.

Globalization has resulted in several advantages. To cite a few that is common across nations (Dhingra, 2009): specializing in the production of a commodity based on the nation's efficiency in the production process, efficient production process results in cheaper commodities that can be made available to the consumers around the world, access to commodities

from different parts of the globe, selling the products or raw materials throughout the world and access to an improved technology. Same benefits apply to India. Figure 3.4 highlights the effects of globalization on Indian economy.

Figure 3.4: Effects of globalization in India

Similar to India, globalization has its positive effects on the global economies. They are given in Figure 3.5.

Figure 3.5: Effects of globalization for rest of the world

Globalization also resulted in several revolutionary changes across different domains namely in the field of information and communication technology i.e., the use of computers, mobile phones, etc., tourism and travel i.e., the use of cheaper airlines, trade liberalization and the significant rise in the number of trading blocs like BIMSTEC, ASEAN, SAARC,

BRICS, etc. The outcomes of such revolutionary changes are different across countries. In India, the following are the outcomes of globalization.

- Unparalleled growth of the economy across sectors: primary, secondary and tertiary
- Production of goods and services at multiple locations
- The quantum and value of goods and services traded at the international markets surged
- Substantial growth has been witnessed in the movement of capital
- Movement of skilled labor has increased post-globalization
- In addition, commonalities have emerged among the cultures and stakeholders
- Vocabulary change was also noticed during the post-reform period. Previously, the words/phrases used in describing an economy were listed as follows: control of commanding heights, nationalization, employment generation, protection of domestic industry, indigenization of technology, appropriate technology, and public monopoly. However, in the present world, the keywords and phrases used witnessed a sea change. They are international competitiveness, efficiency, profitability, technology upgradation, foreign capital, globalization, and golden handshake.

So, the way forward is to bank upon your own strength. India has to build its strength by taking into account the level of knowledge and information flow. Adopting such practices, especially empirical-based policies, will help the country to develop as one of the most powerful economies in the long run. Looking into the production process, India should focus on areas where there is a comparative advantage and achieve excellence in it. Finally, India should develop an efficient regulatory mechanism and system in addition to the well-connected social security structure.

3.2.4 Progress during the Post-Reform Period

India's progress during the post-reform period, which began in the early 1990s, has been marked by significant changes in different dimensions viz., economic, social, and political. Figure 3.6 presents the snapshot of India's progress during the post-reform period. However, the challenges faced by the economy during this growth transition needs to be

addressed coherently to be in the path of sustainable development.

Figure 3.6: India's progress during the post-reform period

Economic Growth: One of the most notable achievements during the post-reform period has been India's robust economic growth. The country experienced an average annual GDP growth rate of around 6-7% over this period, making it one of the fastest-growing major economies globally. The economic reforms, including liberalization, privatization, and globalization, played a pivotal role in fostering this growth.

Poverty Reduction: India made substantial progress in reducing poverty during the post-reform era. Government programs such as the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and the Public Distribution System (PDS) helped alleviate poverty and improve living standards for millions of people.

Information Technology (IT) and Services: India emerged as a global IT and software services hub. Cities like Bengaluru and Hyderabad became known as technology and outsourcing centers. The IT industry played a significant role in job creation and foreign exchange earnings.

Infrastructure Development: Investments in infrastructure, including transportation, energy, and telecommunications, improved significantly. Initiatives like the Golden Quadrilateral highway project and increased

foreign direct investment (FDI) in infrastructure bolstered the nation's connectivity and productivity.

Industrial Growth: The manufacturing and industrial sectors expanded, contributing to economic growth. India's manufacturing capabilities diversified into areas like pharmaceuticals, automobiles, and aerospace.

Foreign Direct Investment (FDI): India attracted substantial FDI during this period, driven by economic liberalization policies. The government aimed to simplify the FDI process to encourage investment in various sectors.

Global Trade: India increased its participation in global trade and signed several bilateral and multilateral trade agreements. This opened up new markets for Indian products and services.

Financial Sector Reforms: The financial sector witnessed reforms, including the establishment of new banks and the introduction of innovative financial products. This helped in improving access to banking and financial services for a larger portion of the population.

Social Welfare Programs: India launched various social welfare programs, including Swachh Bharat Abhiyan (Clean India Mission), Pradhan Mantri Jan Dhan Yojana (financial inclusion), and Digital India, aimed at improving healthcare, sanitation, financial inclusion, and digital connectivity.

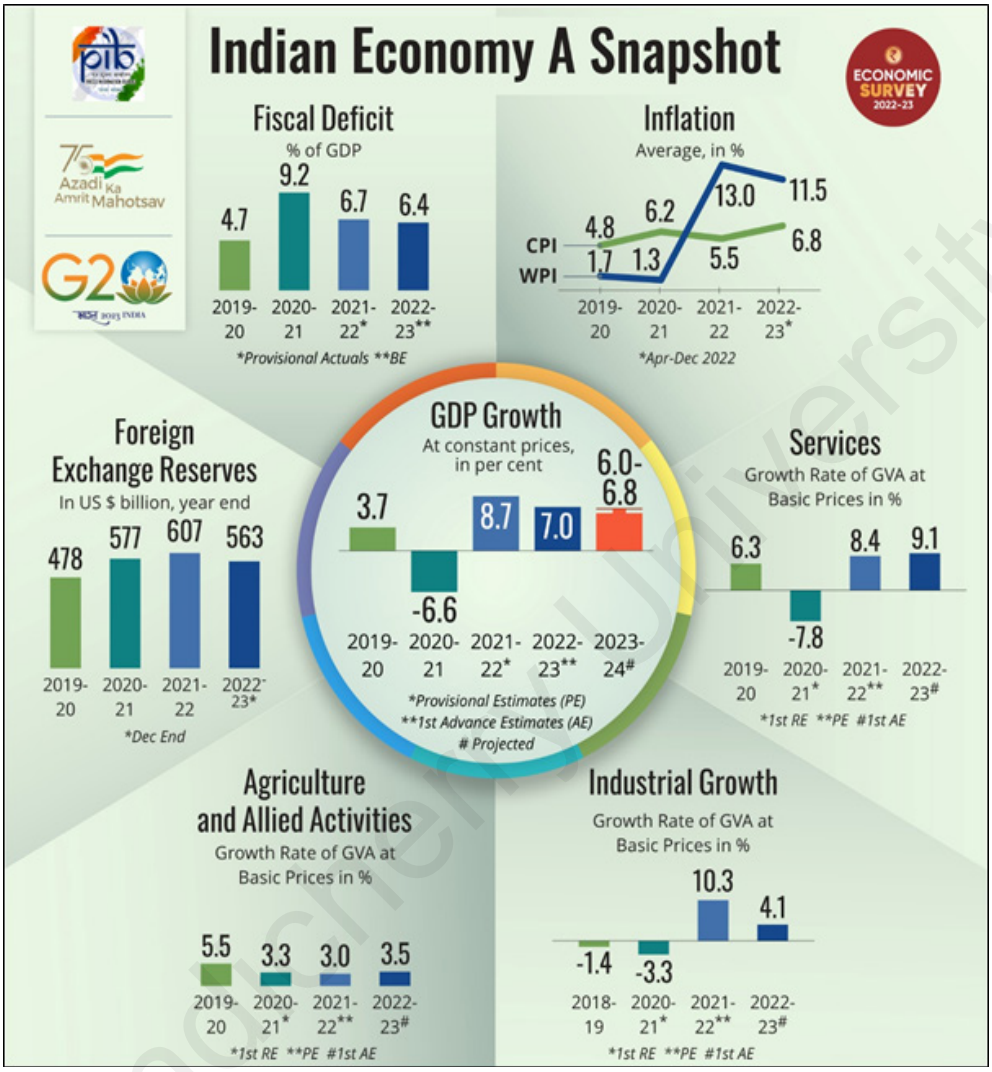
Geopolitical Influence: India's role in global geopolitics has been on the rise. It strengthened ties with several countries and became a prominent player in international forums.

The progress of the Indian economy after the reform period can be assessed in two ways.

a. The first option is the model-based counterfactual simulations. In this approach, it is attempted to contrast the actual outcomes under a given set of alternative reform scenarios.
b. In the second assessment, the 'before and after' approach shall be used to track the economic progress.

In summary, India has made substantial progress during the post-reform period in various domains, particularly in economic growth, poverty reduction, and information technology. However, it still faces challenges that need to be addressed to ensure sustainable and inclusive development. Table 3.3 and 3.4 shows the progress of the Indian economy

during the post-reform period.



Source: Economic Survey (2023)

Fig. 3.7: Indian economy – A snapshot

Table 3.3: Progress during the Post-Reform Period: A Snapshot

Indicator	1991-92	2020-21
GDP (in constant 2011-12 prices)	₹ 17.57 trillion	₹143.42 trillion
GDP growth rate	1.1%	-7.7%
Inflation rate (CPI)	13.9%	4.1%
Foreign exchange reserves	$5.8 billion	$582.4 billion
Exports of goods and services	$18.7 billion	$530.6 billion

Foreign direct investment (inflow)	$0.12 billion	$81.72 billion
Poverty rate (headcount ratio)	36%	24.7%
Literacy rate	52.2%	77.7%
Life expectancy at birth	58.1 years	69.7 years
Infant mortality rate	80 per 1,000 live births	27 per 1,000 live births

Table 3.4: Sector-wise progress during the Post-Reform Period

Indicator	**1991-92**	**2020-21**
1. Agriculture Sector		
Agricultural GDP (in constant 2011-12 prices)	₹ 4.23 trillion	₹ 25.59 trillion
Share in GDP (%)	24.1%	16.5%
Share in Employment (%)	65.1%	42.7%
2. Industry Sector		
Industrial GDP (in constant 2011-12 prices)	₹ 5.59 trillion	₹ 47.53 trillion
Share in GDP (%)	31.8%	30.7%
Share in Employment (%)	13.6%	22.6%
Index of Industrial Production	100	132.8
3. Service Sector		
Service GDP (in constant 2011-12 prices)	₹ 7.75 trillion	₹70.30 trillion
Share in GDP (%)	44.1%	45.4%
Share in Employment (%)	21.3%	34.7%
Gross Enrolment Ratio in Higher Education (%)	6.7%	27.1%

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Web Source

- https://dde.pondiuni.edu.in/files/StudyMaterials/MBA/MBA1SemesterCommon/2ManagerialEconomics.pdf

3.2.6 Review Questions

1. What is meant by new economic policy (NEP)? Discuss the 3 pillars of the NEP.
2. Discuss the advantages and disadvantages of privatization.
3. What is the philosophy and rationale behind the implementation of NEP?.
4. Briefly discuss the progress of India after the implementation of economic reform.
5. What is globalization? Discuss the effects of globalization.

UNIT – IV

Lesson 4.1 Indian Agriculture

Structure

4.1.1Objective

Agriculture is one of the important sectors of the Indian economy. In this unit, the readers of the chapter will be enlightened on the relationship between land as an input and agricultural production. In addition, they will be taught the role of climate and irrigation in increasing the output from agriculture. Land reforms played a big role in transforming agriculture. So, the readers will get a better understanding by knowing the transition process and its implementation across Indian states, followed by green revolution technologies that increased the overall agricultural output through the adoption of high-yielding varieties. In addition, this chapter will also highlight the pros and cons of the green revolution.

4.1.2 Lesson Outline

- Land and Agriculture in India – Land, Climate, and Irrigational Infrastructure
- Land Reforms and its Implementation across States
- Green Revolution and the Advent of HYV Seeds
- Green Revolution in Retrospect – Pros and Cons
- Review Questions

4.1.1. Introduction

Agriculture is the backbone of the Indian Economy and has been one of the prominent sectors in economic development owing to its

significant contribution. During the economic planning (in 1951), the share of agriculture in national income was around 60%. It also accounted for about three-fourths of the population deriving their basic livelihood. In terms of exports, a major share is accounted for by agricultural products or manufactured goods that need raw materials from agriculture for their production, like cotton, jute, etc. In the milieu, the agricultural sector has to be given a top priority owing to its predominance and the economy's dependence on agriculture for the nation's development and welfare. Clearly, the planners and policymakers did this, and enough emphasis has been given to agriculture in the five-year plans. So, to give due credit to the sector, this unit has been framed covering different dimensions of agriculture.

4.1.4 Land and Agriculture in India – Land, Climate, and Irrigational Infrastructure

Indian economy is one of the largest and oldest agrarian economies in the world, having its own significance. It plays a pivotal role in the economic development of the country by supplying food for consumption and raw materials for agro-based industries for production. It provides employment opportunities to a significant share of the population and capital for agricultural and economic development. The significance of Indian agriculture is highlighted in the subsequent segment (Figure 4.1).

Figure 4.1: Significance of Indian agriculture

Agriculture serves as a primary source of livelihood for a significant portion of the Indian population, accounting for about 20% of the country's GDP and employing about 58% of the workforce (2021-22). The sector has registered a 3% growth in 2021-22, post the incidence of the pandemic. Of the different components, 'crops' alone contribute to almost half of the GDP from agriculture. The country, primarily an agrarian economy, holds

the pride of being the second-largest producer of agricultural products after China. For a majority of the commodities, India ranks one or two (Table 4.1). It produced an all-time highest 323.55 million tonnes of food grains in 2022-23 with an average productivity of 2474 kg/ha from an area of 130.75 million hectares (Figure 4.1).

Table 4.1: India's position in world agriculture

Item	India's rank	Next to
Arable land	2	USA
Population active in agriculture	2	China
Total cereals	3	China, USA
Wheat	2	China
Paddy	2	China
Total pulses	1	--
Groundnut	2	China
Rapeseed	3	Canada, China
Vegetables and melons	2	China
Fruits excluding melons	2	China
Potatoes	2	China
Onion	2	China
Sugarcane	2	Brazil
Tea	3	China, Turkey
Coffee	7	Brazil, Vietnam, Colombia, Indonesia, Ethiopia, Mexico
Jute	1	--
Cotton	2	China
Tobacco	3	China, Brazil
Milk	1	--

Source: Food and Agriculture Organization (2023)

Figure 4.2: Trends in foodgrains production

India is naturally blessed with its diverse agro-climatic conditions that allow for a wide range of crops to be cultivated across regions. With respect to irrigation sources, a majority (~ two-thirds) of cultivable land in India is rainfed, with only one-third having access to irrigation facilities. Among several policy interventions, the 'Green Revolution' phase (late 1960s) assumes a lot of significance as it is a golden period that witnessed significant agricultural growth. During this phase, the adoption of high-yielding varieties led to a significant increase in crop yields, particularly in wheat and rice. In the long run, the agricultural sector also helps to ensure food security and nutrition security, reduce poverty and malnutrition, and improve human health and welfare.

The sector also plays a pivotal role as the prospects of central and regional governments are largely dependent on agricultural output and its supply to their population, especially vulnerable groups. The surplus is used for external trade depending on the economic scenario. With respect to farming type, traditionally, it was subsistence in nature before the dawn of the Green Revolution. With the adoption of high-yielding crop varieties, conventional agriculture has transformed into commercial agriculture (market-oriented).

One of the blessed features with respect to Indian agriculture is the prevailing diverse agro-climatic conditions, especially the temperature variants and monsoon incidence. A diverse climate setting helps the country by providing a long growing season throughout the year. However, the sector still faces a slew of challenges in India like poor infrastructure, price volatility, lack of access to credit and improved technology, and climate change, apart from environmental challenges that include soil erosion, groundwater depletion, and the effect of plant protection chemicals having

significant health impacts for both farmers and consumers.

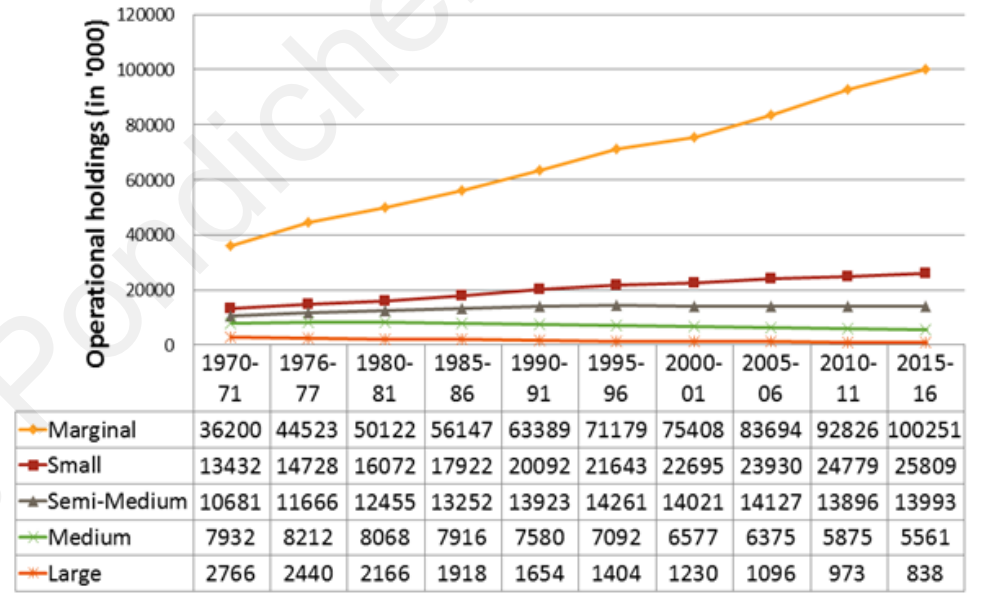
Land: Land is one of the important and crucial factors of crop production. It is fixed in supply. Worldwide, India registers the highest share (43%) of its geographical area under cultivation. For instance, countries like the USA, China, Japan, and Canada have only 16.3%, 11.8%, 14.9%, and 4.3%, respectively. The total geographical area of India is 329 million hectares, of which 265 million hectares are suitable for biological production. Almost 50% of the total geographical area is threatened by land degradation, and 190 million hectares are drought-prone. The net sown area hovers around 140 million hectares, with about 56 million hectares covered under irrigation. In India, crops are cultivated in three seasons viz., Kharif (July to October), Rabi (November to March), and Zaid (April to June). Several crops are cultivated in these seasons across regions in India (Table 4.2). Owing to the burgeoning population, there is enormous pressure on land for food production, which has resulted in higher cropping intensity.

Table 4.2: Season wise crop cultivation in India

Cropping season	Cultivated crops	
	Northern India	**Southern India**
Kharif (July to October)	Rice, Cotton, Bajra, Maize, Jowar, Tur, etc.	Rice, Maize, Ragi, Jowar, Groundnut, etc.
Rabi (November to March)	Wheat, Gram, Rapeseed and Mustard, Barley, etc.	Rice, Maize, Ragi, Groundnut, Jowar, etc.
Zaid (April to June)	Vegetables, Fruits, Fodder, etc.	Rice, Vegetables, Fodder, etc.

Despite higher cropping intensity owing to the increasing demand for food, the per capita land availability in India shows a steep decline owing to land fragmentation (1.08 ha in 2015-16), implying an increase in the number of smallholdings (marginal and small farmers), which is around 126 million as per the 2015-16 census (Figure 4.3). On the contrary, the large holders number declined from 2.78 million (1970-71) to 0.84 million (2015-16). A similar inequality is witnessed in the percentage of operational holdings (a) and area (b) by size class, as shown in Figure 4.4. Around 87% of the total holdings (146.4 million holdings) are accounted for by small and marginal holders (Figure 4.4a). Of them, marginal holders (< 1 ha) alone account for 69%. This 87% operates only 47% of the total holding area (Figure 4.4b), whereas 0.7% of large holders operate 10.6%

of the total holding area, showing the imbalance in operational holdings and area by size class. Government despite implementing land reforms after independence, the pace is too slow. Encouraging consolidation of cultivable land and cooperative farming will address the existing inequality. Cooperative farming refers to the pooling of farmers' resources to attain the benefit of 'economies of scale' in production. Such a strategy will help to reduce the rural inequalities. Land reforms, on the contrary, are a significant issue in India. Traditionally, large landholdings are owned by wealthy landowners on one side, and on the other side, there is extensive landlessness among the rural population. The Indian government has attempted several times to implement the policies for addressing the land reforms, which comprise land redistribution and tenancy reforms. Despite strenuous efforts, the implementation has been slow and often ineffective. More details on the land reforms will be discussed in section 4.1.3. Another significant issue is land conflict in rural regions. Such disputes arise from the groups who oppose claims to land and resources. These groups comprise farming communities, indigenous communities, and corporations, and their disputes have to be addressed amicably.

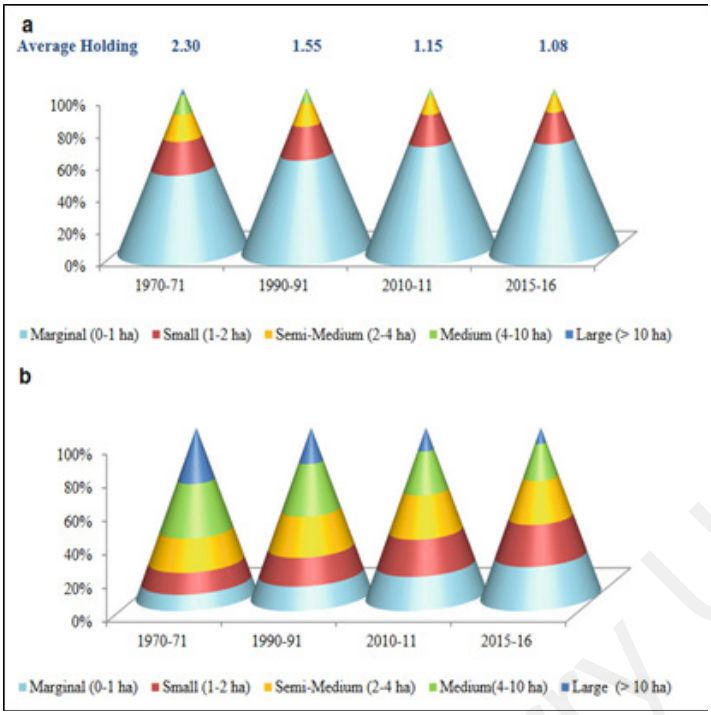


	1970-71	1976-77	1980-81	1985-86	1990-91	1995-96	2000-01	2005-06	2010-11	2015-16
Marginal	36200	44523	50122	56147	63389	71179	75408	83694	92826	100251
Small	13432	14728	16072	17922	20092	21643	22695	23930	24779	25809
Semi-Medium	10681	11666	12455	13252	13923	14261	14021	14127	13896	13993
Medium	7932	8212	8068	7916	7580	7092	6577	6375	5875	5561
Large	2766	2440	2166	1918	1654	1404	1230	1096	973	838

Source: Agriculture Census

The land is used for producing multiple commodities. Over the years, the gross cropped area has witnessed an increase from 172.6 million hectares (1981-82) to approximately 200 million hectares (2020s). However, the net sown area remains constant at around 140 million hectares, implying a higher cropping intensity. India witnessed a major

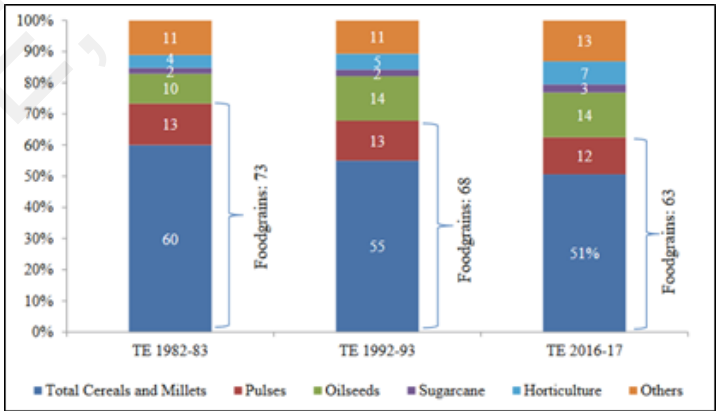
change in cropping pattern, which diversified during the aforementioned period (Figure 4.5).



