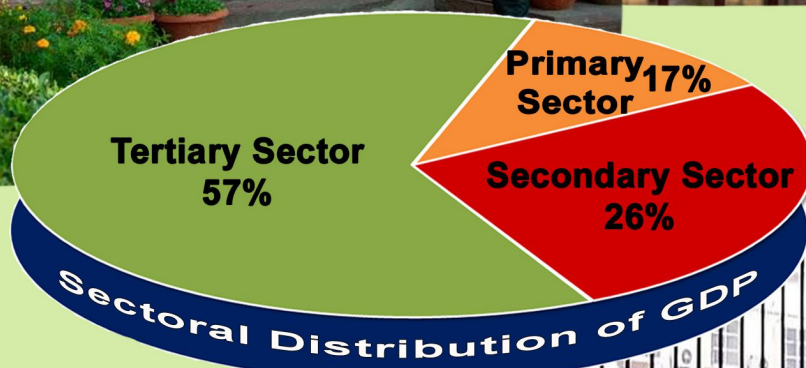
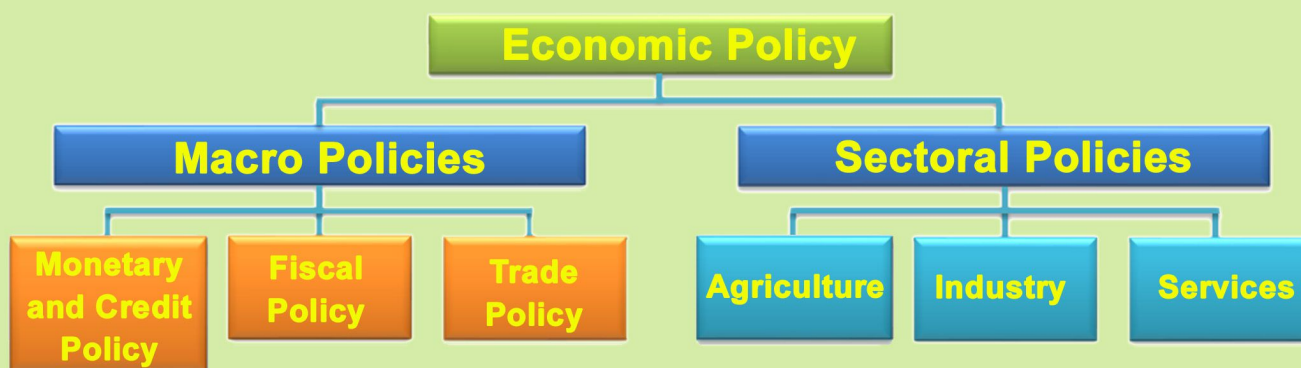




Issues of Concern

1. Poverty and Inequality
2. Unemployment
3. Regional Disparities
4. Malnutrition
5. Social Security
6. Good Governance



MEC-205
Indian Economic
Policy

VOLUME-I
(Block 1 and 2)

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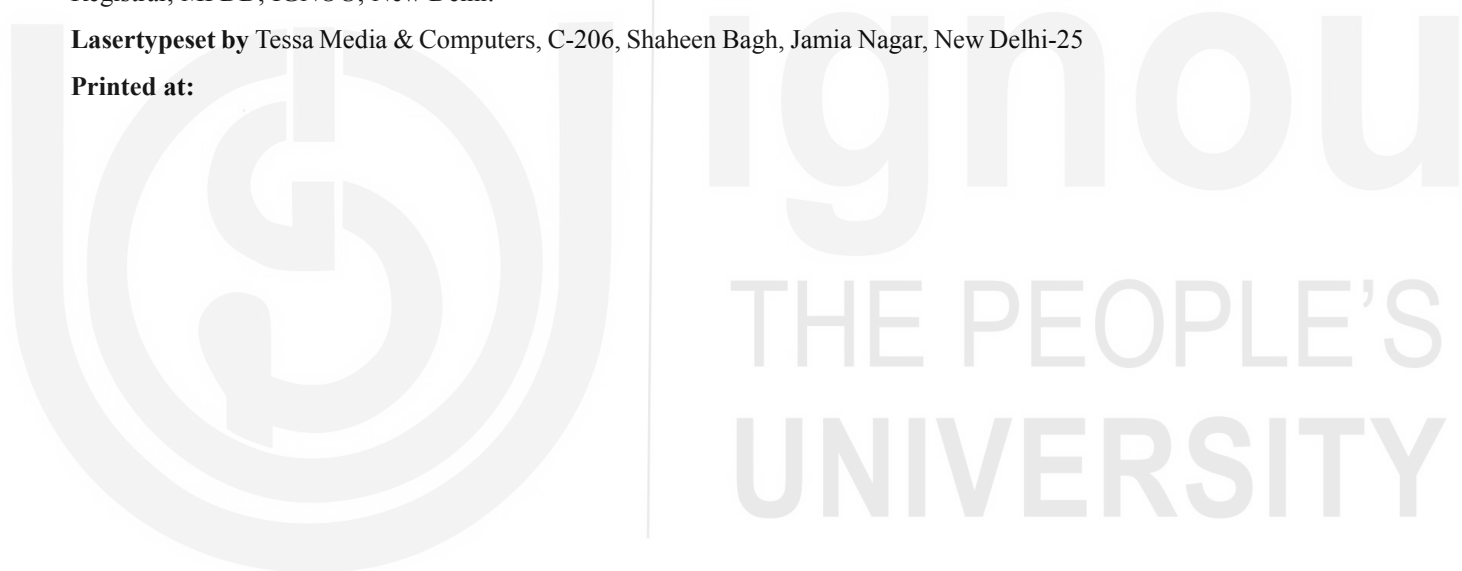
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COURSE INTRODUCTION: INDIAN ECONOMIC POLICY (MEC-205)

The focus of the course on Indian Economic Policy is to discuss the analytical framework within which the economic policy has evolved over time. It highlights the consideration that has underpinned the formulation and implementation of the policies at the macro and at micro (sectoral) levels. Several theoretical concepts have found an expression in this course. The economic policies conditioned the environment and in turn were conditioned by the environment. This two-way relationship has been examined in this course. An integrated approach to different aspects of policy-making has been adopted.

The course is structured around six blocks. Each block is further sub-divided in to several units. Each Unit is self-contained and has organic linkages with all other Units.

Providing an overview of Indian economic development in historical perspective, **Block 1** presents the status of growth and structure of the Indian economy since independence. The block also discusses the prospects and opportunities of Indian economy in the context of domestic and international developments. Demographic profile of India and its implications for demographic dividend and the resource base of Indian economy both in terms of natural resources and physical and social infrastructure have also been covered in this block.

Block 2 deals with the development strategies adopted in India. It focuses on the policy choice exercised between state and market as the principle drivers of economic activity in different phases of India's development journey.

Block 3 throws light on two major economic policy instruments i.e., monetary and fiscal policy. The four units covered in this block focus the decisive role that has been played by the monetary and fiscal authorities in guiding a growing economy. It highlights some of the major milestones including measures related to the FRBM Act, the implementation of goods and services tax (GST,) the recommendation of 15th Finance Commission and the new mandate of the monetary policy on inflation targeting and the institutional context in which that has to be pursued.

Block 4 on sector specific issues and policies assess growth in all three sectors of economy i.e., primary, secondary and organised and unorganised services sector, focusing on issues and concerns of these sectors that need to be addressed in the respective policy initiatives for those sectors.

Block 5 analyses the External Sector and Trade Policy. It examines the emerging external sector in India's economy and issues to be addressed in Trade Policy.

The major issues and challenges encountered in India's economic policy-making have been identified and analysed in **Block 6**. These issues are: Poverty; Malnutrition and Inclusive Growth; Employment and Unemployment; Social Security measures; Regional Disparities and Ingredients of Good Governance.

The logo of Indira Gandhi National Open University (IGNOU) is a large, light gray watermark on the left side of the page. It features a stylized 'U' with a circular emblem inside, containing a dollar sign and a person figure.