Source: Gulati and Juneja (2022)

Figure 4.4: Percentage of operational holdings (a) and area (b) by size class

During the triennium ending (TE) 1982-82 to 2016-17, the cropping pattern saw a sea change from traditional crop cultivation to non-commercial farming and subsequently to commercial food production (Figure 4.5). In recent years, agriculture has witnessed the production of high-value crops like grapes falling under the 'Horticulture' category.



Source: Gulati and Juneja (2022)

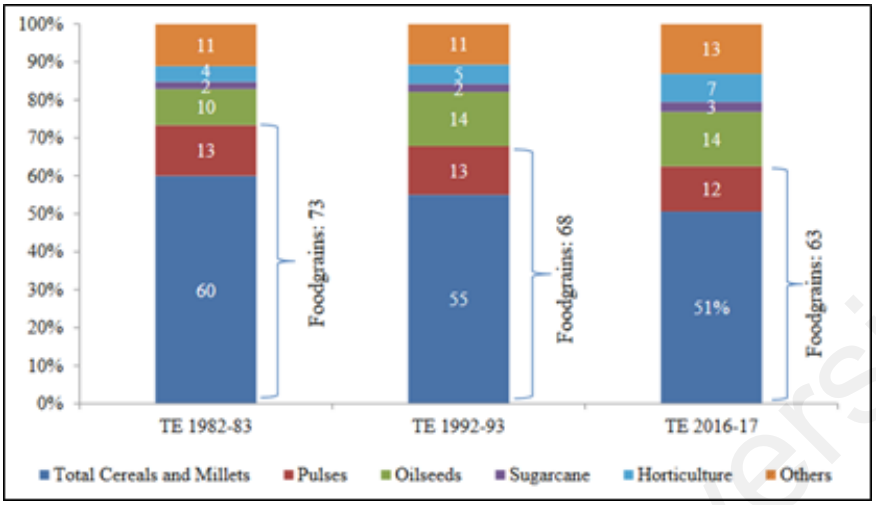
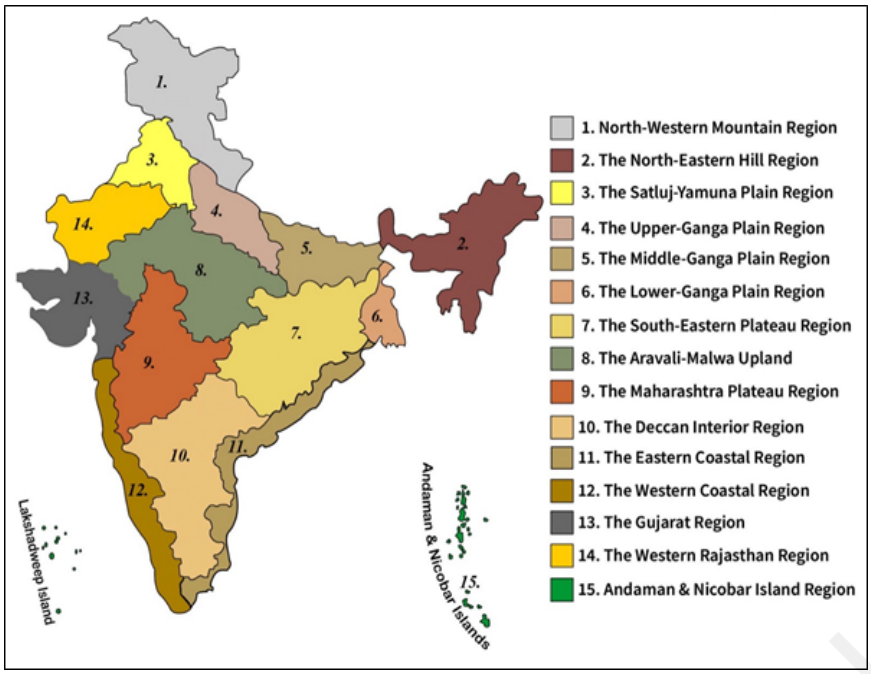


Figure 4.5: Crop diversification share in the gross cropped area

Climate: Climate (long-run) and weather (short-run) have a significant impact on Indian agricultural production, as the growing seasons are largely dependent on temperatures and monsoons, which vary across the 15 agro-climatic zones of India (Figure 4.6 and Table 4.3). Figure 4.6 shows the agro-climatic zone map of India and Table 4.3 presents the designated states under each zone. Crop production is biological in nature, and hence it is highly vulnerable (differs across regions) to extreme weather events, viz., drought, flood, cyclone, hailstorm, and heat wave (Figure 4.7).

In the highly vulnerable regions, these events are more frequent, uncertain, and highly intense owing to the adverse effects of climate change. Deviation from the normal temperature and precipitation largely distress the seasonal crop production process and hence results in lower productivity and a decline in the quality of harvested produce. For example, a rise in temperature can lead to the early onset of pests & diseases, and vice-versa. However, it is region region-specific and crop-specific, making it a big challenge to manage and control.



Source: https://geography4u.com/

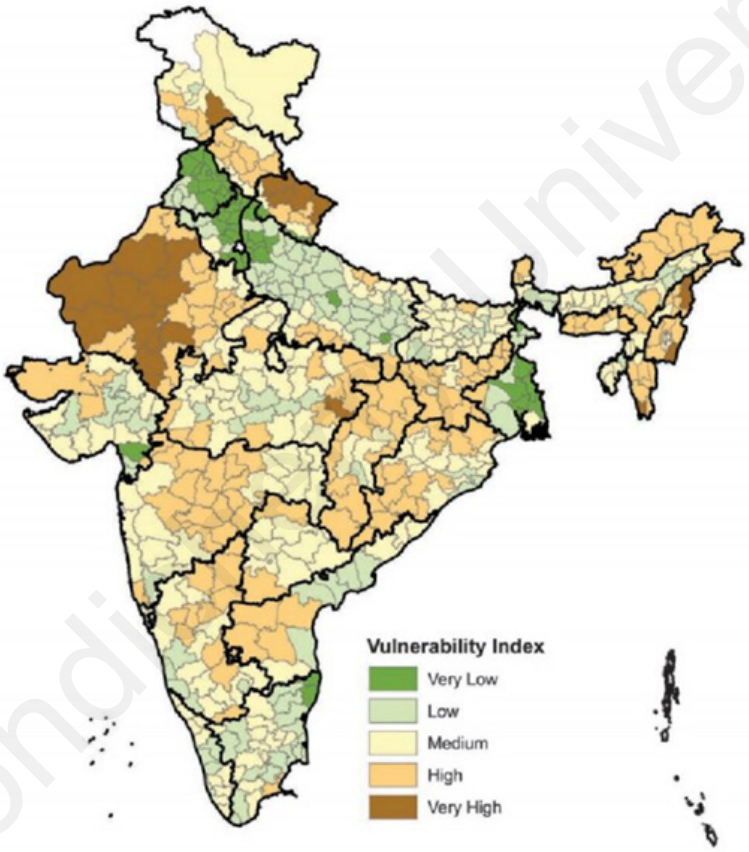
Figure 4.6: Agro-climatic zones of India

Table 4.3: Agro-climatic zones of India

S.No.	Agro-climatic regions/zones	States represented
I	Western Himalayan region	Himachal Pradesh, Jammu & Kashmir, Uttarakhand
II	Eastern Himalayan region	Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, Tripura, West Bengal
III	Lower Gangetic plain region	West Bengal
IV	Middle Gangetic plain region	Uttar Pradesh, Bihar
V	Upper Gangetic plain region	Uttar Pradesh
VI	Trans Gangetic plain region	Chandigarh, Delhi, Haryana, Punjab, Rajasthan
VII	Eastern plateau and hills region	Chhattisgarh, Jharkhand, Madhya Pradesh, Maharashtra, Odisha, West Bengal
VIII	Central plateau and hills region	Madhya Pradesh, Rajasthan, Uttar Pradesh
IX	Western plateau and hills region	Madhya Pradesh, Maharashtra
X	Southern plateau and hills region	Andhra Pradesh, Karnataka, Tamil Nadu
XI	East coast plains and hills region	Andhra Pradesh, Odisha, Puducherry, Tamil Nadu
XII	West coast plains and ghat region	Goa, Karnataka, Kerala, Maharashtra, Tamil Nadu
XIII	Gujarat plains and hills region	Gujarat, Dadra & Nagar Haveli, Daman & Diu
XIV	Western dry region	Rajasthan
XV	Island region	Andaman & Nicobar Islands, Lakshadweep

Source: Planning Commission (Khanna, 1989)

Climate projections for the Indian economy (2070 to 2099) as presented in Table 4.4 show that the mean temperature is expected to increase in the range of 2.50C to 4.950C across months and regions (Cline, 2007). Similarly, the rainfall is going to witness a major change from the normal conditions. It is expected to change between -32.9% and 57% across months and regions (Cline, 2007). This implies that the present vulnerability level to climate change will aggravate further.



Source: ICAR-CRIDA (2019)

Figure 4.7: Vulnerable regions for agriculture in India

Items	January to March	April to June	July to September	October to December
A. Temperature Change (^{0}C)				
• Northeast	4.95	4.11	2.88	4.05
• Northwest	4.53	4.25	2.96	4.16
• Southeast	4.16	3.21	2.53	3.29
• Southwest	3.74	3.07	2.52	3.04
B. Temperature Change (%)				
• Northeast	-9.3	20.3	21.0	7.5
• Northwest	7.2	7.1	27.2	57.0
• Southeast	-32.9	29.7	10.9	0.7
• Southwest	22.3	32.3	8.8	8.5

Table 4.4: Projected changes in climate for India (2070 to 2099)

Source: Cline (2007)

Irrigation Infrastructure

The development of irrigation infrastructure attains much prominence for Indian agriculture, as it directly addresses the adverse impacts of climate change. For instance, irrigation helps to mitigate the negative impact of erratic rainfall patterns and droughts on crop yields. Globally, India possesses the maximum area under irrigation, which has been estimated at around 60% of the net sown area. The area under irrigation has tremendously increased post-independence and is attributed to the onset of the Green Revolution. During this phase, the adoption of high-yielding varieties in combination with high doses of fertilizers and increased irrigation, resulted in higher productivity levels. Despite these improvements in the past few decades, the irrigation infrastructure in India is still inadequate, with many regions still dependent on rainfed agriculture. This results in low agricultural productivity and increases the likelihood of the region being classified under higher vulnerability.

To improve the irrigation infrastructure, the Government of India has launched several development schemes in the recent past. Among them, the Pradhan Mantri Krishi Sinchai Yojana (PMKSY) and the Accelerated Irrigation Benefit Programme (AIBP) are more prominent. The aim of the PMKSY is to create a comprehensive and integrated water supply infrastructure in the agricultural sector. At the same time, the AIBP's target is to afford financial support for accelerating the operation of irrigation projects. These interventions improve the irrigation infrastructure and facilitate the farming community in diversifying their farm, improving the quality of the crop produce, and increasing the yield levels. Though the program's benefits are explicit as evident from the increased irrigation potential for all major and medium irrigation projects (Table 4.5), challenges exist even today in intensifying the infrastructure for irrigation in India. Perusal of Table 4.5 indicates a sea change in irrigation potential before and after the implementation of the AIBP. The potential created under the AIBP up to March 2019 is highest in Uttar Pradesh, followed by Gujarat and Rajasthan. Gujarat is the only exception wherein the created potential (1.87 million hectares) is more than the target (1.83 million hectares). Some challenges encountered during the process are

high capital costs to build the infrastructure, increasing water scarcity, and environmental issues associated with groundwater extraction. To address these challenges, sustainable practices with respect to irrigation, viz., drip irrigation and sprinkler irrigation, collectively known as 'micro-irrigation' are recommended (Table 4.6). Such sustainable practice helps to reduce the pressure on water for irrigation, conserve water, and reduce the impact of irrigation on the environment.

Table 4.5: Irrigation Potential created under AIBP (in '000 ha)

S. No.	State	Ultimate Potential	Created before AIBP	Target for AIBP			Potential Created under AIBP upto March 2019
				1996-97	2018-19		
1	Andhra Pradesh	900.34	23.37	788.91	0.00	2.00	330.79
2	Assam	262.63	96.23	162.32	1.99	1.20	123.89
3	Bihar	1323.64	1430.99	684.65	1.18	0.20	478.28
4	Chhattisgarh	791.65	394.94	213.71	0.00	0.00	208.65
5	Goa	28.63	4.81	23.82	0.00	0.20	20.70
6	Gujarat	2028.35	168.21	1830.24	16.12	98.60	1868.36
7	Haryana	400.50	179.53	200.97	12.09	0.00	115.22
8	Himachal Pradesh	37.51	0.00	37.51	0.00	0.00	37.50
9	Jammu & Kashmir	154.80	48.93	105.69	0.00	0.00	58.80
10	Jharkhand	299.83	6.04	293.79	0.00	0.00	121.61
11	Karnataka	1911.59	967.15	953.53	0.77	6.90	843.23
12	Kerala	154.84	69.12	57.47	0.43	0.80	51.19
13	Madhya Pradesh	1559.01	118.25	1028.50	0.00	16.20	964.04
14	Maharashtra	2230.69	827.79	1215.17	0.46	74.10	840.61
15	Manipur	55.99	4.00	51.99	0.00	2.40	40.40
16	Meghalaya	4.78	0.00	4.78	0.00	0.00	0.00
17	Odisha	844.51	216.21	649.86	1.31	13.10	305.63
18	Punjab	337.62	0.00	337.62	0.00	0.00	201.22
19	Rajasthan	1752.51	70.11	1605.16	0.83	0.10	1161.02
20	Tamil Nadu	0.00	0.00	0.00	0.00	0.00	0.00
21	Telangana	1145.43	1105.09	827.94	0.00	9.70	629.57
22	Tripura	26.72	2.18	24.54	0.62	0.00	16.81
23	Uttar Pradesh	5890.70	2658.52	3213.88	29.02	384.90	2216.24
24	Uttarakhand	310.00	0.00	270.00	0.00	0.00	0.00
25	West Bengal	1057.96	402.02	551.02	11.70	0.00	147.50
	Total	**23510.22**	**8793.47**	**15133.04**	**76.51**	**610.40**	**10781.24**

It is clear from Table 4.6 that with the exception of a few eastern states, in the rest, the coverage of micro-irrigation is good. It is highest in Rajasthan, where the region is arid, followed by Andhra Pradesh and Maharashtra. Depending upon the water and other resources, including the prevailing agro-climatic conditions, the cropping pattern is decided. Overall, in this section, the scenario of irrigation infrastructure has been studied and is

essential for ensuring food and nutrition security. In addition, it helps to reduce poverty and mitigate the impact of climate change on Indian agriculture.

Table 4.6: State-wise area covered under micro irrigation (as of 31.03.2019)

(Hectare)

S.No.	State	Drip	Sprinkler	Total
(1)	(2)	(3)	(4)	(5)
1	Andhra Pradesh	1295658	489560	1785218
2	Arunachal Pradesh	613	0	613
3	Assam	373	2448	2821
4	Bihar	10502	104998	115500
5	Chhattisgarh	24751	291521	316272
6	Goa	1186	1129	2315
7	Gujarat	723222	698692	1421914
8	Haryana	32758	572622	605380
9	Himachal Pradesh	5389	4323	9712
10	Jammu & Kashmir	23	57	80
11	Jharkhand	20633	15757	36390
12	Karnataka	658171	863322	1521493
13	Kerala	23610	8683	32293
14	Madhya Pradesh	313887	242733	556620
15	Maharashtra	1199963	505365	1705328
16	Manipur	358	30	388
17	Meghalaya	308	307	615
18	Mizoram	3064	1364	4428
19	Nagaland	444	5005	5449
20	Odisha	24786	97944	122730
21	Punjab	35593	13195	48788
22	Rajasthan	245301	1645431	1890732
23	Sikkim	6044	3042	9086
24	Tamil Nadu	487511	188140	675651
25	Telangana	191722	70569	262291
26	Tripura	444	1651	2095
27	Uttar Pradesh	25583	128530	154113
28	Uttarakhand	7078	5041	12119
29	West Bengal	964	65723	66687
30	Others	15169	30636	45805
	Total	**5355108**	**6057818**	**11412926**

Source : Department of Agriculture, Cooperation & Farmers Welfare

4.1.5 Land Reforms and its Implementation across States

In India, out of 146.4 million farm holdings (2015-16 Census), the total number of smallholdings (< 2 hectares) comprising marginal and small farmers is around 126 million (87%), and the large holders (> 10 hectares) are 0.84 million (0.7%). Of the 87% of total holders i.e., smallholders operate only 47% of the total holding area but 0.7% of total holders i.e., large holders operate 10.6% of the area. This explicitly indicates the existing imbalance in operational holdings and area by size class. The wide disparity is attributed to the land fragmentation that made agriculture uneconomical. Government despite implementing land reforms after independence, the pace is too slow. The drive for land reforms is to distribute the cultivable land so that it is not controlled by a few individuals.

Despite strenuous efforts all levels, the land reforms in India have not reached the expected status. The land reform measures should focus on enhancing the agriculture productivity and ultimately the farmers' income. Since, the farm size and land productivity have positive association (i.e., correlation), the attempt of the new-age land reforms must target land consolidation and cooperative farming. In the long run, such interventions will enhance agricultural productivity via economies of scale. For instance, the adoption of mechanized farming in pooled land will increase crop productivity and profitability. Also, cost reduction will be noticed in such pooled farm operations. Alternatively, the farmer–corporate tie-up shall be fostered and strengthened through contract farming models. Such models assist farmers in adopting cutting-edge technological interventions and innovations in agriculture and also in reaping remunerative returns.

Objectives of Land Reforms: The land reforms in India aim to keep a land ceiling (upper limit), and the land over and above the ceiling gets distributed to marginal and small farmers. Through this policy intervention, it is expected to achieve certain societal benefits. The land reform objectives are given below:

- To reduce the poverty existing in rural India
- To exclude the intermediaries in the land revenue system
- To bring reforms in the tenancy structure
- To increase the production from agriculture
- To consolidate the land ownership and avoid fragmentation of the land
- o encourage cooperative agriculture
- To promote economic parity and social equality
- To protect the tribals by averting unknowns from claiming ancestral lands
- To target industrial as well as commercial growth

System of Land Tenure (during pre-independence): During the pre-independence period, when India was ruled by the British, streamlining was done to collect the land revenue. This was consolidated by collecting the revenue through different settlements across peasantry classes and regions in India. The major system of land tenure that prevailed during the pre-independence period was the permanent settlement system or Zamindari system, Mahalwari system, and Ryotwari system. A brief detail

of those systems is given in the subsequent part of this chapter for a better understanding.

Permanent Settlement System or Zamindari System: The Zamindari system was a revenue collection system that existed during the British colonial period and played a significant role between the late 18th century and the mid-20th century. This was first introduced by Lord Cornwallis in 1793 and was formalized through various regulations and acts. The main aim of this system was to implement a revenue collection framework for the British government. Under this system, Zamindars (i.e., landlords) served as full proprietors of the land and were granted rights to collect land revenue from the farmers. Zamindars generally were local influential persons or held the land rights traditionally and they acted as the intermediary between government and farmers. Zamindars were entrusted to collect the land revenue in cash and the share of government in total revenue was fixed at 10/11th. The balance goes to Zamindars as remuneration. The farmers often faced exploitation and oppression from the Zamindars. The drawback of the system is that it created a class of 'absentee landlordism' who exhibited little interest in land development. In the long run, it led to land inequality. Further, over-exploitation of the farmers led to less productivity in agriculture. Such a system prevailed in Andhra Pradesh, Bihar, Madhya Pradesh, Orissa, Uttar Pradesh, and West Bengal and started to dismantle gradually post-independence.

Mahalwari System: The Mahalwari system was introduced by Lord William Bentinck in 1833. In this system, Lambardar, the village headman was assigned the duty to collect the land revenue from the village or mahal – a group of villages. The revenue assessment period has been fixed at 30 years. Around 66% of the collected rental value was accounted for by the state and the Lambardar has to submit it to the government. The system was introduced in northern and central regions of British India. However, the implementation and impact of this system varies across regions like North-West India, Agra, Central India, Gangetic Valley, Punjab, etc.

Ryotwari System: The Ryotwari system was introduced by Sir Thomas Munro in the late 18th century. It was implemented primarily in several southern states and has been regarded as an alternative to the earlier exploitative systems. 'Ryotwari' has its roots in 'Ryot' which refers to peasant cultivators. Under this system, farmers have to pay their land revenue directly to the government which is fixed (50% in the case of dry

land and 60% in the case of wetland). The system was initially introduced in southern states like Tamil Nadu and then it was implemented in several regions like Assam, Coorg, East Punjab, and Maharashtra. This system also started to get dismantled gradually post-independence.

In India, as British rule neared its conclusion, various forms of land revenue settlement systems led to a different agrarian society. Within this context, powerful groups in the local regions with productive interests exerted significant influence over the land. Concurrently, a group of influential persons held a firm concentration on a majority of the land size, leading to escalating socio-economic issues like landlessness, unemployment, poverty, starvation, and indebtedness. Over time, these issues across India reached unprecedented levels. The socio-economic problems were further exacerbated by the eviction and insecurity faced by tenants, necessitating urgent attention upon gaining independence which resulted in the 'Land Reforms'. The following section describes the components of land reforms.

Components of Land Reforms: The components and sub-components (Mahajan, 2020) of the land reforms are given in Figure 4.8.

1.Abolition of Intermediaries: Intermediaries abolition was a crucial and one of the significant policy actions implemented by India. During India's independence, around 57% area of the cultivable land was controlled by the Zamindars. The Zamindari system has been widely practiced as it was endorsed and supported by the Britishers for their own interest. However, post-independence, several states enacted legislation that targeted to eradicate the Zamindari system. Some of the interventions taken by the state governments are as follows: complete withdrawal of privileges for Zamindar and Jagirdars coupled with the imposition of ban or restrictions on further land acquisition; intermediary tenure system was abolished, and the due compensation was paid to the landowners; freeing a significant share of farmers from the illegitimate levies in terms of money, goods, and services; creation of comprehensive land records along with survey and settlement within these regions; and the farm holdings were delineated based on individual ownership. Overall, with the concerted effort from all stakeholders, approximately 70 million hectares of land from the intermediaries were acquired. In the process, around 2 crore tenants were made to have a direct relationship with the government.

2.Tenancy Reforms: Under the land tenure system, tenants found

themselves too burdened with the prospect of a high level of rent payment. In addition, they also had a fear of eviction from the land in the case of failure to pay the rent. To address the aforementioned issues, three significant measures as a part of the tenancy reforms were implemented.