Block 1

Indian Economic Development: An Overview

ignou
THE PEOPLE'S
UNIVERSITY

BLOCK 1 INDIAN ECONOMIC DEVELOPMENT: AN OVERVIEW

This Block presents the evolution of the Indian economy since the Colonial period. Covered in this block is the status and structure of the Indian economy since independence which will enable us to know the evolution and analysis of Indian economic policy in historical context. This block comprises of 5 Units.

Unit 1: Indian Economic Development: A historical perspective provides an overview of India's Colonial economy during the British period, the process resorted by the British rulers to undermine and disrupt the traditional Indian economy and important milestones of Indian national movement which in turn will enable an understanding of the evolution of Indian economic policy in post-independence period.

Unit 2: Growth and structure of the Indian economy identifies the growth path of Indian Economy since 1951, the stages of growth through which Indian Economy has evolved.

Unit 3: Demographic transition and its implications throws light on theory of demographic transition, demographic profile of India, the issues related to potential demographic dividend that can be harnessed across Indian states.

Unit 4: Natural Resources provides the status of natural resources i.e. land and soils, water resources, biodiversity, forest mineral resources etc as availability of these resources, their utilisation and capacity to mobilise determine the economy's ability to overcome the constraints on its development.

Unit 5: Physical and Social infrastructure provides a profile of the availability of physical and social infrastructure in the country. The policy framework of public private partnership that has facilitated the growth of transport, telecommunication energy and social infrastructure has been examined. The challenges confronting the infrastructure and the way ahead have also been discussed.

UNIT 1 INDIAN ECONOMIC DEVELOPMENT - A HISTORICAL PERSPECTIVE

Structure

- 1.0 Objectives
- 1.1 Introduction
- 1.2 India in the Eighteenth Century
- 1.3 British Rule: State of Colonial Economy
 - 1.3.1 Disruption of the Traditional Economy
 - 1.3.2 Impoverishment of the Peasantry
 - 1.3.3 Commercialisation of Agriculture
 - 1.3.4 Agricultural Labourers
 - 1.3.5 Lack of Modernisation
 - 1.3.6 Ruin of Artisans and Handicrafts
 - 1.3.7 Status of Modern Industries
- 1.4 Drain of Wealth
- 1.5 Poverty and Famines
- 1.6 Macroeconomic Policy
 - 1.6.1 Savings and Investments
 - 1.6.2 Fiscal Policy
 - 1.6.3 Trade Policy
- 1.7 Programme of Economic Reconstruction for Independent India
- 1.8 Let Us Sum Up
- 1.9 Key Words
- 1.10 Term-end Exercises
- 1.11 References
- 1.12 Answer or Hints to Check Your Progress Exercises

1.0 OBJECTIVES

After going through this unit, you will be able to:

- get an overview of the state of India's colonial economy during the British period;
- explain the process resorted by British rulers to disrupt the traditional Indian economy that resulted in pauperisation of Indian people;
- discuss the macroeconomic policies particularly trade and fiscal policies during British rule; and
- appreciate the important milestones of Indian National Movement which will help you to understand the evolution of Indian Economic Policy in post-independence period.

1.1 INTRODUCTION

British rule drastically transformed India. British penetration and control brought to India modern business and political institutions, technology, capital and administrative practices. Many positive developments took place in the field of agriculture, industry, finance, transport and communication. One positive feature was the growth of the means of transport and communication. In the 1940s, India had 65,000 miles of paved roads and nearly 42,000 miles of railway track. Roads and railways unified the country and made rapid transit of goods and persons possible. The Government of India also established an efficient and modern postal and telegraph system. But this did not produce a type of economic development capable of generating real momentum. The reason was that these changes took place within and as part of colonial framework. To make available to their home industry, the cheapest raw material, the British destroyed the rural economy. To make the immense Indian market available for their industrial goods they ruined the handicraft industry. The colonial relationship subordinated Indian to British political and economic interests; it stimulated Indian economic development in some way and inhibited it in other ways.

Our industry had stunted growth. Colonial government. was not keen to develop modern industries such as automobile, aviation, chemical, etc. They did construct a network of railway tracks criss-crossing the length and breadth of this country but did not invest as much in social sector such as in education, technical education or enhancement of managerial skills. They did not encourage the growth of ancillary industry. Construction of railways in India, unlike in Europe, did not lead to comprehensive expansion of technical base, engineering institutes and of local managerial skill. Indians were not involved at higher levels in managing the transport, commercial and technical side of the venture. More or less similar was the case with our financial institutions and trade. There was no dearth of entrepreneurial spirit in the country. Indian owned business and industry thrived whenever imperial world was in crisis such as during two World Wars (Ist 1914-18 and IInd 1939-45). Against this background, after reading this unit, one can understand how India — with abundance of natural resources and having a thriving trade with both East and the West, where every western trading company wished to open trading centres, became a country with a stigma attached to it of a country with a begging bowl. To understand the evolution of the Indian economic policy post-independence, we have to get a bird's eye view of economic developments of pre-colonial and colonial India.

1.2 INDIA IN THE EIGHTEENTH CENTURY

In the eighteenth century the subcontinent was a major commercial hub of the contemporary world. It was the wealth of India that attracted the British. "Nearly every kind of manufacture or product known to the civilised world...had long, long been produced in India. India was far greater industrial and manufacturing nation than any in Europe or than any other in Asia." (J.T. Sunderland, *India in Bondage*, 1929, p.367). Historically, Indian economy had been dominant in the world prior to the colonialism. The data pertaining to the share of contribution made by major countries in the world GDP during the period 1-2003 A.D. has been incorporated in Table 1.1.

Table 1.1: Share of Major Countries in World GDP 1-2003 AD
(Per cent of World Totals)

Countries	1	1000	1500	1600	1700	1820	1870	1913	1950	1973	2003
12 Country* Total	10.6	7.0	15.5	17.1	19.1	20.5	30.5	30.8	24.1	22.8	16.5
Total Western Europe	13.7	9.1	17.8	19.8	21.9	23.0	33.1	33.0	26.2	25.6	19.2
USA	0.3	0.4	0.3	0.2	0.1	1.8	8.9	18.9	27.3	22.1	20.6
China	25.4	22.1	24.9	29.0	22.3	32.9	17.1	8.8	4.6	4.6	15.1
India	32.0	28.1	24.4	22.4	24.4	16.0	12.1	7.5	4.2	3.1	5.5
Other East Asia	4.6	7.5	8.4	7.4	7.7	5.2	4.8	4.5	4.8	5.2	9.6
Total of World	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Adapted from Table A.6 of the Book 'The Contours of World Economy 1-2030 AD by Late British Professor Angus Maddison, Oxford University Press 2007, p.p. 381.

*Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Norway, Sweden, Switzerland and the UK.

The trend in the share of major countries in the world economy during the period 1-2003 A.D. has been plotted in the Figure 1.1:

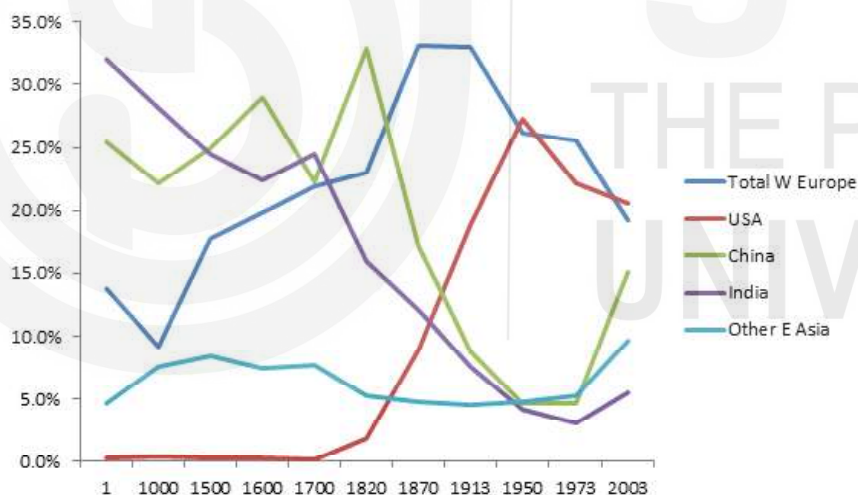


Fig. 1.1: Trend in the Share of Major Countries in World GDP

Some observations from the above table and figure showing the evolution of global economies over 2000 years in terms of percentage contribution of GDP can be summarised as follows:

- 1) Before the 18th century, India and China were the two largest economies in terms of their share in the world GDP.
- 2) During the period from the First millennia CE (i.e. from 1 CE to 1000 CE) till 14th century CE (where CE stands for Common Era) India has been the largest GDP contributor to the world economy.
- 3) During the first 17 centuries of Common Era (i.e. from 1 CE to 1700 CE),

India has been the largest GDP contributor world-wide (ranging between 32 per cent to 24.4 per cent), with the exception of two centuries (16th and 17th), where she stood second to China by a margin of about 0.5 percentage points at the turn of century 1500 and by about 7 percentage points at the turn of century 1600.

- 4) During the period from 1700 to 1870, India's GDP contribution slowed down to more than half, dropping around 12 percentage points from 24.4 per cent to 12 per cent. In the same period Western Europe shoot up by approximately 33 per cent and 11 percentage points, from ~22 per cent to 33per cent.

At the beginning of British rule in mid-18th century, India supplied quarter of all manufacture goods in the world and Indian handicrafts constituted chief export items of European trade. While India produced about 25 per cent of world industrial output in 1750, this figure fell to just two per cent by 1900. The four great textile export regions in the eighteenth century were Punjab, Gujarat, Coramandal and Bengal.

The decline of Mughal empire did not lead to anarchy as it is sometimes believed. There was shift in economic activity from centre to periphery. In Bengal, Hyderabad and Awadh, former provincial governors established effectively independent rules. A number of new successor states thus came into being, the most powerful being dominion of Marathas.

By early 18th century, Bengal became a key region for the English Company's trade in textiles, and Bengal goods came to comprise nearly 60 per cent of the English imports from Asia. The Bengal trade was often described by the factors as 'the best flower of the Company's garden' or the 'choicest jewel'.

Import of Indian textile was largely financed by bullion. European traders exchanged South American bullions (mainly silver) for manufactured goods and spices from India. In case of English Co., in the first two decades of 18th century the amount of precious metal to the total value of import was between 90 and 94 per cent.

However, the influx of bullion stopped completely after defeat of Nawab of Bengal Siraj-ud-daula in the Battle of Plassey (June 1757). This marked the beginning of political supremacy of the English East India Company in India. Now the resources of Bengal financed the English Company's investments.

1.3 BRITISH RULE: STATE OF COLONIAL ECONOMY

1.3.1 Disruption of the Traditional Economy

Colonialism led to integration of India's economy with the world economy but in a subservient manner. The economic policies followed by the British led to the rapid transformation of the Indian economy into a colonial economy whose nature and structure were determined by the needs of the British economy. The 18th century was a period of transition. The economy became more exposed to the world economy. And as colonial rule took root, the foundations were laid for a new economy based on peasant exports and support for the global industrial

enterprise. India became a major market for British manufactures, a principal source for raw materials and food, and an important entity of the British empire. The pattern of trade changed dramatically during the 19th century. While India had dominated world textile trade in the 18th century, it lost this position in the 19th century. The composition of trade changed. Export of textiles and import of bullion dominated the 18th century. Export of cotton cloth dropped sharply after 1800 and import of machine-made cloth and yarn expanded. At the time of World War-I, Indians consumed 85 per cent of cotton piece goods (fabrics, made in standard width and length) manufactured at Lancashire. Textiles began to be replaced by new exportable articles such as indigo, opium, silk, tobacco, and cotton and to a limited extent by salt, sugar, and saltpetre. The basic economic model of self-sufficient rural economy was disrupted.

1.3.2 Impoverishment of the Peasantry

The first to suffer was the agriculture sector. With the grant of Diwani (taxation rights) of Bengal, Bihar and Odisha in 1765, the policy of East India Company to extract the largest possible revenue led to complete devastation of India's agrarian economy and the society in the Diwani provinces in a matter of a few years. One indication of the prevailing impoverishment and the general chaos was seen in the famine of 1769-70, in which about one-third of undivided Bengal's population was wiped off.

The Company replaced the existing land tenure system and introduced three different systems – the *zamindari* in the eastern India, the *ryotwari* in the southern and western India and the *mahalwari* in the western Gangetic plains. The purpose was to secure the maximum guaranteed land revenue returns, at the expense of cultivators well-being. The *zamindari* system or Permanent Settlement gave property rights to zamindars and revenue was fixed in perpetuity. The peasantry became tenants of zamindars. The *ryotwari* settlement gave property rights to the peasants and the *mahalwari* settlement gave property rights to dominant kinship lineages in the village. In both the *ryotwari* and *mahalwari* systems revenue was subject to revision, approximately every 30 years. In the *zamindari* areas, the peasants were left to the mercies of the zamindars who raised rents to unbearable limits. The peasants were compelled to pay illegal cesses and were oppressed in diverse ways. In the *ryotwari* and *mahalwari* areas, the condition of the cultivators was no better. Here the government took the place of the zamindars and levied excessive land revenue which was fixed as high as one-third to one-half of the produce.

Since the primary aim of the Company was to maximise revenue income, a common feature of all the settlements was over-assessment. One of the main causes of the increase in poverty and the deterioration of agriculture in the 19th century was heavy revenue assessment of the land. The rates fixed fell beyond the paying capacity of the cultivators. Ultimately the cultivators had to rely on the support from the local money lender, an informal source of credit. The farmer's assets got transferred to the money lender. Landlords and rich farmers found lending far more profitable and safer than making productive investment in land they owned or controlled. There were thus arrears of payment, mounting debt, increasing land sales and dispossession. However, subsequent research established that the effects of these changes were less spectacular than once imagined. "Land transfers from the peasant to the professional lender," remarks Tirtankar Roy

“happened on a limited scale”(The Economic History of India 1857-1947,OUP, 2011, p.134). He further adds, “For the very reason that land transfers between peasants and non-peasants posed large transaction costs, much rural credit business came into the hands of the rich peasant rather than professional lender”.(ibid. p.135)

Agriculture suffered. It stagnated in most parts of the country and even deteriorated over the years, resulting in extremely low yields per acre,. There was a decline in the per capita agricultural production which fell by 14 per cent between 1901 and 1941. The fall in per capita food grains availability was even greater, being over 24 per cent.

1.3.3 Commercialisation of Agriculture

Commercialisation of agriculture is a sign of progress towards capitalist agriculture. In many areas, a class of rich peasants developed because of commercialisation and tenancy legislation, but most of them preferred to buy land and become landlords or to turn to money lending. As a result, except in a few pockets, capitalist farming was slow to develop. Importantly, commercialisation of agriculture did not lead to capitalist farming or improved technology. Its main consequence was the diversion of better soil, available water, and other resources from food crops to commercial crops.

The growing commercialisation of agriculture also helped the moneylender-cum-merchant to exploit the cultivator. The poor peasant was forced to sell his produce just after the harvest and at whatever price he could get as he had to meet in time the demands of the government, the landlord and the moneylender. This placed the peasant at the mercy of the grain merchant, who was able to dictate terms and who purchased his produce at a price much lower than the market price. Thus, a large share of the benefit of the growing trade in agricultural products was reaped by the merchant, who was very often also the village moneylender.

1.3.4 Agricultural Labourers

Impoverished cultivators, most of them small peasants, tenants-at-will, and sharecroppers, had no resources or incentive to invest for the improvement of agriculture by using better cattle and seeds, more manure and fertilizers and improved techniques of production. The loss and overcrowding of land caused by de-industrialisation and lack of modern industry compelled the landless peasants and ruined artisans and handicraftsmen to become either tenants of the moneylenders and zamindars by paying rack-rent or agricultural labourers at starvation wages. For most of the colonial period, landlessness had been rising.