- ***Regulation of Rent:*** Rent regulation refers to the implementation and enforcement of rules and regulations governing the amount of money that can be levied for occupying land. It is the first and foremost state intervention with respect to tenancy reforms to protect tenants and ensure fairness in rent structure through rent control (keeping statutory limits) and rent stabilization (cap at a specific percentage per annum). In the pre-independent era, Zamindars imposed and collected excessive rents from tenants across the country that ranged between 34 and 75%. For instance, in Punjab, as much as 80% of the harvested produce was collected as rent from the tenants. In order to implement a fair, transparent, and standardized system, the initial FYP pronounced the necessity to have a ceiling on the maximum amount of rent to be collected. It was fixed at one-fourth or one-fifth of the total agricultural output produced from the land. Subsequently, after 1947, legislative actions were passed to enforce the limits on land rent, having implications for poverty alleviation by reducing the tenants' financial burden. Overall, the purpose of rent regulation is to protect the tenants from exploitation by the intermediaries and to bring social equity and community stability.

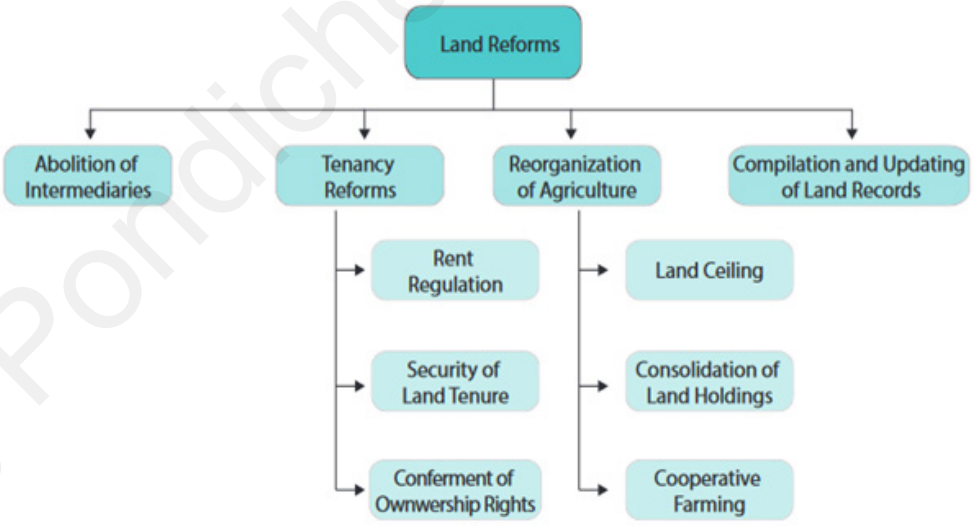
- ***Security of Tenure:*** Security of tenure means the legal and social protection of the tenants to use their land. It is one of the pivotal aspects of the tenancy regulation. It has different forms like giving ownership, offering tenancy rights, and giving informal rights to the tenants. The intention of this regulation is to encourage investment in land, enhance its productivity, and ensure that tenants receive a fair amount of output produced from their land. This legislation aims to achieve the following three specific objectives:

- To confirm that eviction takes place solely following the legal provisions

- To allow landowners to reclaim the land, if needed, but only for personal cultivation

- To allot minimum land to the tenant in the case of resumption of the land
- ***Conferment of Ownership Rights to Tenants:*** Tenant ownership refers to empowering the tenants through significant legal and policy interventions. It involves granting tenants the right (legal) to own the land. The aim of tenancy reform is to eradicate absentee landlordism by granting ownership rights to the cultivators who are actually tilling the soil. Across India, approximately 12 million tenants have been conferred with ownership rights for about 15 million hectares of land. Such reform produces a significant impact on individuals and societies but requires meticulous planning with a well-defined legal framework. In India, this was done by adopting two approaches:

1. by designating tenants as owners with a mandate that the tenants have to provide compensation to the previous owners
2. paying compensation to the previous owners by the government for the acquisition of the land rights and subsequently the tenants get the transfer of ownership



Source: Mahajan (2020)

Figure 4.8: Components of land reforms

3.Reorganization of Agriculture: Reorganization of agriculture involves an inclusive approach to transforming the agriculture sector by improving productivity and livelihood levels. In this process, various challenges faced by the agricultural sector have been addressed. However, agriculture being a state subject, the interventions differ across regions. The following are

the policy actions taken to reorganize Indian agriculture.

- ***Ceiling on Land Holdings:*** This refers to imposing a maximum limit on the possession of land. It's a legal mechanism through which a statutory limit is imposed on the area of land a person can own. The prime objective of the ceiling on land holdings is to remove excessive land ownership. This is because a significant amount of the land is owned by a few privileged people who function as absentee landlords whereas the land is put under cultivation by the landless labourers. This has implications for society's development, especially with respect to poverty reduction. As per the Food and Agriculture Organization (FAO), 5% redistribution of farmland along with improved access to irrigation water shall reduce the poverty level to the tune of 30%. In the process of implementation of the land ceiling, a conference of Chief Ministers was organized in July 1972. The purpose of the conference was to bring some sort of uniformity in the policy implementation pertaining to landholding ceilings. On consensus arrived at the conference, a new policy framework was formulated, which had the following features:
- Reducing the land ceiling limits to 18 acres with respect to wetlands and 54 acres in the case of unirrigated land.
- Instead of an individual, 'family' will be considered as the unit for determining land ownership. The family will comprise five persons including a husband, wife, and minor children.
- With respect to the protection from the judicial challenges, civil courts' jurisdiction was restricted. A majority of such laws were included in the constitution (ninth schedule) which gave immunity to the legal challenges on the grounds of violation of fundamental rights.
- The exemptions given for modern as well as mechanized farms were eliminated in the new policy framework.
- ***Land Consolidation:*** It is one of the policy initiatives, wherein the farmer is given an opportunity to get one consolidated landholding that combines the scattered land under the farmer's ownership. The benefits of land consolidation are to address the issue of land fragmentation and also to reap the benefits of economies of scale. In such a situation, farmers can easily adopt farm practices like mechanized farming that result in higher productivity of the land. A majority of the land consolidation efforts in India were focused

on regions like Punjab, Haryana, Uttar Pradesh, Maharashtra, Odisha, and Bihar. Indeed, several states have enacted legislation to prevent the subdivision and fragmentation of farmland beyond a threshold limit, technically known as "standard area." States like Assam, Andhra Pradesh, Bihar, Gujarat, Rajasthan, Uttar Pradesh, and West Bengal have already made mandatory provisions for land consolidation in their legislative document.

- ***Cooperative Farming:*** The purpose of cooperative farming is to address the issues of land fragmentation and it enables the farmers to harness the benefits of large-scale farming. For instance, cooperative societies have the capacity to procure and sell quality agricultural inputs like seeds, fertilizers, manures, plant protection chemicals, etc at affordable rates. Bulk procurement will lead to less unit cost of sale having implications for farm profitability. Alternatively, cost-intensive agriculture inputs (machinery and equipment) like tractors, power tillers, threshers, etc., which are beyond the purchasing capacity of small and marginal farmers, can be purchased by the cooperative society on a collective basis and then rented out by serving as a custom hiring center. Under cooperative farming, the 'package of practices' can be scientifically planned allowing for technological interventions and interventions. In the case of large farms, the procurement of marketable surplus (finished products and raw materials) gets simplified as it operates on a bulk basis, especially operations like transport and distribution. Indirectly, cooperative farming addresses the challenges faced by the smallholders. Planning and policy formulation is relatively effective with large-size cooperative societies as the collection of agriculture-related data is easy and reliable. Further, cooperatives promote certain principles like people participation, collective action, and mutual cooperation that significantly contribute to regional development and nation-building.

4.Compilation and Updating Land Records: The establishment of an efficient land record management system is a crucial process, and it serves as a pre-condition for the successful implementation of the land reform program. The lack of an all-inclusive record of land rights has been a key factor in influencing land concealment, which significantly impedes progress in land reform policy initiatives. To be more specific, the absence of land records has posed serious challenges to the implementation of land ceiling and tenancy reforms.

This has hindered the government's aim of eliminating the influence of landlordism in rural regions of India. Under this initiative, during the period 1987–1988, "Strengthening of Revenue Administration and Updating of Land Records (SRA&ULR)" was introduced in Odisha and Bihar. This is a centrally sponsored scheme, and it was extended later to other states during 1989–1990. Under SRA&ULR, financial resources were allocated to support different land records activities like land surveys and resettlement operations, offering capacity-building programs to revenue and settlement personnel, upgrading the procedures of survey and settlement, and improving the functioning of the revenue administration at the village level. In recent years, the modernization of land records has happened wherein processes like land surveys using modern technologies (GPS), digitization, verification, public access, and regular audits are carried out.

Status of Land Reforms in India

In India, the land reforms date back to 1950s, and they are executed by the central and state governments. The main aim of land reform is to redistribute the land to the landless and marginalized classes as well as to eliminate the concentration of land ownership by a few influential people. Despite strenuous efforts taken by different stakeholders, the progress of land reforms in India is a bit slow and uneven across regions. Some states in India have implemented land reforms, while the rest have made little or no progress. Several reasons can be attributed to the slowness of adoption. Recurrent delays and hindrances in the implementation of land reforms are due to factors like political resistance, administrative inefficiencies, and lack of sufficient funding. Yet, some significant land reforms have been implemented in India that include the abolition of intermediaries like 'Zamindars', the imposition of ceilings on farm landholdings, consolidation of land, the redistribution of surplus farmland, and the conferring ownership to landless farmers who actually till the soil. Despite such policy actions, a significant share of the population in rural India still encounters several issues related to landlessness, land fragmentation, and unequal land distribution. To address these issues, the government has proactive measures like digitization of land records, promoting the leasing of lands for cultivation, and ensuring land entitlement to the farmers. As mentioned earlier, the operational part of land reforms is slow as well as

challenging in India for various socio-economic-political reasons. Yet, there is a long way to go in attaining equitable distribution of land as well as ensuring the land rights of marginalized communities like landless laborers and socially backward classes. In the subsequent part, the status of land reforms across India is highlighted briefly as per the degree of implementation at different levels, wherein some states making significant progress while the rest are lagging in one or other components.

West Bengal: West Bengal is one of the most successful states that has implemented the land reforms. In 1978, 'Operation Barga' was launched by the state government. It is a tenancy law that has regulated the rents and security of tenure for the sharecroppers, i.e., Bargadars (Mahajan, 2020). The state has also implemented measures such as the Land Ceiling Act (LCA). The purpose of LCA is to impose a limit on the land possession owned by an individual or a family. In addition, the state government has implemented policies to redistribute the surplus land from the influential people to the landless laborers as well as to provide land to the marginalized groups like the tribal communities.

Kerala: Kerala is one of the successful states with respect to the implementation of land reforms. It has adopted the components like imposition of land ceilings (cap limit) and the redistribution of surplus land to the landless. In addition, the state adopted measures to give entitlement of land to the farmers and it has also ensured that women in Kerala have equal access to land.

Tamil Nadu: In the case of Tamil Nadu, land reform components like the abolition of intermediaries and redistribution of surplus land to landless farmers were implemented successfully. In addition to these policy interventions, the state government has taken proactive measures to ensure land ownership to rural women.

Uttar Pradesh: In Uttar Pradesh, land reforms like imposing an upper limit on land holdings and redistribution of surplus farmland to the landless laborers were adopted. However, the progress of land reforms within the state experienced a slow pace owing to several factors, especially political resistance and relative inefficiency in the administrative setup.

Bihar: In the case of Bihar, the implementation part was very limited and the progress was also too slow. The state government has implemented specific measures like providing land entitlement to the

farmers and distributing the surplus land to the landless cultivators. As mentioned earlier, the implementation of land reforms in this state has taken a backseat as the initiatives were hindered by disputes related to land as well as insufficient funding.

Overall, the land reforms in India were implemented to empower the socially backward classes despite several hindrances faced across regions in the course of implementation. Over time, several states within India have attained the benefits of land reforms.

Drawbacks of Land Reforms in India

- Several small and marginal farmers are still being prey to the clutches of moneylenders.
- Rural indebtedness prevails and it results in widespread poverty.
- Land ceiling varies from state to state and several plantation crops were exempted.
- A significant number of people own vast tracts of land under the 'Benami' name.
- Implementation of the land reforms is not uniform across states.
- Abolition of Zamindari didn't eradicate landlordism or tenancy completely.
- Large-scale eviction of land ownership has given rise to several problems
- Issues are multidimensional and complex – socioeconomic, administrative, and legal.

4.1.6 Green Revolution and the Advent of HYV Seeds

Green Revolution

Norman E. Borlaug

Globally, the 'Green Revolution' is a movement meant to increase agriculture productivity levels through the adoption of new crop cultivars supported by increasing irrigation intensity, fertilizer application, plant protection chemicals, and mechanization. The term was coined by William

Gaud, Director of the US Agency for International Development. The movement was a planned international effort attempted by the Rockefeller Foundation and Ford Foundation coupled with several developing country governments wherein food shortages existed. Dr. Norman E. Borlaug is regarded as the 'Father of Green Revolution' and was awarded the Nobel Peace Prize for his lifetime of work to feed the hungry world, especially developing countries in Asia like India.

Purpose and Promise of the Green Revolution: The main purpose of the Green Revolution is to eliminate hunger by raising the productivity of crops. As the population witnessed an increase in comparison to food production growth, there was a need to increase the food supply to feed the burgeoning population. Hence, the movement started with the following promises:

- To improve the yield levels
- To eliminate hunger
- To raise the global food supply
- To enhance the technological knowledge in farming
- To make aware of improved irrigation methods
- To ensure the resources to rural farmers for increasing the efficiency in crop production

Figure 4.9 shows the key elements of the Green Revolution. The adoption of high-yielding varieties (HYVs: semi-dwarf rice and wheat, uniform in stature, highly responsive to inputs and early maturing) which are highly responsive to irrigation and fertilizer applications coupled with mechanization led to an increase in productivity levels. Through the movement, traditional crop production practices (application of less fertilizers, minimum irrigation, and subsistence farming using the traditional varieties) were transformed into modern practices (Figure 4.9) that led to increase in the production.

During the Green Revolution phase, the major change was the replacement of traditional cultivars with HYVs. These traditional varieties exhibit little response to the fertilizers applied. In addition, with high

vegetative growth, they grow taller leading to lodging; display greater variation in the farmers' field; require a long growing season to mature; and produce only low to moderate yield without any consistency.

Figure 4.9: Key elements of the Green Revolution

The Advent of HYVs

The period from the 1940s to the 1960s is considered a phase of significant agricultural innovation and transformation, especially in the developing world. These regions registered food shortages for several years owing to burgeoning population, and hence they demanded an innovation in the agricultural sector to transform the regional food production. So, the ultimate goal was to increase the productivity in agriculture to feed the ever-growing population. This shall be possible only through technological innovations and interventions. In such a situation, the introduction of new technologies like HYVs, chemical fertilizers, plant protection chemicals, and irrigation assumed a lot of significance. Of all the innovations that happened during that phase, the prominent contribution was the development and adoption of HYV seeds. These HYV seeds are selectively bred to produce higher yield levels in comparison to the traditional crop varieties. The HYVs are characterized by specific traits like shorter growth cycles, resistance to pests and diseases, and tolerance to abiotic stresses.

The introduction of HYV seeds led to a significant increase in overall agricultural productivity, especially in rice and wheat for many regions, particularly in the Asian and Latin American countries where

food and nutrition insecurity was prevalent and persistent. By the end of the 1960s, the output from the HYV seeds accounted for more than 50% of all wheat and rice produced in Asia. The surge in production, especially the staples for a majority, helped several governments to prevent widespread famine and food shortages. Despite the societal benefit of food security, the adoption of HYV seeds also led to some negative consequences. The increased reliance on the application of chemical fertilizers, pesticides, and plant protection chemicals resulted in negative externalities, i.e., environmental degradation, high cost of the HYV seeds, and associated technologies that made it difficult for the small and marginal holders to compete with the other extreme group, i.e., large farms and more commercialized operating farms. Alternatively, the emphasis given to high-yield crops sometimes ends up forgetting other important activities on the sustainability front, such as soil conservation and crop diversity.

Green Revolution in India

During the 1950s, the food production in the Indian economy was very low (50.82 million tonnes in 1950-51), leading to a 'shortage' situation to feed the domestic population. To tame the situation of shortage in food production and improve the productivity in agriculture, the government adopted a two-pronged strategy:

a. adopting institutional reforms and interventions like land reforms, investment in irrigation, power projects, etc., as a long-term and sustainable strategy.
b. 'ship to mouth', i.e., importing food grains to feed the ever-growing population. However, due to inefficient implementation owing to political resistance and loopholes in the land reform, it could not catalyze the agricultural production process. Since it was believed that the institutional reforms were enough to boost agricultural productivity, the sector remained neglected till the mid-1960s in the light of technological improvement.

The Green Revolution in India had its inception in the mid-1960s when the economy was facing severe food shortages due to the rapidly growing population coupled with low agricultural productivity. The Indian government under the directions of former Prime Minister Smt. Indira Gandhi, introduced a range of new agricultural technologies to improve crop yields. This was carried out with the aid of prominent international

organizations like the Ford Foundation and the Rockefeller Foundation.

Typically, the Green Revolution in India has been largely called the 'Wheat Revolution' because of the gargantuan increase in the production of wheat, and Dr. MS Swaminathan is regarded as the 'Father of Green Revolution' in India. The wheat production increased nine times between 1964-65 and 2022-23 (Figure 4.10). Several reasons can be attributed to the increased production over the years (Figure 4.11). The Green Revolution in India was a complex technological intervention that is multifaceted comprising both positive and negative outcomes. Though it is largely viewed as a movement for India's economic and agricultural development, it is also criticized for having significant environmental and social costs.

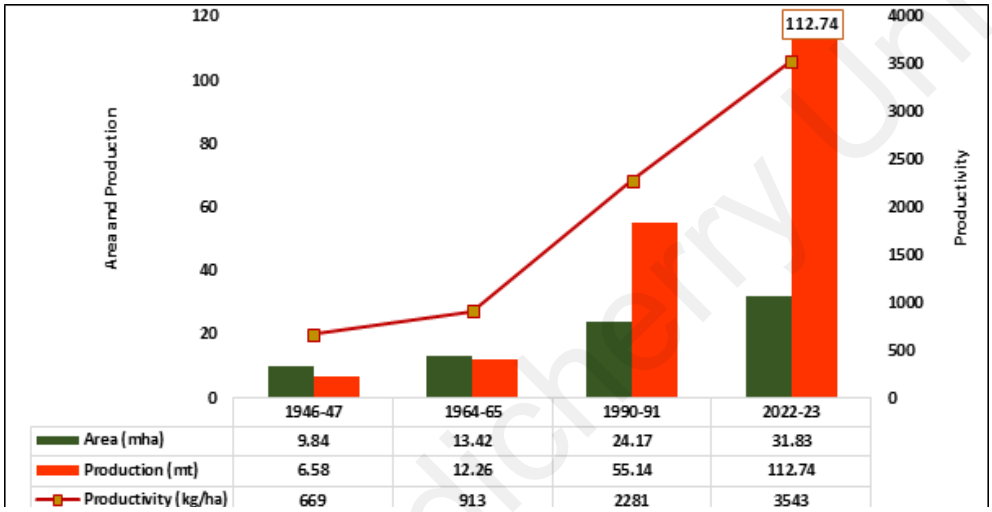


Figure 4.10: Trends in Indian wheat production

1967-68	Green revolution: Introduction of high yielding semi-dwarf wheat varieties
1970s	Adoption of high yielding semi-dwarf wheat varieties: Wide adoption of varieties like sonara 64.Lerma Joja, Sonalika etc.
1980s	Mechanization: Increased mechanization (use of tractors) particularly in states Like Punjab and Haryana
1990s	Scientific package of practices: package of practices which are region specific were Identified and recommended to the farmers
1990s	Frontline demonstrations: Demonstration of newly released crop production and Protection technologies and its management practices
1995	Introduction of 1B/1R translocation led to release of PBW 343: A mega and Popular wheat variety among farmers
Early 2000s	Resource conservation technologies (RCTs): RCT like zero tillage, rotary till, Rotavator were popularized among wheat producers
2010s	Promising varieties: Release of mega varieties like HD 2967 and HD 3086, and Release of first bio-fortified variety (WB2)

Source: Singh et al. (2019)

Figure 4.11: Highlights of the Green Revolution in India

4.1.7 Green Revolution in Retrospect – Pros and Cons

Green Revolution being a movement, has its own pros and cons (Table 4.7). In the subsequent part, the pros and cons will be discussed in brief.

Pros of the Green Revolution: The Green Revolution movement in India is a highly debatable topic. Undoubtedly, it has resulted in several positive impacts (Figure 4.12 and Table 4.7), primarily increasing the ability and capacity of farmers to grow food drastically, particularly in the developed world. Post-Green Revolution, the cultivation of crops became easier as they were genetically chosen for a specific environment, i.e., agro-climatic conditions. The technological intervention made farming more profitable and less labor intensive. It had spillover benefits like forward linkage with the food industry leading to the development of the agro-based industries. In the process of wide adoption of the Green Revolution technologies, human labour was replaced by machine labour, i.e., increased mechanization.

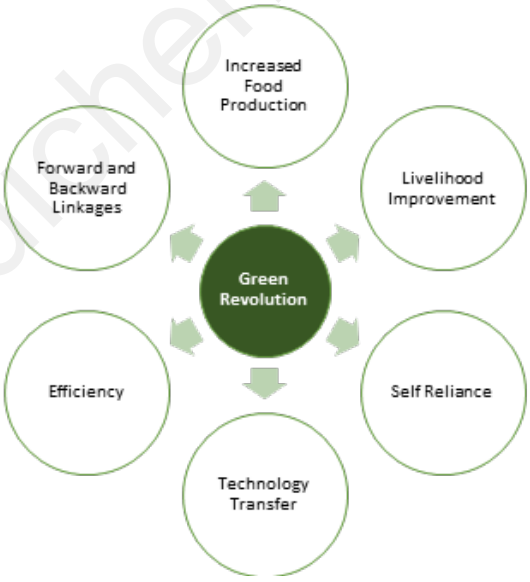


Figure 4.12: Positive impacts of the Green Revolution

Cons of Green Revolution: The Green Revolution in India is also subjected to several criticisms and negative impacts (Figure 4.13 and Table 4.7). Some of the adverse effects like environmental degradation owing to the overuse of groundwater for irrigation, health concerns due to increased use of fertilizers and plant protection chemicals, income inequality as a result of technology adopters and non-adopters, and the erosion of traditional

practices as a result of HYVs adoption replacing the traditional cultivars are reported.