1.3.5 Lack of Modernisation

Of the revenue that the colonial state secured, it spent very little on improving agriculture. It devoted almost its entire income to meet the needs of the British-Indian administration, make payments of direct and indirect tribute to England, and serve the interests of British trade and industry.

At a time when agriculture in developed countries was being modernised and reformed, there was a near absence of change in the technological and production base of the Indian agriculture. “The basic set of agricultural implements”, remarks

Tirtankar Roy, “changed little during British rule”(The Economic History of India 1857-1947, Tirthankar Roy, OUP, 2011, P.110). Indian peasants continued to use the primitive implements they had used for centuries. For example, it is estimated that in 1951, there were only 0.93 million iron ploughs in use while wooden ploughs numbered 31.3 million. The use of inorganic fertilizers was virtually unknown, while a large part of animal manure—cow dung, night soil and cattle bones—were wasted. In 1938-39, only 11 per cent of all cropped land was under improved seeds, their use being largely confined to non-food cash crops.

Agricultural education was completely neglected. In 1946, there were only nine agricultural colleges. There was hardly any investment in terracing, flood-control, drainage, or desalination of soil. Irrigation was the only field in which some progress was made.

Thus, the peasantry was crushed under the triple burden of the government, the zamindar or landlord, and the moneylender. After these three had taken their share not much was left for the cultivator and his family to subsist on. It has been calculated, remarks Bipan Chandra “that by the end of the colonial period, the rent and interest paid by the peasantry amounted to Rs. 1,400 million per year. By 1937, the total rural debt amounted to Rs. 18,000 million” (*India Since Independence*, Penguin, 2008 The Digital Edition, 2011, P.23).

The result was continued impoverishment of peasantry, along with an increase in the incidence and adverse consequences of famines on the poor. People died in millions whenever droughts or floods caused failure of crops and scarcity. The human and institutional factors became more important than nature’s fury in causing distress and starvation.

1.3.6 Ruin of Artisans and Handicrafts

At the beginning of the British rule in mid-18th century, India supplied quarter of all manufactured goods produced in the world and textiles was the chief export item of India’s European trade. British conquest destroyed the unity between the agriculture and the manufacturing sectors that characterised traditional Indian society. The villages lost their autonomy and self-sufficiency. The oppression practiced by the East India Company and its servants on the craftsmen of Bengal during the second half of the 18th century, forcing them to sell their goods below the market price and to hire their services below the prevailing wage, compelled many of them to abandon their ancestral professions.

In the wake of the industrial revolution, there was a sudden collapse of urban handicrafts industry which had for centuries made India’s name a byword in the European markets. Not only did this export demand gradually evaporate, but colonial rule opened Indian markets for British manufactured goods. After 1813, the British imposed a policy of one-way free trade upon India and the invasion of British manufactures, in particular cotton textiles, followed immediately. Indian goods made with primitive techniques could not compete with goods produced on a mass scale by powerful steam-operated machines. The worst hits were cotton-weaving and spinning industries. Other industries that suffered were silk and woollen textiles, oil-pressing, tanning, dyeing, iron, pottery, metals, and shipping industries. This led to ‘deindustrialisation’ or destruction of the indigenous industry. While India produced about 25 per cent of the world’s industrial output

in 1750, this figure fell to only 2 per cent by 1900. The decline of Indian handicrafts was reflected in the collapse of the industrial towns and cities, such as Surat, Dacca, Murshidabad.

With introduction of railways, the destruction of Indian industries, particularly rural artisan industries, proceeded even more rapidly. The railways enabled British manufactures to reach and uproot the traditional industries in the remotest villages of the country. The destruction of rural crafts broke up the union between agriculture and domestic industry in the countryside. This contributed to the decline of the self-sufficient rural economy. This blow to the Indian handicraft textile industry in early 19th century is believed to have pushed many industrial workers into other low-paying occupations, intensifying poverty. The ruined artisan failed to find alternative employment because of lack of growth of modern industries. Hence, craftsmen fell back on the land as tenants, sharecroppers, and agricultural labourers.

1.3.7 Status of Modern Industries

Under the British rule, the Indian industry suffered numerous constraints. Between, the 1850's (when the first major industries started) and 1914, India created the world's largest jute manufacturing industry, fourth or fifth largest cotton textile industry, and the third largest railway network. Modern industrial processes, however, did not spread easily from sector to sector. Thus, at the time of independence, India was largely non-industrial and one of the world's poorest areas. The period that witnessed industrialisation of Europe, also witnessed de-industrialisation of the Indian economy.

Although all basic requirements for economic growth were available in India: labour (skilled), capital, market, and spirit of enterprise, yet the economy could not regain the path it had traversed in the past. All this was largely due to the colonial rule and the policies that were followed to sustain that regime. Indeed, most analysis of the colonial India has attributed the unsatisfactory performance of the economy and the absence of modern industrial development to either British policy, which inhibited local initiative. Every time colonial grip became weak due to crisis faced by the government, Indian industry thrived. This happened, for instance, when Britain was drawn into the two World Wars.

The machine age in India began when cotton textile, jute and coal-mining industries were started in the 1850s. The first textile mill was opened in Bombay by Cowasjee Nanabhoy in 1853, and the first jute mill in Bengal in 1855. These industries gradually expanded. By first decade of the 20th century, India had 206 cotton mills employing nearly 1,96,000 persons. In 1901, there were over 36 jute mills employing nearly 1,15,000 persons. The coal-mining industry employed nearly one lakh persons in 1906. Other mechanical industries which developed during the second half of the 19th and the beginning of the 20th century were cotton gins and presses, rice, flour and timber mills, leather tanneries, woollen textiles, sugar mills, iron and steel works, and such mineral industries as salt, mica and saltpetre. Cement, paper, matches, sugar, and glass industries developed during the 1930s. But all these industries had a very stunted growth.

Most of the modern Indian industries were owned or controlled by the British capital. Only in the cotton textile industry did Indians have a large presence from the very beginning, and in the 1930s, the sugar industry was developed by

Indians. There were many reasons for the domination of enterprise by British managing agencies. Banks were mostly controlled by British financiers. It was not easy for Indians to get credit from Banks. Even when they got loans, they had to pay high interest rates while foreigners could borrow on much easier terms. Of course, Indians began to develop their own banks and insurance companies gradually. In 1914, foreign banks held over 70 per cent of all bank deposits in India; by 1937, their share had decreased to 57 per cent. British enterprises in India also took advantage of their close connection with British suppliers of machinery and equipment, shipping, insurance companies, marketing agencies, government officials and political leaders to maintain their dominant position in the Indian economy. Moreover, the government followed a conscious policy of favouring foreign capital as against Indian capital.

The railway policy of the government also discriminated against Indian enterprise; railway freight rates encouraged imports at the cost of trade in domestic products. It was more difficult and costlier to distribute Indian goods than to distribute imported goods. Another serious weakness of Indian industrialisation in the colonial period was the almost complete absence of heavy or capital goods industries, without which there can be no rapid and independent development of industries. India lacked such basic industries as steel, metallurgy, machine, chemical and oil in 1950. The country met about 90 per cent of its needs of machine tools through imports. India also lagged in the development of electric power.

The 19th century also witnessed the growth of plantation industries such as indigo, tea and coffee. They were almost exclusively owned by Europeans. Indigo manufacturing was introduced into India at the end of the 18th century and flourished in Bengal and Bihar. It was used as dye in manufacturing textile. Peasants were compelled to cultivate indigo instead of food crops. This oppression of indigo planters was vividly portrayed by the famous Bengali writer Dinbandhu Mitra in his play *Neel Darpan* in 1860. With the invention of a synthetic dye the indigo industry gradually declined.

The tea industry developed in Assam, Bengal, south India, and the hills of Himachal Pradesh. It was assisted by the government with grants of rent-free land and other facilities. In time, the use of tea spread across India and it also became an important item of export. Coffee plantations developed during this period in south India.

The plantation and other foreign-owned industries were of hardly any advantage to the Indian people. Their profits went out of the country. Most of their products were sold in foreign markets and the foreign exchange so earned was utilised by Britain. A large part of their salary bill was spent on highly paid foreign staff. They purchased most of their equipment abroad. Most of their technical staff was foreign. The only advantage that Indians got out of these industries was the creation of unskilled jobs. Most of the workers in these enterprises were, however, extremely low paid, and they worked under extremely harsh conditions for very long hours.

Overall, industrial progress in India was exceedingly slow. Both in terms of production and employment, the level of industrial development was stunted and paltry compared to the developed countries of the time. It did not compensate the output and employment loss of the handicraft industries that it had displaced.

Industrial development was mainly confined to cotton, jute industries and tea plantations in the 19th century, and to sugar and cement in the 1930s. There had been some development of the iron and steel industry after 1907, but as late as 1946, cotton and jute textiles accounted for nearly 30 per cent of all workers employed in factories and more than 55 per cent of the total value added by manufacturing.

The share of modern industries in national income at the end of British rule was only 7.5 per cent. In terms of production as well as employment, the modern industrial development of India was insignificant as compared with the economic development of other countries or in keeping with the requirements of India's economic development. In 1950, out of a population of 357 million only 2.3 million were employed in modern industries.

Check Your Progress 1

- 1) State the reasons for disruption of the traditional economy of India during the British period.

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- 2) Identify the reasons for increase in poverty and deterioration of agriculture in the 19th century.

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- 3) State the reasons for destruction of the Indian indigenous industry in the 18th century.

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- 4) In what way were Indian enterprises discriminated during the development of modern industries in the early 20th Century?

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1.4 DRAIN OF WEALTH

There was the drain of India's wealth to Britain. It was the unilateral transfer of social surplus and potential investable capital by the colonial state and its officials and foreign merchants to Britain. This transfer happened through the sale of "Council Bills", which were sold in London in sterling to purchasers of Indian goods who received Indian rupees in exchange.

The process of the economic drain actually started after 1757. The East India Company ceased to export bullion to Bengal as of that year, although some marginal export of bullion occurred to other places. All the purchases in Bengal and other parts of India were made out of the surplus of the territorial revenue of Bengal. The part of revenue devoted to such purchases was known as 'investment'. Later more components got added to this economic drain. Montgomery Martin who made a survey of the condition of the people of Bengal and Bihar from 1806 to 1816 realised the enormity of the economic drain. He concluded: "The annual drain of £3,000,000 on British India has amounted, in thirty years at twelve per cent (the usual Indian rate) compound interest, to the enormous sum of £723,000,000 sterling....So constant and accumulating a drain, even in England, would soon impoverish her." (adopted from William Digby, *Prosperous British India* p.223). Nearly one century later, William Digby too concluded that the primary cause of India's deplorable condition was the Economic Drain. The view of William Digby was that the total drain amounted to £60,080 millions up to the end of the 19th century (p.230).

There were several components of this drain of wealth. These were interest on foreign debt incurred by the East India Company, military expenditure, guaranteed return on foreign investments in railways, irrigation, road transport and finally, "home charges" or paying for the secretary of state and his establishment at the India Office in London, as well as pay and pension of civilian and military personnel. It has been estimated that 5 to 10 per cent of the total national income of India was in a way unilaterally exported out of the country. To find out the real cause of poverty in India, more than hundred years ago, Dadabhai Naoroji in his '*Poverty and Un-British Rule in India*' (1876) developed explicitly a 'drain theory' and according to him, this 'economic drain' by the alien ruler was "potential surplus" that could have supported domestic capital formation, generating economic expansion, had it been invested in India.

1.5 POVERTY AND FAMINES

The consequence of colonial underdevelopment was pauperisation of people, especially the peasantry and the artisans. British economic exploitation, the decay of indigenous industries, the failure of modern industries to replace them, high taxation, the drain of wealth to Britain, and a regressive agrarian structure leading to stagnation of agriculture and exploitation of poor peasants by zamindars, landlords, and moneylenders reduced Indian people to extreme poverty.

A series of famines that ravaged all parts of India in the second half of the 19th century contributed significantly to the incidence of poverty and deprivation in the country. There were regular scarcities and minor famines in one or the other part of the country throughout the British rule. In 1770, a third of the population of Bengal reportedly died in a famine. In 1865-66 a famine engulfed Odisha,

Bengal, Bihar and Madras and took a toll on nearly two million lives with Odisha alone losing one million people. Between 1876 and 1878, 4 million people died, mainly in Bombay and Madras Presidencies. In 1897-97, more than 5 million perished. Apart from these major famines, many other local famines and scarcities occurred. William Digby, a British writer, estimated that in all over 28.8 million people died during famines from 1854 to 1901. Another famine in 1943 accounted for nearly a million people in Bengal. These famines and the high losses of life indicate the extent to which poverty and hunger had taken root in India.

The grim reality of India's poverty during the 19th century was recognised by many English officials. "I do not hesitate to say," remarked Charles Elliott, a member of the Governor-General's Council, "that half the agricultural population do not know from one year's end to another what it is to have a full meal." William Hunter, the compiler of the Imperial Gazetteer, conceded that "forty million of the people of India habitually go through life on insufficient food." (*British rule in India: Condemned by the British Themselves*, issued by the Indian National Party, London, p.67). "Why is it India" remarked William Digby, "is more liable to devastation by famine than are other countries? – *because India is steadily and rapidly growing poorer.*" (ibid.p.140)

In the 20th century the situation became worse. The quantity of food available to an Indian declined by as much as 29 per cent in the 30 years between 1911 and 1941. India along with China had the lowest per capita incomes during the period 1925-34 as per the estimates of Colin Clark, whereas, the per capita income in England was five times that of India. Moreover, the life expectancy of an Indian during the 1930s was only 32 years while most of the West European and North American countries, enjoyed a life expectancy of over 60 years already.

Check Your Progress 2

- 1) What do you understand by the term 'drain of wealth'? State the process of drain of wealth followed during the British period.

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- 2) Explain how a series of famines that occurred during the period 1770 to 1943 may have contributed to pauperisation of Indian people.

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1.6 MACROECONOMIC POLICY

Indian economy during the British era suffered from low levels and growth rates of national and per capita income, stagnant agriculture sector, falling share of indigenous handicraft industry, weak capital goods industry base, foreign trade oriented to feed the Industrial Revolution in Britain, prevalence of rampant poverty and unemployment and what not. The state of the economy could be clearly depicted with the help of the following macroeconomic indicators:

1.6.1 Savings and Investments

Expansion of an economy depends on the process of capital accumulation, which is a function of the magnitude and utilisation of economic surplus or savings generated in an economy for investment. The net savings in the Indian economy from 1914 to 1946 was only 2.75 per cent of Gross National Product (GNP). This magnitude may be contrasted with the net savings in 1971-75 when they constituted 12 per cent of GNP and more recently in 2017-18 the share of gross savings was 30.5 per cent of GDP. The share of total capital formation had been 6.75 per cent of GNP during 1914-46 as against 20.14 per cent of GNP during 1971-75, and 32.3 per cent of GDP in 2017-18. Moreover, the share of industry in this low level of capital formation was small with machinery forming only 1.78 per cent of GNP during 1914-46. This figure was 6.53 per cent of GNP in 1971-75.

A considerable part of India's social surplus or savings was appropriated by the colonial state and deployed to finance its strategic interests. Another large part was appropriated by the indigenous landlords and moneylenders. According to Bipan Chandra, by the end of the colonial period, the rent and interest paid by the peasantry amounted to Rs. 1,400 million per year. Only a very small part of this large surplus was invested in the development of agriculture and industry.