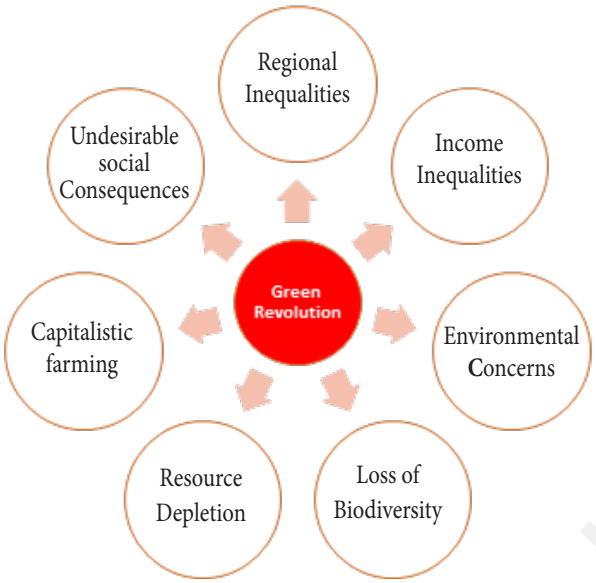


Figure 4.13: Negative impacts of the Green Revolution

Table 4.7: Pros and cons of the Green Revolution

Pros (Positive Impacts)	Cons (Negative Impacts)
Significant increase in agricultural productivity	Over-reliance on monoculture and high-input agriculture (e.g..: Rice and Wheat)
Reduction in food shortages and famine	Environmental degradation from increased use of pesticides and fertilizers
Development and adoption of high-yielding variety (HYV) seeds	Soil degradation from intensive tillage and irrigation
Improved crop yields and quality	Increased economic inequality between small and large farmers
Expansion of irrigated land and modern infrastructure	Loss of traditional crop varieties and biodiversity
Increased availability of food and improved nutrition	High cost of HYV seeds and associated technologies, which made it difficult for small farmers to compete

Increased investment in agricultural research and development	Social and cultural disruption from changes in farming practices
Transfer of agricultural knowledge and technology across India	Dependence on foreign aid and loans to purchase inputs and technologies

Second Green Revolution: India has made rapid strides in food grain production since the Green Revolution. This led to higher production of commodities like rice, wheat, milk, fruits and vegetables, eggs, etc. which shall be linked to the 'Rainbow Revolution.' It is an integrated development of the agricultural sector as a whole comprising crop, fisheries, dairy, poultry, etc. (Table 4.8). At present the sector is at a crossroads since the demand for food production is persistently increasing owing to the rising population which questions the supply level. Estimates report that around 355 million tonnes is required to feed the growing population by 2030. This necessitates the need for the second Green Revolution wherein higher productivity is targeted by addressing the contemporary issues (Mahajan, 2020). Some of the interventions that need focus in the second Green Revolution are given below:

- Productivity enhancement of agriculture and horticulture crops
- Bridging the present yield gaps at the farmers' field
- Increasing the socio-economic status of the farmers through farm-based interventions
- Farm diversification comprising high-value (horticulture) and commercial
- Focus on biofortified crops to ensure food and nutritional security
- Promoting hi-tech agriculture
- Increasing access to quality inputs and resource services in time
- Involving farmers in agri-business ventures
- Strengthening the research and extension capacity

Table 4.8: Rainbow revolution

S.No.	Revolution	Production
1	Blue	Fish
2	Brown	Leather/Cocoa

3	Golden	Horticulture Commodities/Honey
4	Golden Fiber	Jute
5	Green	Foodgrains
6	Grey	Fertilizer
7	Pink	Meat
8	Red	Tomato
9	Round	Potato
10	Silver Fiber	Cotton
11	Silver	Egg
12	White	Milk
13	Yellow	Oilseeds

Source: Mahajan (2020)

To achieve the second Green Revolution in India, farmers should focus on certain thrust areas, and is given below:

- Rejuvenation of soil health (e.g., manures application) to increase crop productivity
- Optimal use of groundwater for irrigation
- Purchase and use of quality inputs like certified seeds
- Effective utilization of resources and resource services
- Intensive cropping by increasing the area under net cultivation
- Raising the investment in agricultural infrastructure
- Practicing rainfed cultivation where irrigation facility is scanty.

In conclusion, the Green Revolution indisputably made a significant contribution to Indian food production. It alleviated hunger and poverty in many parts of the country. Nevertheless, the movement is criticized for its environmental and social costs. As we navigate the challenges in the agricultural production of the 21st century, it is vital to learn from the lessons of the Green Revolution and the Indian economy's focus on sustainability with respect to the SDGs. To ensure sustainable food and nutrition security, we should harness innovative technologies, foster equitable access to scarce resources, and prioritize environmental stewardship, without compromising the planet's health or social justice. Undoubtedly, the Green Revolution will take a priority seat in the history

of Indian agriculture, and it will set a reminder for both its significant achievements and the ongoing quest for a more sustainable and equitable food system.

4.1.8 Reference

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4.1.9 Review Questions

1. Explain in brief the significance of Indian agriculture.
2. Highlight the characteristic features of agriculture in India.
3. Discuss the land reforms implemented in India and the status across states.
4. What is 'Green Revolution'? How is it viewed as a major policy intervention with respect to India's food production and supply?
5. State and critically discuss the pros and cons of Green Revolution.

Lesson 4.2 - Nationalization of Banks

Structure

4.2.1 Objective

This chapter deals with the information on the rural banking sector in India. Readers will understand how the nationalization of banks increased the formal access to credit in agriculture. In addition, this chapter discusses the social implications with respect to the credit system followed in Indian societies.

4.2.2 Lesson Outline

- Nationalization of Banks
- Farmers' Access to Formal Credit and its Social Implications
- Review Questions

4.2.3 Introduction

The nationalization of banks refers to "the process by which the government takes control of private banks and transforms them into state-owned enterprises". It is an important policy decision in the history of India's economic development process and marked by a deliberate strategic transformation in the financial policy framework that still endures to influence the structure of India's banking sector. This process of transformation unfolded in two major phases viz., 1969 (first phase) and 1980 (second phase).

It encompassed the transition of a substantial number of privately owned banks into the public domain, through which the government increased its control of the nation's financial system. The primary objective of nationalization is to promote financial inclusiveness, reduce economic disparities, and facilitate the aggregation of financial resources

to support India's ambitious programs devised for economic development. This chapter is intended to explore in detail the historical background, driving factors of nationalization, and significant consequences of bank nationalization in India, having implications for the country's financial sector and economic development.

4.2.4 Nationalization of Banks

Nationalization of banks is a monumental activity implemented in the financial system of the country. It has been practiced by several countries for various reasons, like to encourage economic development, ensure stability in the financial sector, or address economic inequality. In India, as mentioned earlier, the nationalization of banks was carried out in two phases. The first one began in the year 1969 wherein 14 banks operated by the private sector were taken over by the government. In 1969, the following banks were nationalized as per the direction of the government: Allahabad Bank, Bank of Baroda, Bank of India, Bank of Maharashtra, Canara Bank, Central Bank of India, Dena Bank, Indian Bank, Indian Overseas Bank, Punjab National Bank, Syndicate Bank, UCO Bank, Union Bank, and United Bank of India.

The nationalization of banks in India was aimed to promote social welfare and reduce regional disparities by giving better access to banking services to all sections of people in the society. Post-nationalization, the banks served a crucial role in the country's economic development. To cite a few, it helped to develop vulnerable sectors like agriculture by financing small-scale agro-based industries that led to rural development in the long run. The nationalization of banks is considered an important policy decision for financial sector development, and hence several countries, viz., Argentina, France, and the UK have implemented it for similar kind of reasons in order to promote economic development and stability.

Despite the benefits to the economy, critics of bank nationalization argue against the policy decision. One such argument is that it can lead to inefficiency in banking sector operation, the politicization of banking, and reduced or lack of innovation. However, the supporters argue that post-nationalization, the banks can serve better by catering to the needs and interests of the public, extending credit facilities to neglected communities, and promoting financial stability, especially under economic crisis situations.

As mentioned earlier the first phase of nationalization happened in 1969 and subsequently, the second nationalization of banks was done in 1980. In the second phase, the following banks were nationalized: Punjab and Sind Bank, and Vijaya Bank (Now Bank of Baroda). After this phase, the Government of India took control of around 91% of the banking business. Overall, the nationalization of banks remains a political and controversial decision. However, its effectiveness in the financial sector depended on several factors including the specific context of implementation and the management of the banks post-nationalization.

Reasons for Nationalization of Banks: The nationalization of banks is a major policy decision implemented by several countries for various reasons at different points in time. Typically, such a monumental national decision is driven by a set of variables, viz., economic, social, and political factors. With respect to India, the nationalization of banks was done in two phases due to several compelling factors, and are given below:

- To control huge financial resources spread over the country
- To provide attention to the priority sectors like agriculture
- To develop the backward regions
- To improve the efficiency of banking operation
- To raise the profitability
- To have a uniform banking policy across the country
- To mobilize savings and prevent the exploitation of money lenders
- To encourage banking and create a safe banking environment
- To transfer the funds at a faster pace
- To increase the level of employment
- To achieve inclusive growth
- To reduce the regional disparities

4.2.5 Farmers' Access to Formal Credit and its Social Implications

Access to formal credit by the farmers' is a paramount issue in any developing economy. In a country like India, which is primarily agrarian and agriculture still serves as a mainstay for about 46% of the population, the availability of credit and its access is crucial for rural and agricultural development. It is influenced by several factors viz., the extent of institutional credit, state initiatives to enhance access, collateral

requirements, financial inclusion, and digitization of financial services. In this section, the trends in farmer's access to formal credit along with the social implications have been presented and discussed.

Table 4.9: Distribution of household cash loans (in %)

Credit Agencies	1951	1961	1971	1981	1991	2002	2012	2016
	Rural							
	All Households							
Institutional Agencies	7.2	17.3	29.2	61.2	64.0	57.1	56.1	69.1
Government	3.7	6.6	6.7	4.0	6.1	2.3	1.2	
Co-operative Society/Bank	3.5	10.4	20.1	28.6	21.6	27.3	24.8	5.7
Commercial Bank incl. Regional Rural Bank		0.3	2.2	28.0	33.7	24.5	25.1	36.6
Insurance			0.1	0.3	0.3	0.3	0.2	0.2
Provident Fund			0.1	0.3	0.7	0.3	0.1	0.3
Financial corporation/institution						1.1	0.6	1.3
Financial company						0.6	1.1	1.3
Self-help group-bank linked							1.9	12.4
Self-help group-NBFC							0.3	11.3
Other Institutions			0.0		1.6	0.7	0.7	
Non-Institutional Agencies	**92.8**	**82.7**	**70.8**	**38.8**	**36.0**	**42.9**	**43.9**	**41.6**
Landlord	3.5	1.1	8.6	4.0	4.0	1.0	0.7	5.2
Agricultural Money Lender	25.2	47.0	23.1	8.6	7.1	10.0	5.0	11.5
Professional Money Lender	46.4	13.8	13.8	8.3	10.5	19.6	28.2	
Traders/Input supplier	5.1	7.5	8.7	3.4	2.5	2.6	0.1	0.1
Relatives and Friends	11.5	5.8	13.8	9.0	5.5	7.1	8.0	24.7
Doctors, lawyers etc.					0.2	0.3	0.5	0.1
Others Sources		7.5		4.9	3.0	2.3	1.4	
Sources not specified	1.1		2.8	0.6	3.3			
Cultivator								
Institutional Agencies		**18.4**	**31.7**	**63.2**	**66.3**	**61.1**	**58.4**	**74.5**
Government		6.7	7.1	3.9	5.7	1.7	1.1	
Co-operative Society/Bank		11.4	22.0	29.8	23.6	30.2	25.2	6.0
Commercial Bank incl Regional Rural Bank		0.3	2.4	28.8	35.2	26.3	27.7	46.2
Insurance			0.1	0.4	0.2	0.3	0.2	0.3
Provident Fund			0.1	0.3	0.5	0.2	0.1	0.5
Financial corporation/institution						1.0	0.5	0.7
Financial company						0.7	1.2	1.0
Self-help group-bank linked							1.5	10.6
Self-help group-NBFC							0.2	9.2
Other Institutions					1.1	0.7	0.8	
Non-Institutional Agencies		**81.6**	**68.3**	**36.8**	**33.7**	**38.9**	**41.7**	**39.8**
Landlord		0.9	8.1	3.7	3.7	0.9	0.7	
Agricultural Money Lender		48.1	23.0	8.3	6.8	9.9	5.5	10.8
Professional Money Lender		13.8	13.1	7.8	10.7	16.9	26.0	
Traders/Input supplier		7.1	8.4	3.1	2.2	2.6	0.1	0.1
Relatives and Friends		5.2	13.1	8.7	4.6	6.2	7.7	22.7
Doctors, lawyers etc					0.2	0.4	0.4	0.1
Others Sources		6.5	2.6	4.5	2.4	2.0	1.3	
Sources not specified				0.7	3.1			

Source: All-India Debt and Investment Survey, Various Issues and NABARD Occasional Paper 65 on Household Indebtedness and Assets Based: All-India Debt and Investment Surveys. For 2016, data compiled from NAFIS Report and total exceed 100% as a household may have taken loan from more than one source.

Source: NABARD

Table 4.9 shows the distribution of rural household cash loans by credit agency for all India levels. It is explicit that the credit disbursement share has witnessed a sea change over time. During 1951, 92.8% of cash loans offered to rural households were accounted for by non-institutional agencies and only 7.2% by institutional sources like cooperative societies

Table 4.10: Agency-wise credit flow to the agriculture sector in India (in ₹ crore)

Year	Cooperative Banks	Regional Rural Bank	Commercial Banks	Other Agencies	Total
1999-2000	18260 (39.47)	3172 (6.86)	24733 (53.46)	103	46268
2000-2001	20718 (29.22)	4220 (7.99)	27807 (52.64)	82	52827
2001-2002	23524 (37.91)	4854 (7.82)	33587 (54.13)	80	62045
2002-2003	23636 (33.98)	6070 (8.73)	39774 (57.18)	80	69560
2003-2004	26875 (30.90)	7581 (8.72)	52441 (60.29)	84	86981
2004-2005	31231 (24.92)	12404 (9.90)	81481 (65.02)	193	125309
2005-2006	39403 (21.83)	15223 (8.43)	125477 (69.52)	382	180485
2006-2007	42480 (18.52)	20435 (8.91)	166485 (72.57)	-	229400
2007-2008	48258 (18.95)	25312 (9.94)	181088 (71.11)	-	254658
2008-2009	45966 (15.23)	26765 (8.87)	228951 (75.83)	226	301908
2009-2010	63497 (16.51)	35217 (9.16)	285800 (74.33)	-	384514
2010-2011	78121 (16.68)	44293 (9.46)	345877 (73.86)	-	468291
2011-2012	87963 (17.21)	54450 (10.65)	368616 (72.13)	-	511029
2012-2013	111203(18.31)	63681 (10.48)	432491 (71.21)	-	607375
2013-2014	119964 (16.43)	82653 (11.32)	527506 (72.25)	-	730123
2014-2015	138469 (16.38)	102483 (12.12)	604376 (71.50)	-	845328
2015-2016	153295 (16.74)	119261 (13.03)	642954 (70.23)	-	915510
2016-2017	142758 (13.40)	123216 (11.56)	799781 (75.04)		1065755
2017-2018	150389 (12.87)	140959 (12.06)	877155 (75.07)		1168503
2018-2019	152340 (12.12)	149667 (11.91)	954823 (75.97)		1256830
2019-2020	157367 (11.30)	165326 (11.87)	1070036 (76.83)		1392729
CAGR	**12.97**	**22.93**	**21.84**		**19.81**
CV (%)	**66.27**	**94.85**	**89.26**		**85.92**

Figures given in parentheses indicates the percentage.

Source: NABARD

On the contrary, the share has reversed in the recent period (2016). For 2016, the institutional agencies accounted for 69.1%, whereas the non-institutional agencies accounted for 41.6%. A similar trend is noticed for the cultivator too wherein the share of institutional agencies (74.5%) is more than the non-institutional agencies (39.8%) for the year 2016. With respect to the institutional agencies (2016), i.e., agencies that offer formal credit, a majority of the households in the rural region received cash loans from commercial banks including the regional rural banks, followed by self-help groups. Similarly for the cultivators, 46.2% received cash loans from the commercial banks including the regional rural banks. This is one of the successes of the nationalization of banks which changed the dependency of the credit source from non-institutional to institutional.

In the case of agency-wise credit flow to the agricultural sector (Table 4.10), commercial banks constitute the higher share in general. However, the growth in credit flow for the period 1999-2000 to 2019-2020 was highest in regional rural banks (22.93%), followed by commercial banks (21.84%) and cooperative banks (12.97%). The institutional credit flow (term-wise) to the priority sectors like agriculture has grown tremendously in the recent past decade (Table 4.11). With respect to the short-term, medium-term, and long-term credit, commercial banks have the maximum share.

Table 4.11: Institutional credit flow to the agriculture sector in India (in ₹ crore)

Particulars/Agency	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 CAGR
I. Short-term (ST) Credit												
Co-operative Banks	40164	56946	69038	81829	102592	113574	130350	143803	131880	138348	142750	148287 12.75
RRBs	22413	29802	38121	47401	55957	70697	89326	101579	105001	125654	89326	138069 19.08
Commercial Banks	147818	189908	228391	266928	314951	364164	415736	419930	452576	497078	483805	538795 12.56
Other Agencies	66	--	--	--	--	--	--	--	--	--	--	--
Sub Total	**210461**	**276656**	**335550**	**396158**	**473500**	**548435**	**635412**	**665312**	**689457**	**754972**	**752209**	**825151 13.44**
II. MT/LT Credit												
Co-operative Banks	5802	6551	9083	6134	8611	6389	8119	9492	10878	12041	9591	9080 5.90
RRBs	4352	5415	6172	7049	7724	11956	13157	17681	18215	21413	24013	27257 19.57
Commercial Banks	81133	95892	117486	101688	117540	163342	188640	223024	347205	380077	471016	531241 19.50
Other Agencies	**160**	--	--	--	--	--	--	--	--	--	--	--
Sub Total (B)	**91447**	**107858**	**132741**	**114871**	**133875**	**181687**	**209916**	**250197**	**376298**	**413531**	**504620**	**567578 18.91**
Total Credit (ST + MT/LT)												
Co-operative Banks	45966	63497	78121	87963	111203	119963	138469	153295	142758	150389	152340	157367 12.11
RRBs	26765	35217	44293	54450	63681	82653	102483	119260	123216	140959	149667	165326 19.14
Commercial Banks	228951	285800	345877	368616	432491	527506	604376	642954	799781	877155	954823	1070036 15.22
Other Agencies	226	--	--	--	--	--	--	--	--	-	--	--
Grand Total (A+B)	**301908**	**384514**	**468291**	**511029**	**607375**	**730122**	**845328**	**915509**	**1065755**	**1168503**	**1256830**	**1392729 5.17**

Source: Department of Agriculture, Cooperation & Farmers Welfare, ST: Short Term, MT: Medium Term, LT: Long Term, P: Provisional

Source: NABARD

Table 4.11 also presents the growth rates of institutional credit flow for different credit types. For instance, in the case of short-term loans, regional rural banks registered the highest growth of 19.08% for the period 2008-09 to 2019-20. For the same period, medium-term and long-term credit offered by the regional rural banks holds the highest growth (19.57%).

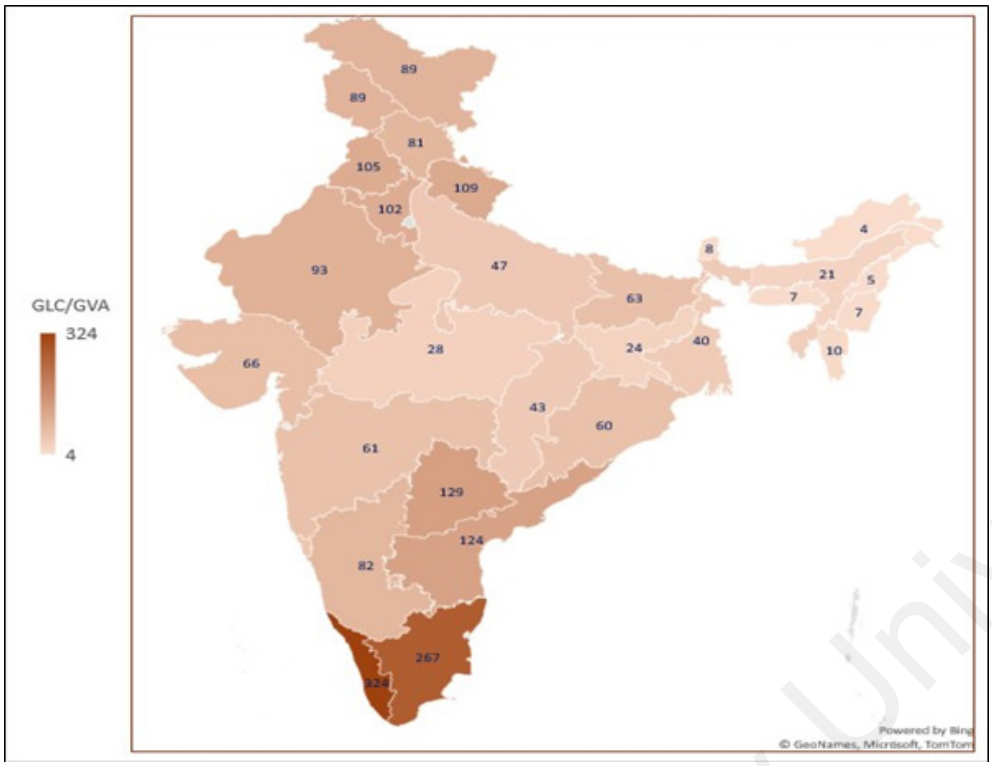
Table 4.12: Region-wise credit-deposit ratio of scheduled commercial banks (in %)

Regions/ States/ UTs	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Northern	**59.5**	**74.4**	**82.5**	**87.7**	**88.8**	**90.6**	**88.5**	**83.6**	**75.0**	**78.1**	**84.5**
Haryana	51.4	63.3	71.7	79.4	76.5	78.1	75.8	69.9	59.1	58.6	61.1
Himachal Pradesh	36.3	42.2	41.6	38.9	35.1	35.8	35.3	32.9	29.7	31.1	30.8
J & K	46.7	46.4	38.1	33.8	36.9	40.1	42.2	44.2	39.8	42.9	45.5
Punjab	50.1	71.5	77.8	80.9	81.6	79.1	75.1	69.8	69.0	63.5	60.3
Rajasthan	68.7	88.4	90.4	90.9	92.6	87.1	86.2	72.4	67.8	76.6	81.4
Chandigarh	88.9	131.1	121.6	115.5	127.5	120.0	105.9	97.8	100.7	112.5	111.4
Delhi	62.4	74.6	86.8	95.6	97.7	103.7	102.6	100.4	88.3	94.1	107.4
North-Eastern	**35.0**	**35.5**	**33.8**	**34.4**	**33.6**	**34.8**	**34.5**	**38.4**	**36.8**	**39.3**	**40.4**
Arunachal pradesh	22.0	27.5	23.7	23.9	21.8	23.7	26.8	29.0	24.0	25.0	23.0
Assam	35.3	37.8	36.5	37.7	37.2	37.7	36.7	42.2	40.3	42.6	44.3
Manipur	42.4	42.1	34.8	31.3	28.6	33.6	34.0	411	38.7	44.6	49.4
Meghalaya	43.6	25.6	24.4	25.8	24.0	27.4	25.9	24.8	25.9	27.2	26.9
Mizoram	47.8	53.2	46.0	38.9	35.3	37.8	37.8	40.1	36.4	35.8	36.8
Nagaland	22.9	30.3	26.1	27.2	28.4	31.0	32.7	34.1	31.5	34.7	35.4
Tripura	28.6	30.7	32.2	31.3	32.8	32.4	33.7	35.5	35.9	40.7	41.7
Eastern	**45.5**	**50.8**	**51.4**	**50.7**	**49.4**	**49.0**	**46.5**	**44.9**	**41.0**	**41.6**	**41.4**
Bihar	27.7	29.0	29.5	29.7	30.5	32.8	33.6	33.4	30.9	32.2	34.7
Jharkhand	29.6	35.1	34.4	33.9	32.1	31.8	29.6	29.6	27.1	277	27.7
Odisha	61.8	54.4	52.5	47.3	46.3	44.6	41.9	40.8	38.1	37.6	38.7
Sikkim	29.5	37.2	37.9	33.1	27.2	26.5	25.6	28.0	27.4	26.6	28.4
West Bengal	52.3	61.5	63.7	63.8	62.0	61.6	57.8	55.1	50.3	51.1	49.5
A & N Islands	26.8	36.5	38.1	38.5	38.6	39.1	40.1	44.2	38.5	39.4	41.9
Central	**40.8**	**47.3**	**46.7**	**47.2**	**47.6**	**48.8**	**48.3**	**49.3**	**46.0**	**47.9**	**49.5**
Chhattisgarh	43.6	52.3	52.3	53.6	53.8	59.5	61.6	63.5	62.4	63.2	63.3