1.6.2 Fiscal Policy

A feature of India's governance was the role played by the State in constructing, determining, and maintaining different aspects of the colonial structure to rule the country. India's policies were determined in Britain and in the interests of the British economy and the British capitalist class. Thus, an important reason for the underdevelopment of India was the denial of State support to industry and agriculture. This was contrary to what happened in nearly all the capitalist countries, including Britain, which enjoyed active State support in the early stages of development. Some other aspects of the policy framework that guided colonial rule in India were:

i) Regressive Tax Structure

The Indian tax structure was highly inequitable. While the peasants were burdened with paying a heavy land revenue for most of the colonial period and the poor with the salt tax, etc., the upper-income groups comprising highly paid bureaucrats, landlords, merchants, and traders hardly paid any taxes. The level of direct taxes was quite low. The number of income-tax payers was 3,60,000 in 1946-47. It was under pressure from the national and peasant movements that the land revenue and salt tax started coming down in the 20th century. As late as 1900-01, land revenue and salt tax formed 53 per cent and 16 per cent of the total tax revenue of the government.

ii) **Military Expenditure**

The colonial state devoted almost its entire income to meeting the needs of the British Indian administration, making payments of direct and indirect tribute to Britain and in serving the needs of British trade and industry. The bulk of public revenue was absorbed by the military expenditure and civil administration which was geared to maintenance of law and order and tax collection. After 1890, military expenditure absorbed nearly 50 per cent of the central government's income. In 1947-48, this figure stood at nearly 47 per cent.

iii) **Meagre Spending on Development of Agriculture, Industry, and Social Infrastructure**

As pointed out earlier, a very large part of India's social surplus was appropriated by the colonial state, but a very small part of it was spent by it on the development of agriculture or industry or on social infrastructure or nation-building activities such as education, sanitation and health services.

1.6.3 Trade Policy

The two centuries (1757-1947) recorded major structural changes in the trade policy. The period can be divided into four parts: 1759-1813, 1813-1850, 1850-1914, and 1914-1947.

i) **1759-1813**

The first period can be termed as the age of Mercantilism. During this period, the East India Company established its political supremacy, attempted to enforce exclusive monopolistic trade between India and Britain. Nevertheless, the company was largely unsuccessful due to activities of private traders. The important characteristics of the trade was that Indian trade continued to flow along the traditional channels and its composition was based on an exchange of fine textiles, foodstuffs and other raw materials for precious metals and certain manufactured products. The East India Company financed a large volume of its trade through the surplus from the budgetary sources of its India possessions. (see 1.4 Drain of Wealth).

The East India Company used its dominant position to compel weavers and other producers of export commodities to supply their output to the English Company at a specified price determined by the latter. Thus the principle of freely negotiable contract was now increasingly abandoned. The use of budgetary surplus to finance export of goods to Europe and the silver to finance the Company purchase of tea and silk in China led to contraction of money supply, threw out of balance the whole banking and monetary system, and provoked loud complaints from native traders and foreign merchants. Due to the pressure by the private traders and the decline of Mercantilist doctrines in England, exclusive monopoly in Indian trade was abolished in 1813, and the East India Company was debarred from trading in 1833.

ii) **1813-1850**

A major structural change took place during this period in the commodity composition of the Indian trade, which continued until the end of World War I. India was gradually transformed from being an exporter of

manufacture products (largely textiles) into a supplier of primary commodities, importing finished consumer goods and certain intermediate industrial goods in return. In 1811-12, the percentage share of piece goods (fabrics, made in standard widths and lengths) in total export values from Calcutta was 33 per cent, in 1814-15 it was 14.3 per cent, and in 1839-40 just 5 per cent. Between 1814 and 1850, four commodities that dominated the exports baskets were indigo, raw silk, opium and cotton.

iii) 1850-1914

The construction of railway lines in India during 1850's and the outbreak of Crimean War gave new impetus to the sub-continental trade. In the following two decades, volume and value of foreign trade increased phenomenally due to American civil war and opening of Suez Canal. There was general reduction in oceanic freight. Rapid industrialisation of continental countries, the US and Japan created a new level of demand for raw materials and food stuffs. This was the great age of multilateral trade and international payments.

iv) 1914-1947

The age of multilateral trade and the frictionless gold standard exchange system ended abruptly in 1914. The conditions under which Indian foreign trade was conducted in post-war period were dictated by— worldwide industrial reorganisation, growth of bilateral trading arrangements, a policy of tariff protection, and foreign exchange controls. In addition, India, along with the other exporters of primary commodities suffered from the World Depression of 1929. As a result of these developments, the general trend of India's foreign trade during the inter-war period were showed wide fluctuations. The last seven years from the outbreak of the World War II to 1946 were characterised by wartime controls and large-scale political upheaval preceding India's independence in 1947, influencing the trade flows.

Before the uprising of 1857 the commercial policy was guided by the twin principles of extending protection to British imports and using tariffs for revenue mobilisation. In Bengal, the rates of duties on exports and imports were fixed at 5 to 10 percent in 1810. In line with the principle of favouring British trade and shipping, next year the duty rates on goods carried by foreign ships were doubled. Subsequently, the duty on British imports was reduced to 2.5 per cent. Similarly, in view of the serious state of public finances in post-1857 period, the government in 1859 sharply raised duties on goods including cotton textiles from Britain. There was a public outcry in Britain and in 1862 import duty on cotton was reduced from 10 to 5 per cent.

Throughout the period an unusual characteristic of India's foreign trade was the existence of a large export surplus which was not accompanied by either a rise in her foreign exchange reserves or an increase in overseas lending. This surplus was used for unilateral transfer of funds that India had to make to Britain as part of the political charges or the political "tribute". This was debited to her external account. It was also used to partly settle Britain's trade deficit with US and Europe.

Tariff policy was looked upon by India nationalists as the main instrument of British economic imperialism. Until the First World War, there was no import duty, which could possibly offer any sort of protection to any of the Indian

industries. This was, as A.K. Bagchi noted, “quite contrary to the trend in the rest of the world, including the British Dominions”. After 1918, under the pressure of the national movement, the Government of India was forced to grant some tariff protection to a few industries. But this was inadequate and ineffective.

Check Your Progress 3

- 1) Why was the capital formation low during the period 1914-46?

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- 2) Trace out the elements of Mercantilism in the trade and fiscal policy resorted by the East India Company during the period 1759-1813.

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- 3) What was the nature of structural change that took place in the composition of India’s trade during the period 1813-1850?

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- 4) What was the approach of the colonial state (British State) in the development of industry and agriculture in India?

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- 5) State the features of tax structure in the colonial regime during the period 1900-01 to 1946-47.

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1.7 PROGRAMME OF ECONOMIC RECONSTRUCTION FOR INDEPENDENT INDIA

Indian national movement was a popular people's movement which represented the interests of different classes and strata of the Indian society. A self-reliant economic development that supported social justice and modernisation of the society emerged as a common goal during the struggle for independence. In their speeches, writings, programmes and actions, the nationalists Congress leaders and business leaders expressed the need for planned industrialisation, public investment in social and economic infrastructure, in both rural and urban areas, agrarian reform and creation of modern financial system.

Since early stages of the national movement, nationalist believed in complete economic transformation of the country based on industrialisation. In the words of M.G. Ranade, factories could 'far more effectively than Schools and Colleges give a new birth to the activities of the Nation.' Surendranath Banerjee believed that industrial activity could help unite diverse peoples of India.

Newspaper the *Bengalee* in its edition on January 18, 1902 argued that: 'The agitation for political rights may bind the various nationalities of India together for a time. The community of interests may cease when these rights are achieved. But the commercial union of the various Indian nationalities, once established, will never cease to exist. Commercial and industrial activity is, therefore, a bond of very strong union and is, therefore, a mighty factor in the formation of a great Indian nation.' (adopted from Bipan Chandra, *Rise and Growth of Economic Nationalism in India*, 2010, pp70-71) It was in context of this vision of industrialisation that nationalists took up the issues of foreign trade, railways, tariffs, currency and exchange, finance, and labour legislation. During the First World War and after, when the social base of the national movement became more broad-based with involvement of workers and peasant, the issue of interests of workers and peasants were endorsed by the Indian National Congress in its Karachi session held in March 1931. The Karachi session became memorable for its resolution on Fundamental Rights and the National Economic Programme. In its resolution on National Economic Programme, it declared that 'in order to end the exploitation of the masses, political freedom must include real economic freedom of the starving millions.' It, besides promising substantial reduction in rent and revenue and living wages for workers, also emphasised state ownership or control of key industries, mines and means of transport.