Madhya Pradesh	54.7	60.6	55.6	56.6	58.2	60.4	54.8	61.2	60.9	65.1	67.9
Uttar Pradesh	37.9	43.3	44.0	44.0	44.1	44.6	45.4	44.6	40.4	41.2	42.7
Uttarakhand	24.3	33.7	35.4	35.6	34.8	35.6	34.5	34.9	34.3	36.4	37.6
Western	**83.5**	**79.1**	**79.5**	**87.0**	**85.5**	**86.0**	**87.1**	**96.0**	**96.2**	**98.3**	**98.1**
Goa	25.1	26.5	29.1	28.1	28.8	28.7	26.7	27.1	25.7	26.7	26.4
Gujarat	46.5	65.3	66.2	70.4	72.8	74.7	72.7	75.4	68.9	75.6	78.8
Maharashtra	94.9	82.9	83.0	91.8	89.4	89.8	92.0	102.9	106.0	106.9	105.2
D & N Haveli	34.8	60.0	34.8	30.1	37.1	40.8	35.3	35.8	36.5	43.5	56.1
Daman and Diu	11.5	20.2	21.3	17.4	19.1	21.9	24.3	22.9	23.5	27.5	26.6
Southern	**78.1**	**92.7**	**94.5**	**95.5**	**97.1**	**94.9**	**89.9**	**89.3**	**84.2**	**90.5**	**90.6**
Andhra Pradesh	74.8	105.1	109.7	111.3	112.0	111.3	105.3	106.0	101.1	112.6	121.6
Karnataka	73.8	77.6	72.7	71.4	71.9	71.0	67.7	70.1	67.0	69.7	69.7
Kerala	54.6	63.1	73.1	76.4	73.1	67.7	64.6	62.1	59.8	63.8	65.9
Tamil Nadu	101.2	113.8	115.1	116.9	123.3	121.8	119.0	113.7	105.8	113.5	110.3
Lakshadweep	9.7	7.3	8.7	9.7	9.9	8.6	9.1	10.5	8.4	8.3	8.1
Puducherry	38.3	57.2	62.7	71.5	83.3	77.9	71.5	67.1	63.9	63.8	66.7
Telangana	-	-	-	-	-	-	101.6	104.5	97.0	107.4	106.3
India	**66.0**	**73.3**	**75.6**	**79.0**	**78.8**	**79.0**	**77.1**	**78.4**	**73.8**	**76.7**	**78.3**

Source: RBI

Table 4.12 shows the region/state-wise credit-deposit ratio (CDR) of scheduled commercial banks in India. CDR is one of the performance indicators to assess the functioning of the financial system. It is clear that the CDR is highest in the case of the Western region, followed by the Southern region. Among states, Andhra Pradesh, Tamil Nadu, Telangana, Chandigarh, New Delhi, and Maharashtra have more than 100% CDR. Figure 4.12 shows the ratio of agricultural credit disbursement to agri-state gross value added. A perusal of the figure indicates the regional disparity in the disbursement of agricultural credit. It is highest in the case of Kerala (324), followed by Tamil Nadu (224). On the contrary, the north-eastern states exhibited a low ratio hovering between 21 and 4. This shows the imbalance in the lending which needs policy interventions.



Source: NABARD

Figure 4.12: Ratio of agricultural credit disbursement to agri-state GVA (in %)

Table 4.13 indicates the region-wise credit flow to the agriculture sector in India (in ₹ crore). It is pretty clear from the table that the quantum of credit flow (2019-20) is more in the Southern region, followed by the Northern region. However, growth-wise, the North-Eastern region registered the maximum growth for the period 2013-14 to 2019-20 (21.29%).

Table 4.13: Region-wise credit flow to the agriculture sector in India (in ₹ crore)

Region	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20	CAGR
Northern Region	167813 (22.98)	202479 (23.95)	216919 (23.69)	232847 (21.85)	256991 (22.10)	270197 (21.50)	283945 (20.39)	8.66
North Eastern Region	4345 (0.60)	4453 (0.53)	5833 (0.64)	8773 (0.82)	10273 (0.88)	11172 (0.89)	11809 (0.85)	21.29
Eastern Region	56217 (7.70)	80013 (9.47)	103673 (11.32)	86860 (8.15)	96751 (8.32)	113792 (9.05)	131668 (9.45)	12.06
Central Region	110929 (15.19)	133118 (15.75)	153289 (16.74)	156476 (14.68)	167096 (14.37)	171261 (13.63)	197015 (14.15)	8.61
Western Region	95420 (13.07)	106981 (12.66)	107934 (11.79)	136787 (12.83)	136374 (11.73)	151115 (12.02)	156206 (11.21)	8.96
Southern Region	295398 (40.46)	318284 (37.65)	327862 (35.81)	444013 (41.66)	495132 (42.59)	539292 (42.91)	612087 (43.95)	13.93
India	**730123 (100)**	**845328 (100)**	**915510 (100)**	**1065756 (100)**	**1162617 (100)**	**1256830 (100)**	**1392729 (100)**	**11.19**

Source: NABARD

Table 4.13 also shows the year-wise share of regions in credit flow to the agricultural sector. Over the years (2013-14 to 2019-20), the share was highest in the Southern region and lowest in the North-Eastern region. This implies that the credit flow focus should shift from the Southern region to the North-Eastern region for regional development. However, in terms of credit flow growth, the North-Eastern region registered the maximum as the credit flow increased from ₹ 4345 crores to ₹ 11809 crores in a span of six years, i.e., from 2013-14 to 2019-20. The next highest growth was noticed in the Southern region, surprisingly having the higher credit flow.

The flow of credit in the Southern region has doubled during 2013-14 to 2019-20, i.e., from ₹ 295398 crores in 2013-14 to ₹ 612087 crores in 2019-20. The Central region exhibited the lowest growth (8.61%) in the credit flow for the period 2013-14 to 2019-20, followed by the Northern region (8.66%) having implications for policy intervention. For the country as a whole, the flow of credit to the agricultural sector has witnessed an increasing trend which is a good sign for development. The credit flow has increased from ₹ 730123 crores in 2013-14 to ₹ 1392729 crores in 2019-20, registering a growth of 11.19% per annum.

Table 4.14 presents the credit flow to agriculture as a share of small and marginal farmers (in ₹ crore). Among the agencies, commercial banks were preferred by the individuals to have a bank account, irrespective of the year. However, with respect to the composition of bank accounts, the small and marginal farmers comprise the maximum share across agencies and years. But this is not reflected in the loan disbursement indicating the disparity in credit flow.

Table 4.14: Credit flow to agriculture - Share of small and marginal farmers (in ₹ crore)

Year	Agency	No. of accounts (lakh)			Loan disbursed (Rs. crore)			Average loan amt of SF/MF (Rs.)
		Total	SF/MF	Share of SF/MF (%)	Total	SF/MF	Share of SF/MF (%)	
2013-14	Com. Banks	385.2	232.5	60.4	527506	201296	38.2	86579
	Coop. Banks	321.4	206.5	64.1	119964	69352	57.8	33585
	RRBs	99.3	66.6	67.1	82653	51259	62.1	77116
	Total	**805.9**	**505.6**	**62.7**	**730123**	**322007**	**44.1**	**63739**
2014-15	Com. Banks	426.2	195.4	45.9	604376	197540	32.7	101095
	Coop. Banks	306.9	202.8	66.1	138471	78736	56.9	38824
	RRBs	120.5	87.8	72.9	102483	70390	68.7	80171
	Total	**853.6**	**486.0**	**56.9**	**845328**	**346666**	**41.1**	**71286**
2015-16	Com. Banks	441.6	210.2	47.6	642954	200346	31.2	95312
	Coop. Banks	324.2	232.9	71.8	153295	97999	63.9	42078
	RRBs	133.2	97.3	72.8	119261	81653	68.5	84178
	Total	**899.6**	**540.4**	**60.7**	**915510**	**379998**	**41.5**	**70318**
2016-17	Com. Banks	664.2	482.5	72.6	799781	362675	45.4	75166
	Coop. Banks	269.5	190.1	70.5	142758	89175	62.5	46911
	RRBs	137	99.0	72.3	123216	82496	67	83329
	Total	**1071**	**771.6**	**72.6**	**1065755**	**534351**	**50.1**	**69252**
2017-18	Com. Banks	732.7	556.9	76.0	871080	389866	44.8	70009
	Coop. Banks	254.6	183.7	72.2	150321	98109	65.3	53401
	RRBs	144.6	104.9	72.5	141216	92482	65.5	88191
	Total	**1132**	**845.5**	**74.7**	**1162617**	**580457**	**49.9**	**68655**
2018-19	Com. Banks	850.1	631.8	74.3	954823	428063	44.8	67753
	Coop. Banks	255.5	192.9	75.5	152340	106849	70.1	55405
	RRBs	149.8	106.7	71.3	149667	98749	66.0	92539
	Total	**1255**	**931.4**	**74.2**	**1256830**	**633661**	**50.4**	**68036**
2019-20	Com. Banks	942.7	711.8	75.5	1070036	505849	47.3	71069
	Coop. Banks	260.3	196.0	75.3	157367	109754	69.7	55991
	RRBs	156.0	111.1	71.2	165326	108125	65.4	97357
	Total	**1359.0**	**1018.9**	**75.0**	**1392729**	**723728**	**52.0**	**71034**

Source: NABARD

Social Implications

Farmers' access to formal agricultural credit, i.e., getting credit from institutional sources like commercial banks, cooperative societies, and self-help groups has multiple implications for the socioeconomic development of the individual as well as the region. Some of the implications are discussed in this section.

- ***Increased agricultural productivity:*** Farmers' access to formal credit helps them to increase their farm productivity. This happens by providing the financial resources on time that are needed to purchase farm inputs, like high-quality seeds, fertilizers, plant protection chemicals, and irrigation equipment. Timely use of these resources at the farmers' field is expected to result in higher yield levels and incomes. In the long run, this will enhance the livelihoods and welfare of the farmers and their families.
- ***Assured food security:*** This is linked with farm productivity. Higher productivity results in bumper production and it can ensure food security for the farm family. It is implied that as more food is produced in the farm, more is made available for consumption, i.e., higher marketable surplus. At the regional level, higher food production can help to alleviate the problem of hunger and malnutrition, where food insecurity is often high and persistent.
- ***Reduced poverty:*** As improved agricultural productivity leads to higher income levels, it can help to reduce the incidence of poverty in rural regions. With better access to formal agricultural credit, farmers can diversify and invest in agriculture and agri-based activities, which can lead to higher incomes and enhanced standard of living.
- ***Gender equality:*** In addition to the above implications, access to formal agricultural credit helps to promote gender equality. This is facilitated through empowering women farmers by giving access to financial resources which were out of their reach earlier. The ultimate aim of credit disbursement is to empower the weaker section, especially women and provide them the needed economic independence.

- ***Debt burden:*** Sometimes giving access to credit can lead the individual to a debt burden. This happens only when the loans are not used effectively for the purpose with which it was taken or if the farmers are unable to repay the received loan owing to various reasons like crop failure. In such cases, it can lead to increased mental stress for the farmers which affect their family as well.
- ***Wealth inequality:*** Providing access to formal credit may intensify the existing wealth inequality, as farmers with better access to credit and knowledge shall invest more in profitable enterprises within their farm and get higher profits in comparison to others.

4.2.6 Reference

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Web Source

https://www.nabard.org/auth/writereaddata/tender/2501235626 trends-and-patterns-in-agriculture-credit-in-india.pdf

4.2.7 Review Questions

1. Write a note on the nationalization of banks in India along with the reasons for nationalization.
2. Discuss the farmers' access to formal credit
3. What are the social implications for rural households under the existing credit structure in India?

UNIT – V

Lesson 5.1 - Current Economic Issues in India

Structure

5.1.1 Objective

In this unit, the readers will be enlightened on the current issues of the Indian economy. After completing this unit, the readers will know the adverse impact of the economic reforms implemented during the early 1990s. In addition, the impact of the global financial crisis on the Indian economy and its response will be highlighted, followed by a brief note on the sector-wise progress of the economy. The readers will also understand the current problems like environmental degradation, unemployment, socio-economic inequalities, poverty, and migration. In the end, this unit will also give an overview of the 'Make in India' initiative by the Government of India, followed by explaining the concept of inclusive growth and sustainable growth in the context of development.

5.1.2 Lesson Outline

- Adverse Impact of Economic Reforms
- Impact of Global Financial Crisis on the Indian Economy and India's Response
- Decelerating Agricultural Growth and Growing Service Sector
- Causes of Environmental Degradation
- Jobless Growth and Unemployment
- Inequality and Economic Power
- Poverty and Deprivation
- Parallel Economy
- Growing Regional Inequalities: Rural-Urban Disparities
- Problems of Urbanization and Migration
- Make in India
- Inclusive Growth, Sustainable Growth and Development
- Review Questions

5.1.3 Introduction

Understanding the current economic issues in India becomes a fundamental attempt that holds prominence in today's interconnected and dynamic world. India, being one of the emerging and fast-growing economies and home to a heterogeneous population, sets a persuasive case for tracking the economic dynamics. The changing economic landscape of India is a tapestry embedded with complexities wherein growth, development, and welfare are interwoven with challenges like socio-economic inequality, poverty, unemployment, environmental degradation, and political resistance. Understanding such complex issues in the Indian economy is not merely an academic pursuit but a practical necessity with far-reaching implications. In the milieu, this unit will shed light on exploring the contemporary issues faced by the economy and offer a compelling case to track the opportunities of the economy that shape India's destiny.

5.1.4 Adverse Impact of Economic Reforms

Economic reforms in India were initiated in the early 1990s, and they brought significant changes in the Indian landscape. The positive changes, indeed, contributed to the nation's economic growth and development.

However, the reforms had also adverse impacts and drawbacks on several fronts. The following are some of the adverse impacts of economic reforms in India:

- Income inequality has widened largely between the rich and poor
- Regional disparities emerged due to disproportionate benefits between rural and urban
- Increase in the unemployment level and low pay in the informal sector
- Reforms have not given due importance to the agricultural sector
- Increased environmental degradation owing to industrialization and urbanization
- Reduction in government expenditure on social infrastructure
- Post-reforms, large dependency on foreign sectors
- Increasing vulnerability to the financial sector, especially after the 2008 global crisis
- Privatization led to a lack of transparency and monopolistic practices
- High social costs like healthcare and education, post implementation of reforms
- Widening infrastructure gap between rural and urban regions hampering development
- Erosion of the public sector owing to privatization
- Growth shift towards the service sector
- Political resistance from various groups during the implementation process.

5.1.5 Impact of Global Financial Crisis on the Indian Economy and India's Response

At the international level, reforms are devised to enhance global economic functioning and address various challenges faced by governments worldwide. However, sweeping global reforms can sometimes yield unfavorable outcomes due to significant shifts in governing rules and standards. For instance, global reforms such as trade liberalization, deregulation, and austerity measures have, in some cases, precipitated economic downturns. These policies tend to create economic instability, restrict government spending and investment, and lead to job losses. The

resulting economic disparities can exacerbate social inequality. For instance, trade liberalization may favor large corporations and wealthy individuals at the expense of small businesses and low-wage workers. Encouraging unsustainable practices, deregulation, and trade liberalization can also accelerate environmental degradation, negatively impacting ecosystems and public health.

The 2008 Global Financial Crisis (GFC)

The year 2008 stands as a pivotal moment in modern global history, marked by one of the most significant financial crises: the Global Financial Crisis (GFC). The GFC had a multitude of root causes (as illustrated in Figure 5.1), but its inception can be traced to the collapse of the United States housing bubble, fuelled by reckless lending practices that rendered the housing market unsustainable. This catastrophic economic downturn had far-reaching implications for major economies across the globe.

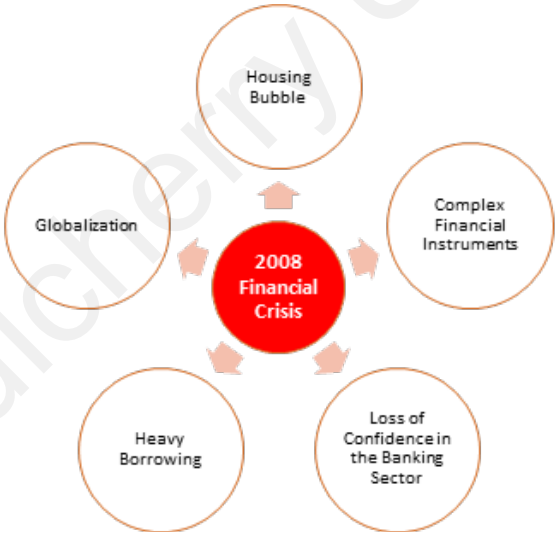


Figure 5.1: Causes of the 2008 global financial crisis

The early 2000s saw a real estate boom in many economies, with property prices soaring precipitously. Banks and financial institutions extended loans to subprime borrowers—those unable to repay their debts—resulting in defaults on subprime mortgages and the eventual collapse of the housing market. The value of financial instruments tied to these mortgages plummeted, leading to liquidity issues for banks and other financial entities. A credit crunch ensued as banks became reluctant to lend to one another. The GFC wrought a slew of adverse consequences on the global stage, including a global recession with GDP contractions and increased unemployment in numerous nations. The financial industry was

severely impacted, with many banks and financial institutions incurring massive losses, some even collapsing altogether. Key repercussions of the 2008 GFC included:

- Banking system failures that triggered recessions in several economies.
- A housing market crash.
- A credit crunch necessitating government bailout.
- Elevated levels of unemployment.

The 2008 GFC offered a valuable array of lessons, including the need for financial institution regulation, enhanced system transparency, improved risk management tools, strengthened global coordination, heightened consumer protection, and the recognition of the necessity for government intervention during times of crisis.

5.3.2 Effects of the 2008 Global Financial Crisis (GFC) on the Indian Economy

India, in particular, felt the reverberations of the global financial crisis in several ways. The global economic turmoil substantially impacted India's growth trajectory. India's GDP growth rate dropped from 9% in 2007-08 to 6.7% in 2008-09 and further to 4.7% in 2013-14. The international exchange crisis significantly affected India's export-oriented sectors, including textiles, gems & jewellery, and pharmaceuticals. The decline in exports led to reduced foreign exchange earnings and hindered economic growth. International capital inflows diminished as investors became more risk-averse, resulting in capital outflows from India and stricter lending conditions, which affected credit availability for both businesses and individuals. The Indian rupee depreciated significantly against the US dollar, introducing inflationary pressures into the economy. Consequently, governments worldwide introduced stimulus measures and other policies to stabilize their economies and mitigate further damage.

In response to the crisis, the Indian government implemented various fiscal and monetary policies to reinvigorate the economy. These measures included tax cuts, substantial government spending, and reductions in interest rates. In December 2008, the Indian government unveiled a fiscal stimulus package worth ₹ 20,000 crores, aimed at bolstering public investments in infrastructure and social sectors and strengthening

domestic demand. The Reserve Bank of India (RBI) lowered interest rates and reduced reserve requirements for banks to enhance economic liquidity and promote lending. To fortify the financial system, the Indian government increased deposit insurance coverage, injected capital into public sector banks, and established a special fund to purchase assets from banks.

The Indian government extended support to exports through export credit and interest rate rebates while simultaneously imposing restrictions on imports in specific sectors. The government also undertook various structural reforms to promote economic growth and create a conducive business environment. These reforms included infrastructure upgrades, increased foreign investments, and streamlined regulatory procedures. In response to the global financial crisis, the Indian economy implemented fiscal, monetary, and structural measures to rejuvenate growth and mitigate the crisis's impact. Despite experiencing a slowdown, the economy rebounded swiftly and resumed its impressive growth trajectory in the years following the crisis, which was highly regarded worldwide.

5.1.6 Decelerating Agricultural Growth and Growing Service Sector

India's journey towards economic development is marked by several significant changes. One prominent change is the decelerated growth in the agricultural sector and the simultaneous expansion of the service sector (Figure 5.2). These changes are inevitable for a developing economy, and they indicate the transition of the economic landscape. In the transition process, a few questions arise on the sustainability front and the challenges it poses to the socio-economic setting of the Indian economy. The decelerated agricultural growth is attributed to several reasons as listed below:

- Fragmentation of land that limits the farmers in adopting cost-intensive technologies
- Low productivity owing to sub/supra optimal use of resources
- Dependency on highly uncertain monsoon
- Lack of diversification
- Regional disparities in the income levels
- Lack of technological innovations and interventions

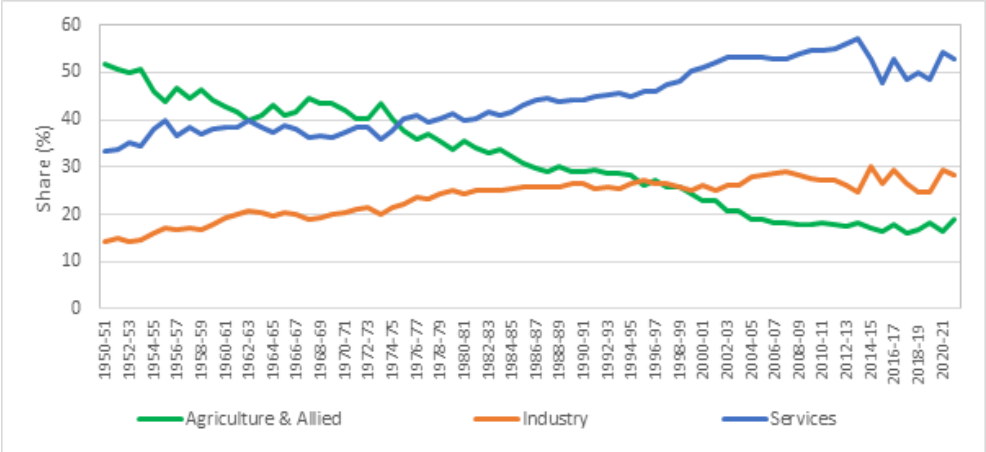


Figure 5.2: Sector-wise contribution to the Indian economy

The agriculture and allied sector which was a major contributor to India's GDP has witnessed a decelerating growth as evident in Figure 5.2. The share from agriculture and allied sector was around 51% in 1950-51 which declined to about 19% in 202-21. On the contrary, the service sector witnessed massive growth and became a vital sector for economic development. It has grown from around 34% in 1950-51 to around 53% in 2020-21. The service sector comprises components like information and communication technology, healthcare, public administration, defense, real estate, hotel, broadcasting services, and finance. The factors that contributed to the growth of the service sector includes the revolution in the information technology, increased share of skilled workforce, rising urbanization, and increased foreign direct investment (FDI). However, such a transition in the Indian economy posed several challenges, and is listed below:

- Disparity in the employment structure, especially in the rural regions
- Income inequality between the service sector and the agriculture sector
- Indian economy becoming vulnerable to the global economy like the 2008 GFC
- Increasing concern about agricultural sustainability
- Concern about food production growth vis-à-vis population growth

To conclude, Indian economy has witnessed a changing landscape with the deceleration of agriculture sector and massive growth of the service sector. During such transition, opportunities do arise coupled with economic challenges that have to be addressed coherently through policy

interventions like giving focus on agricultural reforms, rural development and measure to reduce the income and employment inequalities resulting in balanced growth.