However, it was realised that the problems of poverty and unemployment and of the economic regeneration in general cannot be solved without industrialisation to which end a comprehensive scheme of national planning was required.

In 1938, Subhas Chandra Bose was elected the President of the Indian National Congress and presided over the 51st session at Haripura. In his presidential address, he spoke of the planned economic development of independent India on socialistic lines. He said, "I have no doubt in my mind that our chief national problems relating to the eradication of poverty, illiteracy and disease, and to scientific production and distribution can be effectively tackled only along socialist lines. The very first thing which our future national government will have to do would

be to set up a commission for drawing up a comprehensive plan for reconstruction.”

In October 1938, the Congress President, Subhas Chandra Bose, set up the National Planning Committee (NPC) with Jawaharlal as its Chairman. The NPC was an exception in bringing together a striking group of policymakers, politicians, and experts from various fields covering the widest spectrum of activities in the economy. Equally important, several business leaders actively participated in this deliberative process led by Jawaharlal Nehru. The committee had fourteen members selected from occupationally diverse backgrounds, four industrialists—Ambalal Sarabhai, Puroshottam Thakurdas, Walchand Hirachand and A.D. Shroff, five scientists, Meghnad Saha, A.K. Saha, Nazir Ahmed, J.C. Ghosh and V.S. Dubey, three economists, K.T. Shah, Radha Kamal Mukherjee and M. Visvesvaraya. The two other members were J. C. Kumarappa, who with his Gandhian ideals represented the All-India Village Association and N.M. Joshi, a representative of industrial workers.

The massive architecture of planning that the NPC sought to undertake was evident from the division of work among its members. Eight themes were identified, namely, agriculture, industry, demographic relations, trade, transport, public welfare, education, and women’s role. The work of this group was an important step in evolving a national consensus.

Indian capitalists had a long-term strategic interest in success of the national movement and it contributed in the evolution of consensus for national development. The capitalist class in India grew from about mid-19th century with largely an independent capital base. It grew rapidly between 1919 and 1947. Close to independence, indigenous enterprise had already cornered about seventy-three per cent of the domestic market and over eighty per cent of the deposits in the organised banking sector. In fact, by the mid-1920s, Indian capitalists began to correctly perceive their long-term class interest and felt strong enough to take a consistent and openly anti-imperialist position. This effort culminated in the formation of the Federation of Indian Chambers of Commerce and Industry (FICCI) in 1927.

Indian business leaders, with some of the most astute minds of the period in their ranks, developed a fairly comprehensive economic critique of imperialism in all its manifestations, whether it be direct appropriation through home charges or exploitation through trade, finance, currency manipulation or foreign investments. As Sir Purshottamdas, President of FICCI, declared at its second annual session in 1928: ‘Indian commerce and industry are intimately associated with and are, indeed, an integral part of the national movement — growing with its growth and strengthening with its strength.’ In a statement issued to the Press on December 25, 1942, FICCI asserted: “India’s vital interests in the economic, financial an[d] fiscal spheres have hitherto been subordinated to those of Britain and whenever they have been in conflict, . . . Indian interests have in the past been sacrificed or relegated to a second place.” (FICCI, Correspondence and Relevant Documents Relating to Important Questions Dealt with by the Federation during the Year 1942-43.)

During Second World War, big three of the Indian business world — J.R.D. Tata, G.D. Birla and Lala Sri Ram issued *A Plan of Economic Development for India*. This came to be known as ‘the Bombay Plan’. The other signatories to this plan

were Ardeshir Dalal, Kasturbha Lal bhai, Ardeshir Darabshaw Shroff, Sir Purshottamdas Thakurdas and John Mathai. Two among them– Ardeshir Darabshaw Shroff and Sir Purshottamdas Thakurdas were the member of the NCP of the Congress. The attitude of Indian industrialists to the economic structure of independent India was encapsulated in the Plan. This plan too visualised far-reaching land reforms, a large public sector and massive public and private investment. It laid great emphasis on public investment in social and economic infrastructure, in both rural and urban areas, importance of agrarian reforms and agricultural research, setting up educational institutions and a modern financial system. The views of the Indian business were, by this stage, closely aligned with those of the Indian National Congress. The Plan therefore contained a strong endorsement of state economic intervention and planning.

The Plan represented a turning point in the history of Indian business. It marked the institutionalisation of a long relationship between business and nationalist leadership as well as a historic moment when business groups, for the first time, unhesitatingly aligned themselves with nationalist aspirations. Underlying the Bombay Plan was the idea of a close partnership between business and the State. It anticipated in real sense the Five-Year Plans and the industrial policies of the future Congress governments in independent India.

Check Your Progress 4

- 1) Do you think that the goal of self-reliant economic development sought by Indian National Movement was the driving force for industrialisation in post-independent India? Give reasons.

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- 2) What was the broad consensus on national development at the time of independence that guided the state efforts in the post-independence period?

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1.8 LET US SUM UP

British rule drastically transformed India. Although there were several positive developments for the society and economy in the colonial period, but they did not support a development process to modernise the economy and place it on the path of sustainable progress. The colonial relationship subordinated India to British political and economic interests. It stimulated Indian economic development in some way and inhibited it in other ways.

The peace and law and order established by the Mughals in a large part of India had helped the economy of the empire. There was steady growth of commerce and manufacture and of urbanisation. There was a substantial increase in both inland and foreign trade.

In the 18th century the subcontinent was a major commercial hub of the world economy. At the beginning of the British rule in mid-18th century, India supplied quarter of all manufacture goods to the world markets and Indian handicrafts constituted a major export item along with spices for European trade.

Colonial rule laid the foundation of a new economy based on peasant exports and dependence on global industrial enterprise. India became a major market for British manufactures, the big source for raw materials and food, and an important region for the investment of British capital. It resulted in a stagnant agriculture, a limited modern industry but with stunted growth, the pauperisation of the people, especially the peasantry and the artisans.

The response to the colonial rule was Indian national movement for independence, which represented the interests of the different classes and strata of Indian society. It sought an independent self-reliant economic development as a common goal for the people of India. A broad consensus evolved in the decade preceding independence which laid the path to be followed for national development.

1.9 KEY WORDS

Bombay Plan	: A joint proposal by a section of the big industrialists in 1944 for setting up a planned economy in the country. The Bombay Plan wanted the state to take major initiatives in industrial and other economic investments.
Drain of Wealth	: The Drain of Wealth theory was systemically initiated by Dadabhai Naoroji in 1867. It depicts the constant flow of wealth from India to England for which India did not get an adequate economic, commercial or material return.
Fiscal Policy	: Fiscal policy is the use of government spending and taxation power to influence a country's economy.
Macroeconomic Policy	: Macroeconomic policy is concerned with the attempts of policymakers to influence the behaviour of such macroeconomic aggregates in order to improve the overall performance of the economy.
Mercantilism	: An economic policy that is designed to maximise the exports and minimise the imports for ensuring national prosperity.
Pauperisation	: The process of making a person or group very poor; impoverishment.
Regressive Tax	: A regressive tax is a tax imposed in such a manner that the tax rate decreases as the amount subject to taxation increases.

1.10 TERM-END EXERCISES

- 1) Discuss the role of the colonial state in underdevelopment of Indian economy.
- 2) Analyse the causes for the stagnation of agriculture during the British rule.
- 3) Discuss the reasons for ‘stunted’ growth of modern industries in India during the British rule.
- 4) Discuss the attitude of Indian capitalist class towards the Indian National Movement.
- 5) Discuss how ‘Bombay Plan’ was instrumental in evolving the Indian economic policy in terms of introducing land reform, dominant role of public sector, great emphasis on public investment in social and economic infrastructure, etc.