5.1.7 Causes of Environmental Degradation

The term "Environmental Degradation" is a complex issue that encompasses various factors (as depicted in Figure 5.3) leading to damage to the natural environment, which subsequently affects ecosystem health, species extinction, and the depletion of natural resources. It encompasses a wide array of adverse environmental effects, including the destruction of habitats, air and water pollution, soil erosion, climate change, and deforestation.

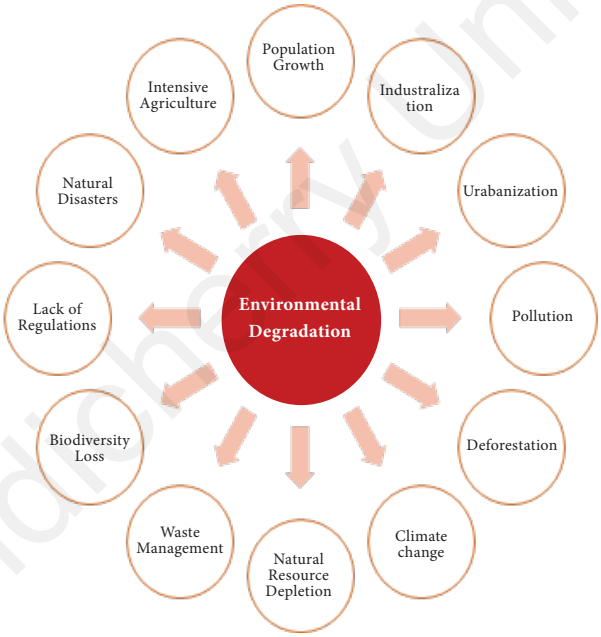


Figure 5.3: Causes of environmental degradation in India

In this section, we will explore the primary causes of environmental degradation in India:

- **Deforestation:** Deforestation, driven by factors like logging, agriculture, and urbanization, involves the clearing of forests. Apart from harming ecosystems, this process leads to soil erosion and the extinction of numerous plant and animal species. Deforestation also releases a substantial amount of CO2 into the atmosphere, exacerbating the adverse impacts of climate change.
- **Land Use Change:** Natural habitats are being transformed into urban areas, industrial sites, and agricultural land, disrupting ecosystems and altering landscapes. Often, this practice entails

clearing forests or draining wetlands, resulting in decreased biodiversity and the loss of ecological services provided by these natural areas. Unsustainable practices, such as excessive pesticide and fertilizer use in agriculture, can degrade overall ecosystem health and impact soil and water quality.

- **Pollution:** Pollution stands as a primary driver of environmental degradation. Harmful gases and particles are released into the air as a result of various industrial processes, vehicle emissions, and the burning of fossil fuels. This not only accelerates climate change but also harms plant life and causes respiratory issues. Pollutants like agricultural runoff, industrial waste, and untreated wastewater that enter water bodies degrade water quality and threaten aquatic life, leading to water pollution. Unsafe disposal of hazardous materials, overuse of pesticides and fertilizers, and intensive industrial activities result in soil contamination, rendering soil unsuitable for agriculture and detrimental to ground-dwelling organisms.
- **Climate Change:** Climate change primarily results from the emission of greenhouse gases like CO2 and methane into the atmosphere. These gases trap heat, leading to increased global temperatures, altered weather patterns, rising sea levels, and more frequent and severe extreme weather events such as droughts, hurricanes, and floods. The adverse impacts of climate change on ecosystems, agriculture, water resources, and human health pose significant challenges to sustainable development.
- **Overfishing:** Overfishing leads to a decline in fish populations and harms marine ecosystems when fish stocks are exploited beyond sustainable levels. This practice can have severe economic and social impacts on coastal communities dependent on fishing for their livelihoods, as well as result in fisheries collapse and biodiversity loss. Overfishing disrupts the delicate balance of ocean ecosystems, affecting predator-prey relationships and overall ocean health.
- **Unsustainable Consumption:** Excessive demand for resources, goods, and energy due to unsustainable consumption patterns results in ecosystem degradation. The production, consumption, and disposal of goods often involve the exploitation of finite resources, energy-intensive industrial processes, and the generation of waste. Overconsumption exacerbates resource depletion, pollution, waste accumulation, ecosystem stress, and other environmental problems.

- **Population Growth:** Rapid global population growth places heavy stress on natural resources and ecosystems, increasing the demand for housing, food, water, and other essentials. This results in greater resource depletion and environmental damage. The rapid urban population growth leads to unplanned and unsustainable urbanization, disturbing natural habitats, causing habitat fragmentation, and contributing to biodiversity loss.
- **Natural Disasters:** Due to India's geographical location, the country is susceptible to various natural disasters such as floods, droughts, cyclones, earthquakes, and landslides. These disasters can cause extensive damage and exacerbate existing environmental issues.

Addressing environmental degradation necessitates a multifaceted approach. It involves supporting renewable energy sources, developing efficient waste management systems, implementing sustainable practices in agriculture, industry, and energy sectors, protecting and restoring ecosystems, adopting best practices for environmental conservation, promoting sustainable urban development, and educating the public about the importance of environmental preservation. Policy interventions, international collaboration, and individual actions all play critical roles in reducing the causes and impacts of environmental degradation and in promoting a more resilient and sustainable world.

5.1.8 Jobless Growth and Unemployment

Sectoral Composition

India's economic journey since independence in 1947 has been significant with a magnificent transformation. In the early years post-independence, India was predominantly an agrarian economy with limited contributions from the industrial and service sectors. The share of the agriculture sector in GDP was 60 per cent in 1950-51 and has declined to 20.19 per cent in 2020-21. The share of industry increased from 13.0 per cent in 1950-51 to 25.92 per cent in 2020-21. With respect to the service sector, the contribution had increased remarkably from 27.0 per cent in 1950-51 to 53.89 per cent in 2020-21 (Table 5.1). This process of transformation from the agricultural sector to the service sector is called a service-driven economy. Generally, economic transformation takes place from agriculture to industry and then to services. However, India's story has a different phenomenon, and it clearly indicates that the growth in

industry sector fails to succeed in comparison to the service sector.

Table 5.1: Sectoral contribution to GDP in India

Sector	Share of GDP (%)	
	1950-51	2020-21
Agriculture Sector	60.0	20.19
Industry Sector	13.0	25.92
Service Sector	27.0	53.89

Source: Economic Survey

Growth of Indian Economy

The government, recognizing the need for rapid economic growth, introduced the five-year planning system in 1951. However, the average growth rate from 1950s to 1980s was only 3.5 per cent and this slow growth rate is called the Hindu growth rate. From 1980s to 1990s, the average growth rate increased to 5.5 per cent. After the Structural Adjustment Policy (SAP), between 1990s and 2010, the average growth rate was above 6.5 per cent. In the recent past decade (2010-11 to 2020-21), the average growth rate was above 7.5 per cent, expect 2020-21 (Table 5.2). In the year 2020-21, the growth rate was negative due to COVID-19 incidence and its impact on the Indian economy.

Table 5.2: Year-wise economic growth rate in India

Year	Growth Rate (in %)
2010-11	8.5
2011-12	5.2
2012-13	6.4
2013-14	7.4
2014-15	7.9
2015-16	6.9
2016-17	8.2
2017-18	7.2
2018-19	6.9
2019-20	4.0
2020-21	-7.96

5.6.3 Employment Transformation and Level of Unemployment

The acceleration in growth of GDP in India is not accompanied by a proportionate growth in employment. This transformation reflects India's changing economic policies and its transition from an agriculture-based economy to a more diversified and complex economy. This part will dive into the key milestones in India's employment landscape over this period, highlighting the shifts in workforce participation rates (WPR) and sectoral contributions. In 1951, India's total workforce participation rate in the primary sector employed the majority at 65.6 per cent, followed by the secondary sector at 15.3 per cent, and the tertiary sector at 9.0 per cent. After 1991, the structure of employment had change remarkably due to SAP. The proportion of agriculture employment was 62.6 per cent, followed by the service sector at 21.7 per cent, and the industry share was 15.7 per cent. In 2019, the share of agriculture was 42.4 per cent, service sector was 32.0 per cent, and industry was 25.6 per cent (Table 5.3). The service sector's contribution to GDP was 53.89 per cent but it creates less level of employment which is technically known as 'Jobless Growth'.

Table 5.3: Proportion of employment across sectors

Year	Employment Share (%)		
	Agriculture	Industry	Services
1991	62.6	15.7	21.7
1992	62.4	15.7	21.9
1993	62.3	15.6	22.2
1994	62.2	15.4	22.4
1995	61.9	15.4	22.7
1996	61.7	15.3	23.0
1997	61.0	15.8	23.2
1998	60.7	15.9	23.4
1999	60.2	16.1	23.7
2000	59.6	16.3	24.0
2001	59.3	16.3	24.4
2002	58.7	16.6	24.7
2003	58.2	16.8	25.0
2004	56.7	18.3	25.0
2005	56.0	18.8	25.2
2006	55.2	19.3	25.5
2007	53.9	20.4	25.7
2008	52.6	21.4	26.0
2009	52.4	21.2	26.4
2010	51.5	21.8	26.7

2011	49.0	23.5	27.5
2012	47.0	24.4	28.6
2013	46.4	24.6	29.1
2014	45.8	24.5	29.6
2015	45.7	24.1	30.3
2016	45.1	24.0	30.9
2017	44.1	24.7	31.2
2018	43.3	24.9	31.7
2019	42.4	25.6	32.0

Source: Economic Survey

In addition, the post-liberalization period registered a high growth rate of GDP and, on the other hand, the employment growth rate fell. The labour absorption capacity of industry and service sectors has registered a lower level. The employment elasticity in all sectors (agriculture, industry, and services) of the economy had declined in the post-liberalization period, and as a result, unemployment increased. This unemployment rate is higher among younger age groups, and educated unemployment in India has increased.

According to the Periodic Labour Force Survey of 2020-21 (Table 5.4), it is reported that in the age group of 15-29 years, the unemployment rate was 12.95 per cent. The urban unemployment was 18.5 per cent and rural unemployment was 10.7 per cent. In the gender perspective, the male unemployment rate was higher than the female. However, in urban India, the female unemployment rate was higher than the male.

Table 5.4: Unemployment rate (%) for the persons of age 15-29 years (usual status)

Region	Unemployment rate (%)		
	Male	Female	Combined
Rural	11.6	8.2	10.7
Urban	16.6	24.9	18.5
Rural + Urban	13.0	12.5	12.9

With respect to unemployment across education levels, 'secondary and above level of education' had the highest rate of unemployment, which was 9.1 per cent. However, the lowest rate of unemployment registered for 'illiterate', which was 0.4 per cent. The highest level of educated unemployment was reported for females than males, which was 12.6 per cent and 8.1 per cent, respectively.

Table 5.5: Level of education and unemployment in 2020-21(usual status)

Level of Education	Unemployment (%)		
	Male	Female	Person
Illiterate	0.8	0.1	0.4
Literate and up to Primary	1.9	0.3	1.4
Middle	2.9	1.1	2.5
Secondary and above	8.1	12.6	9.1
All	4.5	3.5	4.2

Sources: PLFS (2020-21)

In conclusion, 'jobless growth' and 'unemployment' pose a significant challenge for the state and central governments. As economic growth is essential for a nation's prosperity, it must be accompanied by targeted policy interventions to increase the labour workforce, their skills through education and training, and providing employment opportunities. This requires a synergy across stakeholders and should adopt a multifaceted approach by involving them at all levels for ensuring the economic benefits to all sections.

5.1.9 Inequality and Economic Power

Inequality and economic power are the two sides of an economy, especially the developing nation. Research on these aspects has gained momentum in the recent past. The consistent gap between the rich and their counterparts has can be discussed on various aspects including social, economic and political consequences of such differences. In this section, the multifaceted relationship between inequality and economic power has been described in terms of its genesis, estimation, consequences, and potential remedies.

The Genesis of Economic Inequality

Economic inequality is not a new and recent occurrence. Its existence dates back to the origin of mankind but the current level is unprecedented. Several factors contribute to the rising level of economic inequality including differences in income, technology adoption, education level, abilities, and access to economic resources, as well as other factors like globalization, discrimination, market failures, and policies. Some of them are highlighted below:

- ***Income Levels*:** As the national income increase when an economy is progressing in the track of achieving superpower status, the individual income of the country also increases. The concern is that the increase in the income, usually will not be equal among the population classes. This leads to income inequality as the country develops which is also corroborated by the Kuznets income hypothesis.
- ***Technological Advancements:*** Technology is manmade and has the prospective to increase the productivity. Labor saving technologies like mechanization in agriculture result in job shift for the human labors and may also result in wage stagnation. This is applicable to other sectors or industries like information technology, etc. Such type of concentration of power within a sector leads to economic disparities.
- ***Education:*** Educational opportunities available to an individual or its access play a crucial role in human development. Inequality in access to quality education, especially at the school levels, limits the individual to develop forward who has limited resources.
- ***Globalization:*** The interconnectedness of the countries has created two groups viz., frontrunners and losers. In such case, those who have access to better resources and navigate global markets have developed, leaving others behind.
- ***Policy Choices:*** Policy interventions like tax rebates for the wealthier section, have supported in favor of those with substantial resources, while the rest were left behind creating economic disparities.

Estimation of Inequality

Economic inequality refers to "the unequal distribution of wealth, income, and opportunities in a society, where some individuals and groups have significantly more resources and advantages than others". It is estimated by various tools and techniques. Among them, the Lorenz curve and Gini coefficient are much popular. Lorenz curve was named after an American statistician, Max O. Lorenz in 1905 wherein he used an illustration to show the relationship between the population groups and their respective shares on income (Figure 5.4).

The Lorenz curve shows the degree of relative inequality in the distribution of income, which is captured by the nature of the curve. In the case of perfect equality, the Lorenz curve will be straight line passing

through origin i.e. diagonal line. It is also known as 'Line of Perfect Equality' or 'Egalitarian Line'. The distance by which the Lorenz curve is away from the diagonal line shows the degree of inequality.

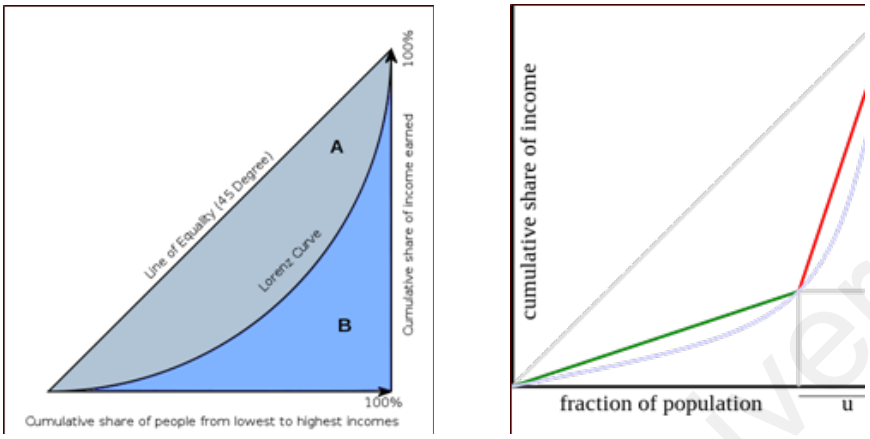


Figure 5.4: Lorenz curve

Alternatively, the inequality can be measured by Gini coefficient or Gini concentration ratio that ranges from 0 (perfect equality) to 1 (perfect inequality). It is a numerical measure derived from the Lorenz curve and it can be used to measure the inequality in any variable under study like income/ wealth/ consumption etc. In the figure, u% of population equally share f% of all income and the rest equally share remainder, i.e., f – u, depicting the inequality. The estimation of Gini is attributed to an Italian Statistician C. Gini which was published in the literature "Variability and Mutability" in 1912. In the figure, the Gini coefficient is equal to the area marked by A divided by the sum of the area marked by A and B [Gini coefficient = A ÷ (A + B)]. It is also equal to 2 x A due to the fact that A + B = 0.5 (i.e., area of the triangle wherein the axes scale ranges from 0 to 1).

The Consequences of Economic Inequality

Economic inequality can yield both positive and negative effects on the economy, but at large, it causes several adverse consequences, affecting both individuals and society. On a positive note, inequality can motivate individuals to work hard, be innovative, and take risks, which leads the economy to be on the path of growth and prosperity. However, on the other hand, excessive inequality can result in adverse outcomes like socio-economic problems, including reduced social mobility, declined spending power among the lower-income categories, increased poverty level, and a rise in the crime rate. The major consequences of economic inequality that prevail in a society are discussed below:

- ***Social Cohesion:*** The prevalence of high economic inequality can take away social cohesion and trust within a region or society. This ultimately leads to social unrest and political instability.
- ***Health Disparities:*** Economic disparities and health disparities are interlinked. Under such a correlation, an individual with a lower economic status tends to have reduced access to basic amenities like healthcare. In the long run, it leads to poorer health outcomes.
- ***Education Divide:*** Economic inequality prevailing in a society can limit individuals against having access to quality education, resulting in an education divide. This perpetuates a cycle of disadvantage for marginalized sections of people.
- ***Political Influence:*** Of the two extreme sections in society, wealthy and elite groups, and organizations often use their significant political power to influence policy decisions. Such biased decisions, though benefit their interests, exacerbate inequality in society.

The Intersection of Economic Power

Economic power denotes "the ability of an individual, organization, or country to influence and control economic activities, economic resources, and economic outcomes. In other words, it measures the capacity to shape economic decisions and policies in a way that aligns with one's interests or objectives". It is multifaceted and exhibited in various forms like wealth, market dominance, trade and commerce, policy and regulation. Economic power frequently intersects with political power as it facilitates to take decisions. The distribution of economic power has a significant effect on income inequality, economic outcomes, and access to productive resources and economic prospects.

Economic power and inequality are entangled and have economic implications for society. Countries with significant economic power can direct law, rules and regulations, and policy recommendations, as well as influence market dynamics in favorable ways that perpetuate to their advantage. Major forms through which economic power can be exercised are given below:

- ***Influence by Corporate:*** Large corporate organizations are habitual in dictating government policies and regulations by lobbying and campaign contributions. The main intention is to shape the economic landscape in the corporate's favor.

- ***Financial Sector:*** The financial sector is one of the major sectors playing a central role in deciding economic power. Speculative practices from the sector can amplify inequality that usually favors and benefits the elite wealthy class in the case of economic destabilization.
- Monopolistic Practices: In some instances, a few industries within the economy experience the consolidation of economic power among the dominant players. This process limits the competition and increases the level of inequality.

Addressing the inequality and economic power nexus is a challenging task but not an impossible one. It can be managed through interventions like progressive taxation, anti-monopoly measures, education and skill development, and campaign finance reform.

- Progressive Taxation: A progressive tax system implementation can reorder wealth status and reduce the inequality in the levels of income. In such intervention, the tax policies should specifically target wealthier individuals and corporations.
- Anti-Monopoly Measures: Implementing anti-monopoly measures and promoting competition among industries can break up or reduce the concentrated economic power, nurturing a more level playing field.
- Education and Skill Development: Individuals can be empowered by investing in education and skill development programs. Such investments help individuals to compete in a highly competitive job market.
- Political Reform: Politics can be level-played by reducing the influence of money. This will ensure that policies are framed in the public interest rather than favoring one or a few sections of people.

To conclude, inequality and economic power are interconnected, posing a daunting challenge. To acknowledge and address these challenges, proactive policies are required to mitigate their adverse effects. Through fair distribution of economic power and resources, society can reach an equality status, where the benefits of economic growth are shared by all individuals.

5.1.10 Poverty and Deprivation

"Poverty is not an accident. Like slavery and apartheid, it is man-made and can be removed by the actions of human beings"

- Nelson Mandela -

Poverty means "a state or condition in which an individual or a community lacks the financial resources and essentials for attaining a minimum standard of living." It can refer to income poverty, wherein a person's income is insufficient to meet basic needs, or multidimensional poverty, which covers different aspects, viz., health, education, and standard of living. Poverty has significant implications for society and often results in socio-economic marginalization, limits access to opportunities, and creates hindrances for development. Poverty puts barriers to progress in everyday human life. In essence, poverty denotes a state of severe well-being deficiency, which is defined as a lack of food, shelter, clothing, medical care, and education. The poor, who are particularly vulnerable to adverse circumstances, often face neglect not only from governmental bodies but also from societal entities. They are often excluded from both institutions and authority. This pattern is observable across countries worldwide.

The International Bank for Reconstruction and Development (IBRD) released a renowned report called the "World Development Report." In the 2000-01 edition, the report asserted that income is the most commonly used measure of poverty in numerous countries globally. It highlighted the stark reality of "deep poverty amid plenty," revealing that a fifth of the world's population still lives in deep poverty. Approximately 44% of individuals worldwide survive on less than $1 per day. South Asia, as per reports, witnesses people living on $2 or less per day in purchasing power parity terms.

The Pew Research Centre, an organization conducting public opinion polling through extensive research and surveys, estimated that India's impoverished population swelled from 60 million to 134 million in just one year due to the economic downturn triggered by the COVID-19 pandemic. Consequently, India once again found itself categorized as a "country of massive poverty" after 45 years. A key component of poverty, existing in all its forms, is the lack of resources and assets. The underprivileged and marginalized poor lack access to or control over

resources and assets such as land, water, forests, housing, credit, education, longevity, political representation, physical capital, and financial capital.

Types of Poverty and Evaluation Approaches

Poverty can be categorized into two types: absolute and relative. Absolute poverty pertains to individuals lacking essential life necessities like food, shelter, clothing, and healthcare. It is typically defined in terms of minimum income levels required to meet these basic needs and is measured independently of the context, using absolute criteria. On the other hand, relative poverty involves individuals having less income or resources in comparison to others within their society. It is measured relative to the overall distribution of resources and income within a particular society, considering the general standard of living in that society. In other words, relative poverty examines an individual's situation concerning their society rather than against a universal poverty standard.

Two primary approaches are commonly employed to assess poverty: the 'Nutritional Approach' and the 'Relative Deprivation Approach.' However, the selection of these approaches is influenced by several factors, including a country's demographics and political structure. The nutritional approach is based on the minimum dietary requirements for an individual. If a person consumes approximately 2250 calories, the minimum necessary for sustaining daily activities, they are considered above the poverty line; otherwise, they fall below it. The relative deprivation approach primarily focuses on social inequality, considering factors such as wealth, infrastructure, education, health, and more. Developed countries often use the relative deprivation approach, while developing nations lean toward the nutritional approach.

In India, the situation differs somewhat, as it is imperative to analyze rural and urban poverty separately. The majority of India's population resides in rural areas, where poverty is often linked to sectors like agriculture and animal husbandry. In urban areas, poverty is prevalent in daily wage jobs and other informal sectors. Due to India's complex social and political landscape, relying solely on the nutritional approach is insufficient. It is essential to consider other socio-economic and political factors contributing to poverty in India. This complexity arises from the persistence of social inequality in contemporary India. Those living below the poverty line in India experience various deprivations and listed below

- Hunger and malnutrition

- Social discrimination
- Limited access to education and essential services
- Social exclusion, and
- Inadequate representation in decision-making processes.

In India, the political system is characterized by discrimination and dependency on more powerful majority segments of society, which has led to marginalized sections facing exclusion from social, economic, cultural, and political interactions.

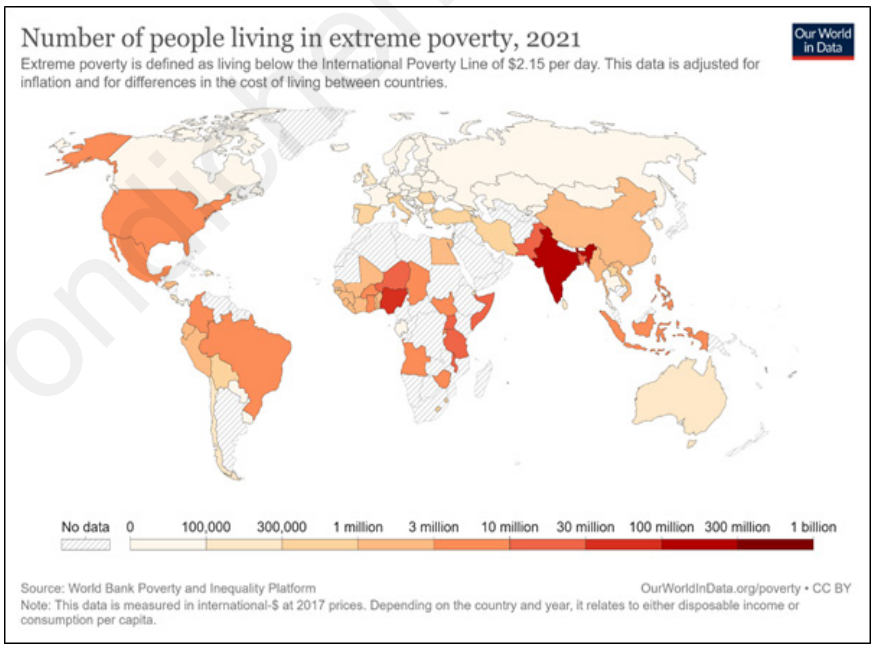
Poverty is measured by different metrics as follows:

- ***Headcount Ratio:*** It measures "the proportion of the population counted as poor (i.e., BPL). The headcount ratio does not take into consideration the intensity of poverty, and it does not change if people below the poverty line become poorer".
- ***Poverty Gap:*** Poverty gap refers to "the extent to which individuals, on average, fall below the poverty line, and it is expressed as a percentage of the poverty line. It measures the total income necessary to raise the people below the poverty line to that line".
- ***Squared Poverty Gap Index:*** It averages the squares of the poverty gaps relative to the poverty line. The index reflects the severity of poverty and is sensitive to the distribution among the poor.
- ***Sen Index:*** It is an index that combines the effects of the number of poor, the depth of their poverty, and the distribution of poverty within the group.
- ***Multidimensional Poverty (MDP):*** The MDP approach was given by the UNDP in 2010. It is "a poverty measure that identifies the poor using dual cutoffs for levels and numbers of deprivations and then multiplies the percentage of people living in poverty times the percent of weighted indicators for which poor households are deprived on average." To estimate the MDP index, Alkire and Foster [from the Oxford Poverty and Human Development Initiative (OPHI)] have developed a methodology (2011) that is being used popularly to estimate the MDP, which considers 3 dimensions, viz., health, education, and living standards (all three dimensions carry equal weights).

Poverty Status in India - Causal Factors and Eradication Measures

In India, around 172 million population live in extreme poverty and account for about 30 percent of those living in extreme poverty in the world. Poverty is determined by the poverty line estimates, which refer to the line of demarcation between rich and poor. As per the Rangarajan Committee, the poverty line is ₹47 in urban areas and ₹32 in rural areas at 2011-12 prices. Similarly, the monthly per capita consumption expenditure of ₹ 972 in rural areas and ₹1407 in urban areas is recommended as the poverty line at the all-India level.

In terms of calorie intake, 2400 kcal per person (rural) and 2100 kcal per person (urban) have been set as the norm. Literature reports that around 62 percent of India's poor live in seven low-income states: Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh, Odisha, Rajasthan, and Uttar Pradesh. These low-income states are home to 45 percent of India's population. On average, one in five children in India lives in poverty. The poverty line is also international, and under this criterion, people living below $2.15 per day (Source: World Bank) are considered to be living in extreme poverty. Figure 5.5 shows the number of people living in extreme poverty in 2021.



Source:https://ourworldindata.org/grapher/total-population-in-extreme-poverty

Figure 5.5: Number of people living in extreme poverty (2021)

Poverty in India is the adverse outcome of various factors, contributing to the continued impoverishment of its population. These factors encompass socio-economic, political, and cultural aspects, as

highlighted in Figure 5.6. One primary driver of the escalating poverty rates in India is its surging population. However, as India grapples with this rapid demographic growth, it struggles to provide sufficient food and resources necessary for the survival of its citizens. The unchecked and swift population growth can lead to a decrease in per capita income.

Figure 5.6: Causes of poverty

Population growth can also result in unemployment, further exacerbating the poverty rate. Those seeking employment may accept meager wages, driving down overall income levels. Unfortunately, India's policies have not effectively harnessed this substantial population to drive economic development. Another significant factor fueling the expansion of poverty in India is the frequent occurrence of unpredictable natural disasters. India's geographical location and climate change have rendered it susceptible to various natural calamities, significantly impacting its economy. Climate experts point to significant changes in the Bay of Bengal, which borders India's southeastern region, due to the greenhouse effect and climatic factors. States along the Bay of Bengal are increasingly vulnerable to tsunamis and cyclones, resulting in mass evacuations, capital withdrawal, unemployment, and poverty. States like Odisha, Madhya Pradesh, Uttarakhand, Bihar, and Assam, prone to natural disasters, also exhibit higher poverty rates, illustrating the connection between disasters and poverty. The decline of the agricultural sector adds another dimension to the causes of poverty in India. Once a primary sector providing

substantial employment, the agricultural sector has become vulnerable. The unorganized sector has expanded significantly due to population growth, as the organized sector struggles to keep pace. This growth of the unorganized sector exploits the overgrown population, pushing many into poverty, particularly those living below the poverty line.

India's underdevelopment in terms of technology and infrastructure contributes to regional isolation and poverty. Urban areas benefit from technology and infrastructure, while rural areas lack access to these opportunities and services, leading to further underdevelopment. Insufficient human capital also plays a role in India's poverty. The lack of employment opportunities and infrastructure prompts people to seek residence in more developed countries, resulting in significant human capital loss. Corruption is a pervasive issue in India's governance, undermining poverty alleviation efforts. Poverty disproportionately affects children and women in India, with the country harboring a substantial share of the world's malnourished children.

Eradication of Poverty in India: Efforts to eradicate poverty in India have seen several government measures. According to the 2019 Global Multidimensional Poverty Index by the UN Development Programme (UNDP), India reduced multidimensional poverty by 27.5% between 2005 and 2015, reflecting economic growth and development. The World Poverty Clock reports that 44 Indians escape extreme poverty every minute. The World Bank's report indicates that extreme poverty in India fell from 22.5% in 2011 to 10.2% in 2019. Infrastructure development projects and social initiatives have generated employment opportunities and reduced unemployment rates to 7.1%. Various poverty reduction programs, including Swarnajayanti Gram Swarozgar Yojana, Jawahar Gram Samridhhi Yojana, Pradhan Mantri Awaas Yojana, Mahatma Gandhi National Rural Employment Guarantee Act, Pradhan Mantri Kaushal Vikas Yojana, Rythu Bandhu Scheme, and Pradhan Mantri Kisan Samman Nidhi, have contributed significantly to poverty alleviation.

However, challenges persist, including overpopulation, redundant government schemes, and corruption. Strengthening legal frameworks and political institutions is crucial to overcome these hurdles. Organizations aiming to eradicate poverty must be transparent and accountable. Welfare schemes should prioritize women and scheduled tribes, focusing on

infrastructure, education, and health services. Surveys should identify areas lacking necessary resources and services, enabling targeted intervention. Citizen participation is essential for effective policy implementation, and employment-oriented economic growth can facilitate this participation. Pandemics, as seen during the COVID-19 crisis, disproportionately affect poor households. Policies that enhance their resilience to such events should be a government priority. While India has made progress in reducing poverty, challenges remain, and continued efforts are essential to ensure sustained improvement in the living conditions of its citizens.

5.1.11 Parallel Economy

'Parallel Economy' is often referred to as the shadow or informal economy, which is illegitimate and has a long list of intrigued economists, policymakers, and intellectuals. It represents an economic system having political, commercial, legal, and ethical aspects but operates alongside the formal economy, but its functioning is hidden from official records and regulations. In this section, the conceptual meaning, causes, effects, and potential solutions pertaining to the parallel economy are explained.

The parallel economy is an unsanctioned sector, and it involves a long list of economic activities that do not fall under the purview of government authorities and official statistics. Commonly, it is referred to as the black economy generating black money. The activities in a parallel economy often include unauthorized income that is not reported, unaccounted transactions, and cash-based business exchanges that are carried outside the official governing framework. The parallel economy functions similarly to the formal economy, wherein essential services are provided, and livelihood opportunities are created for marginalized sections.

Causes of the Parallel Economy

The parallel economy operates opposite to the official or the legitimate economy and apparently has its own causes. The causes of the parallel economy are attributed to several factors and are discussed below:

- ***Regulatory Barriers:*** The emergence of a parallel economy is due to the excessive government rules and regulations, burdening taxation structure, and inefficient bureaucratic system with several hurdles that demotivate business-minded people to venture into the informal sector.

- ***Economic Marginalization:*** In a few cases, owing to marginalization, people who do not have access to credit, schooling, or job opportunities participate in the informal economy. This happens by force rather than by choice.
- ***Tax Evasion:*** To engage in cash-based business transactions and to underreport earned income, people engage in parallel economy with the desire to evade taxes and to reduce the cost of operation.
- ***Lack of Enforcement:*** A country wherein law enforcement is very weak or highly ineffective, it facilitates business-minded individuals to function in the shadow economy without any fear of penalties.

Consequences of the Parallel Economy

In the real world, the functioning of the parallel economy against the official economy has both positive and negative consequences, but the larger effect is more towards the adverse side. The following are the consequences of the parallel economy:

- ***Income Generation:*** A parallel economy provides job opportunities for individuals livelihood who may otherwise be unemployed or underemployed. This usually happens in the case of developing countries.
- ***Reduced Tax Revenue:*** Owing to the functioning of the shadow economy, the governments can lose a substantial part of the tax revenue due to evading taxes and underreporting. This has implications for economic development, potentially impeding investment in public services and infrastructure development.
- ***Lack of Workers' Rights:*** Since the economy is informal, the workers engaged in the shadow economy often lack legal protections, including civil rights, access to social safety programs, and job security.
- ***Economic Instability:*** In a parallel economy functioning country, the economic stability and overall economic growth of the formal economy get distorted by altering market dynamics that affect formal sector development.

Strenuous efforts have to be taken to address the economic issues surrounding the shadow economy, and the proposed interventions should be inclusive and consider the unique socio-economic setting of the country. Some of the potential strategies to address the issues in the

parallel economy include the following:

- ***Simplifying Regulations:*** Streamlining and simplifying the rules and regulations, dropping bureaucratic hurdles, and implementing a rational tax system will encourage more business-oriented minds to operate within the ambit of the formal economy.
- ***Financial Inclusion:*** Better access to business services like credit, finance, and education will assist the marginalized section of the population to shift from the informal to the formal economy.
- ***Strengthening Law Enforcement:*** This is one of the potential methods to address the issues in the economy. Tax enforcement and implementation of labor laws can prevent individuals from evading taxes and also ensure labor rights coupled with labor protection.
- ***Public Awareness:*** Individuals' participation in the formal economy shall be increased by creating public awareness of the benefits of the formal economy. Focus can be given to items like social protection measures and better access to basic amenities that serve as a motivational factor for increased participation.
- ***Supporting Informal Workers:*** Participation in the formal economy can be increased by implementing policies that provide sustenance to the informal workers. Options like the provision of better access to basic amenities like healthcare and education can be explored as it improves their standard of living and helps them to shift from the shadow economy to the formal economy.

It is concluded that the parallel economy is an illegitimate economy performing with multifaceted functions possessing complex economic structure that poses both challenges and opportunities for societies. The shadow economy offers livelihood opportunities for the marginalized section of the population, and on the contrary, it poses significant concerns like tax evasion and unstable economic activities. Addressing the consequences of parallel economy requires a multidimensional approach by integrating stringent rules and regulations, financial restructuring,

strict enforcement, and raising public awareness. Eventually, with the size and impact reduction of the parallel economy, economic growth can be promoted. It also protects the rights of the working class, and enhances the overall standard of living.

5.1.12 Growing Regional Inequalities: Rural-urban Disparities

Regional disparities refer to the discrepancies and variations in economic, social, and political conditions among different regions within a country or a larger geographical area. These disparities can result from various factors, including differences in resource availability, infrastructure, and opportunities. India, due to its vast geographical expanse, exhibits significant regional disparities in economic and social development. Despite notable progress in poverty reduction and human development indicators, India continues to grapple with significant regional disparities in economic growth and development. These disparities can have far-reaching social and economic consequences, including reduced overall economic growth, increased migration, and social and political unrest. Addressing these regional disparities in India requires comprehensive interventions aimed at improving access to resources and opportunities in underprivileged regions. This includes investments in infrastructure, education, healthcare, and targeted economic development programs.

Several emerging regional disparities in India are discussed below:

- **North-South Divide:** Historically, southern states in India had a stronger economic base, higher literacy rates, and better infrastructure compared to northern states. However, recent years have seen faster economic growth in many northern regions, while southern states have faced challenges like water scarcity and a shrinking industrial base.
- **East-West Divide:** A growing disparity between India's eastern and western regions is evident. Western states like Gujarat and Maharashtra have significant industrial bases and have experienced recent economic growth, while the eastern part has traditionally been agrarian and faces challenges like inadequate infrastructure.
- **Coastal-Hinterland Disparities:** Coastal areas have historically enjoyed greater prosperity due to better market access and infrastructure connectivity. In contrast, hinterland areas suffer from poor connectivity and limited resource access.

- Urban-Rural Disparities: India experiences significant disparities between urban and rural areas, with urban regions witnessing faster economic growth and development. This has led to urbanization and rural-to-urban migration, exacerbating social and economic inequalities.

Urban-rural disparities in India are primarily attributed to population levels in these areas (Figure 5.7). The Indian government recognizes the reduction of these inequalities as a crucial responsibility, necessitating focused efforts on economic growth and policy changes to enhance access to resources and opportunities, including investments in infrastructure, healthcare, and education for rural residents. Rural areas often face higher levels of poverty, lower literacy rates, and limited access to healthcare, electricity, water, and sanitation facilities.

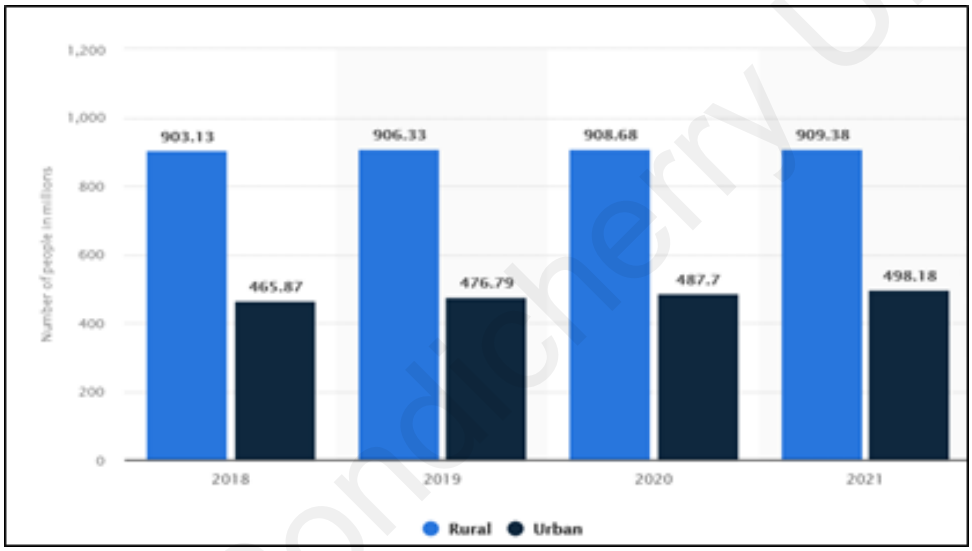


Figure 5.7: Rural and urban population in India from 2018 to 2021

As a result, urban regions typically have superior healthcare and educational resources, though rural areas face significant deficits in these areas. Rural regions also struggle with limited employment opportunities (Table 5.6) and lower wages compared to urban areas. Consequently, many individuals migrate from rural to urban areas in pursuit of better economic prospects.

Table 5.6: Level of employment in rural and urban India (in crores)

Year/Sector	Rural			Urban			Total		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
2018-19									
Agriculture	12.97	6.01	18.98	0.62	0.26	0.88	13.58	6.27	19.86
Mining & quarrying	0.10	0.02	0.11	0.08	0.01	0.08	0.17	0.02	0.20
Manufacturing	1.78	0.76	2.54	2.77	0.81	3.58	4.55	1.57	6.12
Electricity, water, etc	0.10	0.02	0.11	0.15	0.02	0.17	0.25	0.03	0.28
Construction	3.75	0.51	4.26	1.47	0.14	1.60	5.22	0.64	5.86
Trade, hotel & restaurant	2.39	0.36	2.75	3.19	0.46	3.64	5.57	0.82	6.39
Transport, storage & communication	1.32	0.02	1.33	1.54	0.12	1.66	2.86	0.14	2.99
Other services	1.95	0.77	2.72	2.82	1.51	4.33	4.77	2.28	7.05
Total							**36.97**	**11.78**	**48.76**
2019-20									
Agriculture	14.10	8.18	22.28	0.67	0.32	0.99	14.77	8.51	23.27
Mining & quarrying	0.08	0.00	0.08	0.07	0.00	0.07	0.14	0.01	0.15
Manufacturing	1.86	0.79	2.65	2.70	0.88	3.59	4.56	1.67	6.24
Electricity, water, etc	0.13	0.01	0.14	0.19	0.02	0.21	0.31	0.03	0.35
Construction	3.82	0.61	4.42	1.60	0.19	1.79	5.42	0.80	6.22
Trade, hotel & restaurant	2.34	0.40	2.74	3.85	0.88	4.73	6.19	1.28	7.47
Transport, storage & communication	1.37	0.02	1.40	1.61	0.14	1.75	2.99	0.16	3.15
Other services	1.78	0.79	2.57	2.64	1.50	4.13	4.42	2.29	6.71
Total							**38.80**	**14.75**	**53.55**

Source: Estimated using PLFS 2018-19 and 2019-20 Surveys

Urbanization has contributed to increasing disparities in India. As more people migrate to cities, the demand for resources and opportunities in urban areas intensifies, leading to a concentration of economic and social progress in these regions. To address these challenges, equitable regional development should focus on improving resource availability and opportunities in both urban and rural areas. This requires investments in rural infrastructure, healthcare, education, and the promotion of local businesses and industries. Urbanization has brought both benefits and challenges to India, and effective policy measures are needed to ensure balanced development and improved quality of life in both urban and rural areas while addressing environmental concerns such as pollution and waste management.

5.1.13 Problems of Urbanization and Migration

Urbanization

Urbanization refers to the increasing proportion of people living in urban areas due to migration from rural to urban. At present, 54 per cent of global population live in urban areas. According to the United Nations, Department of Economics and Social Affairs (UNDESA, 2014) reported that the global average of urbanization was 0.9 per cent and India had higher than the global level of urbanization which was 1.1 per cent. The Census of India (1961 Census) stated that the urban area refers to: (a) not less than 5000 population, (b) the density of population is not less than 400 per square kilometers, and (c) 75 per cent of overall workforce or 75 per cent of male workforce not engaged in agricultural activity. The agricultural activities are livestock, forestry, hunting, fishing, plantation, orchards and allied activities. In the context, the urban area includes statutory towns, census towns, urban agglomerations, urban outgrowth, municipal corporations, municipalities, municipal council, and town panchayat.

Table 5.7: Number of Urban Population in India

Year	Number of Urban Population in India (Millions)
1961	78
1971	109
1981	159
1991	217
2001	286
2011	377
2014	410
2050	814

Source and Note: (a) 1961 to 2011 Based on Census of India
(b) 2014 and 2050 based on Projection by UNDESA 2014.

The Census revealed that the proportion of urban population was 17.3 per cent in 1951 and it increased to 31.2 per cent in 2011, which was 377 million (Table 5.7). The projected population shows that the 50.3 per cent of population is expected to live in urban areas in 1950. The annual

growth of urbanization was 2.76 per cent per annum during the period of 2001 to 2011.

Table 5.8: Proportion of Rural and Urban Population in India

Year	Percentage Rural Population	Percentage of Urban Population
1951	83.0	17.3
1961	82.0	18.0
1971	80.1	19.9
1981	76.7	23.3
1991	74.3	25.7
2001	72.2	27.8
2011	68.8	31.2

Source: Census of India

State Level Urbanization: The state level/regional level urbanization depends upon the level of regional/state economic development. The low level of economic development in a specific state indicates the low level of urbanization in comparison to their counterparts. The north, east and central India states have low level of urbanization than south and west Indian states. The state of Maharashtra, Tami Nadu, Gujarat, Punjab, Haryana, Kerala, Karnataka, Goa, and Mizoram are ahead of all India level as per the 2011 Census. The sates like Bihar, Rajasthan, Uttar Pradesh, Madhya Pradesh, Odisha, Jharkhand and Chhattisgarh lag behind in comparison to all India level.

Migration

Migration refers to movement of human from one to another place. On the basis of movement, migration is divided into two types: (I) Internal migration and (II) External migration. Internal migration is classified into (a) Rural to urban migration, (b) Rural to Rural migration, (c) Urban to Urban migration, and (d) Urban to Rural migration. The external migration is classified into (a) immigration and (b) emigration.

Causes of Migration: Migration is a strategy to reduce the poverty for the rural poor. There are many factors responsible for migration and

can be broadly divided into economic and demographic, political and socio-cultural factors. These factors are combined into 'push and pull' factors. These 'push and pull' factors operate promptly one upon another and do not operate in isolation. The push and pull factors are: absence of employment, poverty, low wage in agriculture/rural areas, population pressure, lack of access to education, lack of access to health care facilities, individual carrier growth, marriage, climate change, political uncertainty, civil war, human rights violence, etc.

Magnitude of Migration in India: The major sources of migration information in India comes from two organizations, namely (a) Census of India, and (b) National Sample Survey Office (NSSO) and/or Periodic Labour Force Survey (PLFS). Information on migration collected in the Census are based on different criteria like (i) place of birth and (ii) place of last residence. The place of residence of migrant individuals bounded on rural-urban region within the district, rural-urban region from the same state but another district, rural-urban region from another state. As reported in the Census 2001, the total number of migrant population stood at 31.4 crores. In the subsequent Census (2011), it is revealed that the total number of migrant persons increased to 45.6 crores comprising 27.8 crores from rural areas and 17.8 crores from urban areas. In gender perspective, the number of female and male migrants, respectively was 30.96 crores and 14.6 crores. Further, the number of internal migrants was estimated at 30.9 crores in 2001 and it has increased to 45 crores in 2011 in a span of 10 years. Internal migrants constituted more than 98% of the migrants in both the Census. However, the number of internal migrants has gone up by more than 45 per cent in the decade with no change in the pattern of movement. For intra-state migrants, the number was 26.3 crore in 2001 Census and 39.6 crores in 2011 Census. The share was 83.7 per cent in 2001 and had increased to 86.8 per cent in 2011. However, the share decline in inter-state migration i.e., 13 per cent in 2001 to 11.8 per cent in 2011.

The PLFS survey had identified 14 reasons for the migrants to leave their recent usual place of residence: "(1) search of employment or better occupation, (2) for employment or work (to take up employment or to take up better employment/business/proximity to place of work or transfer), (3) loss of job or closure of unit/lack of employment opportunities, (4) migration of parent or earning member of the family, (5) to pursue education (6) marriage, (7) natural disasters like drought, flood, tsunami,

etc., (8) social or political problems like riots, terrorism, political refugee, bad law and order, etc., (9) displacement by development project, (10) health related reasons, (11) acquisition of own house or flat, (12) housing problems, (13) post-retirement and (14) other reasons".

According to the PLFS migration report (2020-21), the rate of migration was 28.9 per cent in India. Among female it was 47.9 per cent and for male it was 10.7 per cent. On the basis of last usual place of residence in internal rural migration, it was 73.4 per cent and for urban migration, it was 25.9 per cent. The international migration was estimated to be 0.7 per cent. Within the state, the last usual place of residence was 87.5 per cent and migration to another state was 11.8 per cent. In the internal migration, rural to rural region was 55.0 per cent, followed by rural to urban with 18.9 per cent, urban to urban with 15.9 per cent, and urban to rural at 10.2 per cent. The reasons for migration are multifold. Marriage registered the highest proportion as a reason for migration, and it was 71.6 per cent (female: 86.8% and male: 6.2%). The second major factor for migration was reported as the migrant parent or earning member of the family, which was 9.2 per cent, followed by 4.8 per cent for search of employment or better employment opportunities, 4.4 per cent for employment or work (to take up employment or to take up better employment/business/proximity to place of work or transfer). The other reasons registered only 3.0 per cent, which is insignificant.

Implications of Urbanization and Migration on Economy

Migration and urbanization are the indicators of the economic development. The increasing economic activities in urban areas attracts more labour from rural regions. The agricultural sector failed to absorb the surplus labour in itself due to poor agricultural development and as a result low income has been realized in the agricultural sector. This process led to out-migration of rural labours to urban areas. In such case, the urban informal sector absorbs the rural labour. This urbanization process fails to provide better employment conditions, and urban infrastructure like access to house, access to drinking water, access to sanitation facilities and access to transportation. Urbanization generate more slum in the cities. Urbanization and migration process also creates the problem in accessing health and educational facilities. Further, urbanization is the root cause to environmental problems like air pollution, water pollution, noise pollution and solid waste generation. Consequently, urbanization

and migration lead to poor quality of urban life. On the other hand, the process of urbanization creates opportunities for a better living standard to elite and skilled workforces. The urbanization aids to fill-up the demand for and supply of skilled and unskilled labour through migration. Rural to urban migration increase the remittances of the labour household in the rural areas. This remittance improves the economic conditions for the rural labour households. In addition to this, rural to urban migration support to transform the unskilled labour to skilled labour. This increased skill helps to improve the labour productivity in the economy.

5.1.14 Make in India

"Make in India" is a visionary initiative launched by the Government of India in September 2014. The aim of this initiative is to transform the nation into a global manufacturing and investment hub. This ambitious campaign seeks to boost domestic manufacturing, create jobs, and bolster the country's economic growth. In this section, the origin, objectives, achievements, and challenges of the "Make in India" program will be discussed. The "Make in India" initiative emerged in response to the need for economic diversification and job creation in India. It was formulated with the following key objectives (Figure 5.8) in mind:

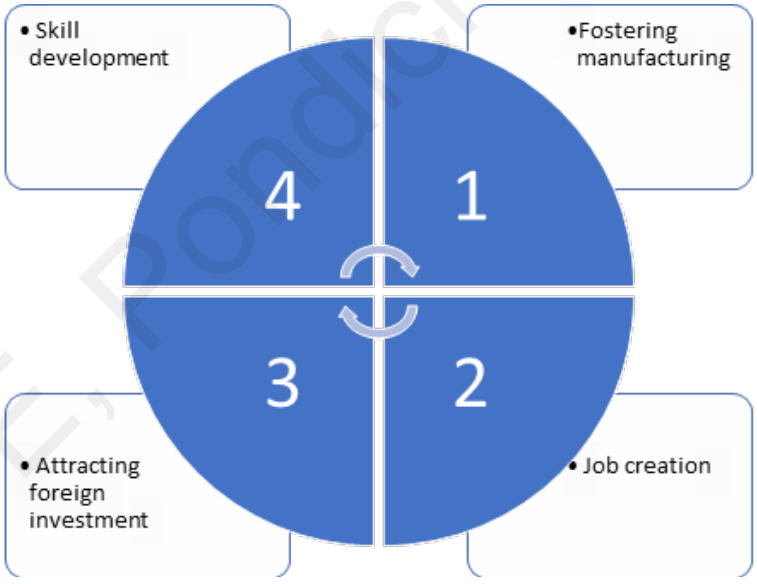


Figure 5.8: Objectives of "Make in India" initiative

- **Fostering Manufacturing:** To promote India as a global manufacturing destination by creating an investor-friendly environment and reducing red tape in the bureaucratic system.

- **Job Creation:** To generate millions of jobs, particularly for the burgeoning youth population, by nurturing various manufacturing sectors.
- **Attracting Foreign Investment:** To attract foreign direct investment (FDI) by showcasing India's potential as an attractive investment destination.
- **Skill Development:** To develop and upskill the workforce, ensuring that they are equipped with the necessary skills to meet the demands of a modern manufacturing sector.

The "Make in India" campaign, since its inception, has achieved notable progress in various sectors. The following are the achievements of the "Make in India" program.

- **Manufacturing Growth:** India's manufacturing sector has witnessed significant growth, with increased production in items like automobiles, electronics, and textiles.
- **Foreign Investment:** The initiative has attracted substantial FDI, with numerous multinational corporations choosing to establish or expand their manufacturing operations in India.
- **Job Creation:** The program has contributed to job creation, particularly in labor-intensive industries, providing livelihood opportunities to many.
- **Ease of Doing Business:** India's ranking in the World Bank's Ease of Doing Business Index has improved, indicating a more favorable business environment.
- **Skill Development:** Skill development initiatives have been launched to equip the workforce with industry-relevant skills.

Despite its achievements, the Make in India initiative faces several challenges:

- **Infrastructure:** India's infrastructure, including transportation, energy, and logistics, needs substantial improvement to support robust manufacturing growth.
- **Bureaucracy:** Bureaucratic hurdles and red tape can still deter potential investors and manufacturers.
- **Global Competition:** India faces stiff competition from other emerging economies for FDI and manufacturing opportunities.

- **Labor Regulations:** Complex labor regulations can be a deterrent for some industries.
- **Skill Mismatch:** While skill development programs have been initiated, there is a need for continuous upskilling to match industry requirements.

The "Make in India" initiative is a transformative and ambitious effort aimed at boosting India's manufacturing sector and economic growth. It has made significant strides in fostering manufacturing, attracting foreign investment, and creating jobs. However, challenges remain, such as infrastructure deficiencies and bureaucratic obstacles, which require continuous attention and reform. As India continues its journey towards becoming a global manufacturing and investment hub, the success of the "Make in India" campaign will depend on sustained efforts to address these challenges, invest in infrastructure, streamline regulations, and ensure a skilled workforce. If executed effectively, "Make in India" has the potential to propel India into a new era of economic prosperity and global competitiveness.

5.1.15 Inclusive Growth, Sustainable Growth and Development

Inclusive growth is an economic concept that emphasizes not only the overall expansion of a country's economy but also the equitable distribution of the benefits of that growth among all segments of society. It seeks to reduce poverty, income inequality, and disparities in access to opportunities. Key elements of inclusive growth include providing equal access to education, healthcare, employment, and social services, among others. On the other hand, sustainable growth, also referred to as sustainable development, is a broader concept that encompasses economic, social, and environmental dimensions. It is the idea that economic growth should occur in a manner that does not deplete or harm natural resources, harm the environment, or compromise the well-being of future generations. Sustainable growth recognizes the interconnectedness of economic, social, and environmental systems and aims to balance economic progress with environmental conservation and social well-being.

Inclusive growth and sustainable growth both share the goal of improving the well-being of society. They aim to enhance people's quality of life, reduce poverty, and ensure economic progress benefits everyone. Inclusive growth explicitly focuses on equity and social inclusion by

addressing income inequality and providing opportunities for marginalized populations. Sustainable growth also recognizes the importance of social equity as a component of overall sustainability. Sustainable growth places a strong emphasis on environmental sustainability. It seeks to minimize the negative impact of economic activities on the environment, such as reducing greenhouse gas emissions, conserving natural resources, and promoting renewable energy sources. Inclusive growth can complement this by encouraging eco-friendly businesses and green job creation. Sustainable growth takes a longer-term view, considering the needs of future generations. It seeks to ensure that economic activities today do not compromise the ability of future generations to meet their own needs. Inclusive growth, by promoting social well-being and reducing inequalities, contributes to the long-term stability and resilience of societies. To achieve both inclusive and sustainable growth, policies need to be aligned. For example, policies that promote access to education and healthcare (inclusive growth) can also contribute to healthier and more educated populations, which are essential for sustainable development. Both inclusive growth and sustainable growth are somehow interrelated and lead to economic development. A society cannot achieve sustainable growth without addressing inequality and ensuring that all members have a stake in the development process (inclusive growth). Similarly, inclusive growth is more likely to be sustained over time when it respects ecological limits and conserves natural resources (sustainable growth).

Inclusive Growth

Certainly, inclusive growth is multifaceted and has key elements (Figure 5.9) to exhibit progress. These elements are described in brief in this section.

- **Equitable Access to Opportunities:** Ensuring all individuals have equal access to education, healthcare, and employment opportunities regardless of their background or socioeconomic status.
- **Income and Wealth Distribution:** Promoting policies and measures that reduce income inequality and wealth concentration within a society.
- **Social Safety Nets:** Establishing robust social safety nets, such as unemployment benefits and welfare programs, to support vulnerable populations during hardship.

- **Labor Market Inclusivity:** Encouraging fair labor practices, including minimum wage laws, non-discrimination policies, and workers' rights to create inclusive job markets.
- **Financial Inclusion:** Expanding access to financial services, including banking and credit, for underserved and marginalized communities.
- **Infrastructure Development:** Investing in infrastructure projects that benefit all segments of society, including transportation, healthcare facilities, and affordable housing.
- **Education and Skills Development:** Providing quality education and skill-building opportunities to equip individuals with the tools they need to succeed in the modern economy.
- **Gender Equality:** Promoting gender equality in all spheres of life, ensuring equal opportunities and rights for women and men.
- **Rural and Urban Development:** Focusing on balanced development in both rural and urban areas to reduce regional disparities.
- **Environmental Sustainability:** Integrating sustainability principles to ensure that economic growth does not harm the environment and future generations.
- **Access to Healthcare:** Guaranteeing affordable and accessible healthcare services for all, regardless of income or location.
- **Community Engagement:** Encouraging active participation of communities in decision-making processes to ensure that their needs and perspectives are considered.
- **Inclusive Governance:** Establishing transparent and accountable governance structures that promote the equitable distribution of resources and opportunities.

Source: https://www.insightsonindia.com/

Figure 5.9: Major elements of inclusive growth

- **Entrepreneurship and Small Businesses:** Supporting the growth of small and medium-sized enterprises (SMEs) and entrepreneurship, which can create jobs and economic opportunities for a wide range of individuals.
- **Cultural Sensitivity and Diversity:** Recognizing and respecting the cultural diversity within a society and promoting policies that respect and celebrate these differences.
- **Access to Technology:** Bridging the digital divide by ensuring that technology and the internet are accessible to all, enabling participation in the digital economy.
- **Inclusive Financial Systems:** Developing financial systems that cater to the needs of low-income and marginalized populations, providing them with access to credit and savings options.

All these elements collectively contribute to the achievement of inclusive growth, fostering a more equitable and just society where

economic progress benefits everyone. Apart from the elements, there are drivers of inclusive growth strategies (Figure 5.10), as reported by Green et al. (2017).

Source: https://www.researchgate.net/publication/318340272

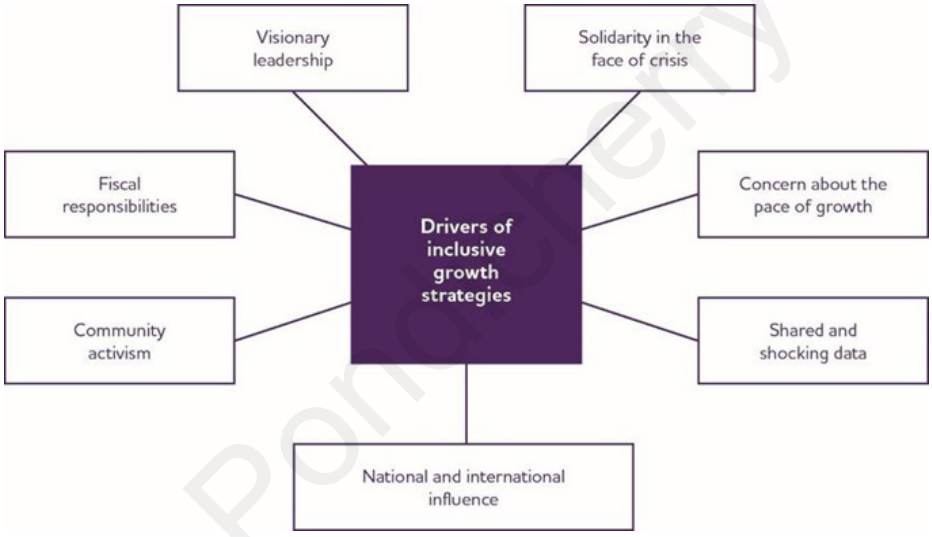


Figure 5.10: Major drivers of inclusive growth strategies

Sustainable Growth and Development

The term "sustainable growth and development" refers to a strategy aimed at addressing current needs while safeguarding the ability of future generations to meet their own needs. It encompasses economic growth, environmental preservation, and social equity, offering a comprehensive and forward-looking approach to progress. The concept of sustainable growth recognizes the fundamental dependence of human civilizations on the natural environment for resources and ecosystem services. It

emphasizes the adoption of practices that protect and enhance natural resources rather than depleting or degrading them. To achieve sustainable growth, the conventional linear, resource-intensive development model must be replaced by a circular, sustainable one. Sustainable growth necessitates the widespread use of renewable energy sources. Transitioning from fossil fuels to renewable energy, such as solar, wind, and hydropower, not only mitigates climate change but also enhances energy security while reducing reliance on finite resources.

Encouraging sustainable production and consumption habits is another crucial aspect of sustainable growth. This involves waste reduction, improved resource efficiency, and the adoption of a circular economy approach. The circular economy extends the life of materials by reusing, recycling, and remanufacturing them, reducing the demand for new resource extraction and waste generation.

Environmental considerations must be integrated into economic decision-making processes to achieve sustainable growth. This can be achieved through the application of environmental regulations, economic tools like carbon pricing and pollution levies, and the promotion of sustainable corporate practices. Sustainable growth seeks to strike a balance between economic incentives and environmental sustainability by internalizing the environmental costs of economic activities. Recognizing the importance of social equality and inclusion is widely accepted in the pursuit of sustainable growth. It involves ensuring that all members of society have access to economic opportunities and that the benefits of growth are equitably distributed. This also entails addressing wealth disparities, promoting gender equality, and investing in social infrastructure, healthcare, and education.

Innovation and technology play pivotal roles in promoting sustainable growth. Clean technologies, including energy-efficient systems, smart grids, and sustainable agricultural practices, improve resource efficiency and environmental sustainability. Digital technologies enable optimized resource usage, enhanced monitoring and data analysis, and the development of sustainable solutions across various industries. The objectives of sustainable growth encompass social equality, environmental sustainability, and economic prosperity. Utilizing renewable energy sources, fostering environmentally responsible production and consumption habits, considering environmental impacts in decision-making, and prioritizing

social inclusion are all critical components. By focusing on sustainable growth, societies can protect the environment, enhance the well-being of current and future generations, and achieve long-term prosperity.

The term "Sustainable Development" was first used in the "World Conservation Strategy" presentation by the "International Union for the Conservation of Nature and Natural Resources" in 1980. However, its first definition was noticed in the "Brundtland Report – Our Common Future" by the World Commission on Environment and Development in 1987. Sustainable growth and development means meeting the needs of the present generation without compromising the needs of the future generation.

Sustainable development is a broad concept, and it encompasses economic development. The goal is to improve the quality of life in the long run. The objectives of sustainable development are listed below:

- To increase economic growth
- To improve basic needs
- To enhance living standards – health, education, public life, clean environment, etc.
- To promote intergenerational equity

Sustainable development recognizes the intricate interplay between social, economic, and environmental systems. Its objectives include tackling the root causes of environmental degradation and enhancing coexistence among people and other living beings. By prioritizing the well-being of both individuals and the environment, sustainable development strives to create a future where economic advancement does not come at the expense of environmental deterioration and social inequality. Several essential elements underpin the concept of sustainable development. One of these is the precautionary principle, which underscores the importance of taking preventive measures against environmental harm, even in the absence of definitive scientific evidence. Additionally, the principle of intergenerational equality strongly emphasizes the responsibility of the current generation to preserve natural resources for future generations.

The principles of sustainable development emphasize the need for a delicate balance among environmental, social, and economic considerations. Environmental sustainability encompasses actions such as resource conservation, pollution reduction, and climate change mitigation.

Social sustainability focuses on upholding human rights, social justice, and equality. Economic sustainability seeks to foster economic growth while taking into account the environmental and societal impacts of economic activities.

The United Nations' Sustainable Development Goals (SDGs) provide a comprehensive framework for advancing sustainable development. There are 17 goals and these goals address various sustainability-related concerns, including biodiversity conservation, responsible production and consumption, clean energy adoption, sustainable urban development, and poverty alleviation. As nations and organizations collaborate towards a sustainable future, the SDGs serve as a roadmap for their efforts.

Technology plays a vital role in achieving sustainable development. Advancements in clean technology, renewable energy sources, and efficient resource management reduce environmental impacts. Digitization and innovation in industries such as waste management, transportation, and agriculture enable the adoption of sustainable practices. Technology also facilitates the monitoring and reporting of sustainability initiatives. Integrated resource management is essential to ensure sustainable development. This involves optimizing resource use, promoting sustainable production and consumption patterns, and implementing effective waste management practices. Transitioning to renewable energy sources like solar and wind not only reduces reliance on fossil fuels and greenhouse gas emissions but also enhances energy security. Biodiversity protection stands as a cornerstone of sustainable development. Preserving ecosystems, safeguarding endangered species, and advocating for sustainable land and water management practices all contribute to the long-term health of the planet. Sustainable urban planning ensures the development of livable communities with efficient infrastructure, green spaces, and minimal environmental impact.

In summary, sustainable development is a comprehensive strategy that strives to balance environmental, social, and economic considerations. By addressing the root causes of environmental degradation and implementing sustainable practices, societies can progress in the long term while safeguarding the environment and enhancing the well-being of current and future generations.

Elements of Sustainable Growth and Development

"Sustainable growth and development" is a multifaceted concept that seeks to achieve economic prosperity, social equity, and environmental responsibility in a balanced and harmonious manner. It is a holistic approach that recognizes the interdependence of economic, social, and environmental systems. To effectively pursue sustainable growth and development, several key elements must be considered and integrated into policymaking and decision-making processes.

- **Environmental Sustainability:** At the core of sustainable development is the commitment to safeguarding the environment. This includes actions to conserve natural resources, reduce pollution, and mitigate the impacts of climate change. Strategies for environmental sustainability involve promoting responsible land use, protecting biodiversity, and transitioning to renewable energy sources.
- **Economic Prosperity:** Sustainable development acknowledges the importance of economic growth but emphasizes that it should be achieved in a way that does not compromise the well-being of future generations. It involves strategies to promote innovation, entrepreneurship, and job creation while considering the environmental and social consequences of economic activities.
- **Social Equity and Inclusion:** Social sustainability is a fundamental element of sustainable development. It encompasses the principles of social justice, human rights, and equity. Achieving social sustainability involves addressing poverty, inequality, and discrimination. It also means ensuring that all members of society have access to education, healthcare, and economic opportunities.
- **Resource Conservation:** Sustainable development encourages the responsible use of resources by promoting resource efficiency and reducing waste. This includes adopting recycling, reusing materials, and implementing a circular economy approach. The goal is to minimize resource depletion and its environmental impact.
- **Renewable Energy Adoption:** Transitioning from fossil fuels to renewable energy sources like solar, wind, and hydropower is a critical component of sustainable development. This shift not only reduces greenhouse gas emissions but also enhances energy security by relying on sources that are abundant and sustainable.

- **Environmental Protection:** Protecting ecosystems, conserving biodiversity, and preserving natural habitats are essential for long-term environmental sustainability. Sustainable development recognizes that healthy ecosystems provide essential services such as clean water, pollination, and climate regulation, which are crucial for living.
- **Community Engagement:** Sustainable development involves active participation and engagement of communities in decision-making processes. Local knowledge and perspectives are valuable in shaping policies and projects that align with the needs and values of specific regions.
- **Gender Equality:** Promoting gender equality is a key element of sustainable development. It involves ensuring equal opportunities and rights for all genders and addressing gender-based disparities in education, employment, and decision-making.
- **Education and Awareness:** Sustainable development relies on informed and aware citizens who understand the importance of environmental conservation and social justice. Education and awareness campaigns are crucial in fostering a culture of sustainability.
- **Policy Integration:** Effective sustainable development requires the integration of sustainability principles into policymaking at all levels of government. This means considering environmental, social, and economic impacts when formulating and implementing policies.
- **Global Cooperation:** Achieving sustainable development is a global endeavor. International cooperation and collaboration are essential for addressing transboundary environmental challenges, sharing best practices, and promoting global sustainability goals.
- **Monitoring and Reporting:** Regular monitoring and reporting on progress toward sustainable development goals are crucial for accountability and informed decision-making. Data collection and analysis help track trends, identify areas of concern, and assess the effectiveness of policies and initiatives.

In conclusion, sustainable development is a comprehensive and interconnected framework that aspires to balance environmental protection, economic growth, and social equity. It requires a commitment

to responsible resource management, environmental stewardship, and the well-being of all people, both now and in the future. By embracing these key elements and integrating them into policies and practices, societies can work toward a more sustainable and prosperous future for all.

5.1.16 Reference

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5.1.17 Review Questions

1. Describe the impact of the global financial crisis on the Indian economy and explain how India responded to the crisis.
2. What is environmental degradation? Explain in detail the causes of environmental degradation.
3. What are the different types of unemployment? How does unemployment affect the progress of the Indian economy?
4. Write a note on poverty, jobless growth, and regional inequalities.
5. Discuss the rural-urban disparities prevailing in India.
6. Highlight the problems of urbanization and migration