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1.12 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) See Sub-section 1.3.1

**Indian Economic Development:
An Overview**

- 2) See Sub-sections 1.3.2 and 1.3.5
- 3) See Sub-section 1.3.6
- 4) See Sub-section 1.3.7

Check Your Progress 2

- 1) See Section 1.4
- 2) See Section 1.5

Check Your Progress 3

- 1) See Sub-section 1.6.1
- 2) See Sub-sections 1.6.2 and 1.6.3
- 3) See Sub-section 1.6.3(ii)
- 4) See Sub-section 1.6.3
- 5) See Sub-section 1.6.2

Check Your Progress 4

- 1) See Section 1.7
- 2) See Section 1.7



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UNIT 2 GROWTH AND STRUCTURE OF THE INDIAN ECONOMY

Structure

2.0 Objectives

2.1 Introduction

2.2 Overall Trends

2.3 Structural Change in the Economy

2.3.1 Composition of Gross Domestic Product

2.3.2 Sectoral Share of Employment

2.3.3 Share of Organised and Unorganised Sector in Output and Employment

2.3.4 Share of Rural and Urban sectors in Output and Employment

2.3.5 Share of Consumption, Government Spending, Investment and Net Exports in GDP

2.3.6 Share of the Public and the Private Sector in GDP

2.4 The Rise of Tertiary Sector: Composition, Causes and Prospects

2.4.1 Composition of the Service Sector

2.4.2 Causes of Rapid Increase in Tertiary Sector

2.4.3 Prospects and Opportunities

2.4.4 Limitations

2.4.5 Need for an Integrated Policy

2.5 Medium and Long-Term Growth Prospects of the Economy

2.5.1 Major Policy Initiatives in the Recent Decades

2.5.1.1 Containing Inflation and Soaring Fiscal Deficits

2.5.1.2 Beneficiary Focus and Targeted Delivery

2.5.1.3 Infrastructure

2.5.1.4 Federalism

2.5.1.5 Corporate Exits

2.5.1.6 Demonetisation

2.5.1.7 Goods and Services Tax (GST)

2.5.2 The Challenges that Remain

2.5.2.1 Non-farm Employment Opportunities

2.5.2.2 Demographic Transition and Dividend

2.5.2.3 Urbanisation

2.5.2.4 Poverty and Inequality

2.5.2.5 Environment and Climate Change

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2.6 Let Us Sum Up

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2.8 Key Words

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2.10 Answers or Hints to Check Your Progress Exercises

2.0 OBJECTIVES

As you go through this unit, you will be able to:

- identify the growth path of the Indian economy since 1951;
- differentiate the stages of growth through which the Indian economy has evolved;
- recognise the factors that contributed to rapid growth in different stages;
- become familiar with the structural change that the Indian economy has gone through post-independence; and
- understand the medium to long-term prospects of India's economic growth.

2.1 INTRODUCTION

Different sectors of the economy, such as agriculture, industry or services employ natural, human, and material resources and contribute to the aggregate flow of goods and services during a given time period which may normally be specified as a year. This aggregate flow of final (as distinct from intermediate) goods and services constitutes the national product of the economy. Alternately, if the economic activity comprising the aggregate flow of goods and services is measured in terms of the income earned by all the different factors of production (land, labour, capital, and entrepreneurship) employed in the production process during the year it is termed as national income. The national income, it may be recalled, can also be measured as the aggregate expenditure in the economy in terms of private consumption, government spending, investment and the spending on net exports. The production, income and expenditure methods are three methods of estimating Gross Domestic Product and other national account aggregates. The rate of growth of the national income when compared with the rate of growth of population indicates whether the economy is declining, stagnant or growing. It is only when the national income grows at a rate faster than the rate of growth of population that the per capita income shows a rising trend; the people are able to improve their living standards and the economy is able to add to its stock of capital, which along with technology and labour supports economic growth. However, economic growth does not necessarily improve every citizen's living standards, something captured by a much broader and complex issue of development. While the country has been performing well in terms of growth, it seems to be lacking behind in terms of development.

The Central Statistical Office (CSO) has been producing annual official estimates of national income and other national accounts aggregates of India since 1955 and publishing it annually in *National Accounts Statistics* (NAS). It is with the help of this data that we shall study the trend in India's national income over the last seven decades.

2.2 OVERALL TRENDS

Post-independence, India's economic development can be seen in terms of the following phases, each with its characteristic pace of advancement, policy guidance and attendant changes in the structure of the economy:

Phase I: 1950-1980

India's GDP increased at an annual average rate of 3.5 per cent.¹ During this period, population has also increased at an annual average rate of over 2.00 per cent. Therefore, the real per capita income has increased only at an annual average rate of 1 per cent. During the first decade, real national income went up by 3.8 per cent (1.8%), this rate came down to 3.5 per cent (1.2%) in the 1960s, and 3.1 per cent (1.1%) in the 1970s. During this phase, the nation followed the Socialist regime with the objectives of planning being—rapid industrialisation with emphasis on developing a strong investment goods sector, poverty alleviation, improving per capita incomes and an even distribution of income. Public sectors played a central role to the public sector. Import substitution, export subsidies and stringent restraints on technology and investment cooperation with the rest of the world— kept India somewhat a closed economy. Substantial controls on capacity expansion and licensing requirements for manufacturing industries were also part of the policy strategy.

Phase II: 1980-1990

A reversal of trend occurred during the 1980s: the average annual rate of growth increased to around 5.5 per cent. The socialist flavour of the Nehruvian policies was blamed for the worsening of the growth performance of the Indian economy by the 1970s for these policies are believed to limit the foreign competition and make domestic firms inefficient and also limit a productivity-enhancing structural transformation by restricting the possibilities of resource reallocation to more productive sectors. In contrast, post-1980 period featured several pro-business policies and reforms including import liberalisation, export incentives, exchange rate policies, and expansionary fiscal policy.

Phase III: 1990-2008

In the first three years of the 1990s, the GDP grew at 4 per cent annually. In the following four years, the growth rate jumped to 7.1 per cent but only to fall back to 5.2 per cent in the succeeding five years. The underlying trend growth rate during the decade was just over 6 per cent. However, subsequently the period 2003-08 saw the real GDP grow at 8.2 per cent annually. Meanwhile population growth rate stabilised at around 1.1% per annum. The sustained growth at 8 per cent plus resulted from many serious policy initiatives on the part of the government. Significant lowering of tariff and nontariff barriers (trade policy reforms) along with a major revamping of industrial policies, especially the withdrawal of industrial regulation and liberalisation of foreign direct investment (FDI) were introduced. These, coupled with favourable external environment in the form of rising exports and increasing inflows of foreign capital, set in motion three factors which can be described as three engines of growth.

One, consumption spending was a large contributor to the growth performance. Decreasing relative prices of many goods and services as a result of domestic and global competition, competitive pressures in retail finance and steadily rising incomes compound into a powerful force, even if each of the components may not be very large. *Two, investment* in new capacity was the second engine of growth. Investment activity is characterised by a certain lumpiness, which means

¹. Prof. Raj Krishna had believed that the economy was caught in the “low level equilibrium trap of slow growth” of 3.5 per cent annual growth rate. This came to be known as ‘Hindu Rate of Growth’.

that capacity addition comes in spurts, exceeding immediate requirements but anticipating a subsequent catch-up in demand. Investment spending, consequently, goes up sharply at the beginning of a cycle and declines just as abruptly once the desired capacity has been created. The investment cycle was on upswing. Three, exports of both goods and services were the third engine of growth. India's merchandise exports got getting diversified geographically and, therefore, were not very vulnerable to localised business cycles. All these three engines gained an additional boost by what appears to be a sustained, across-the-board increase in productivity.

But this phase also shared one major *weakness* with the previous phase: labour-intensive manufacturing remained sluggish. The end to licensing and to the small-scale industries reservation in most labour-intensive products did not have the intended outcomes in this sector. The reasons for this are well-known (labour market rigidities facing large-scale producers, infrastructure bottlenecks and bureaucratic red tape). Unfortunately, without rapid expansion of the unskilled-labour-intensive industry, progress towards poverty reduction and transition to a modern economy will remain far slower than is feasible.

Phase IV: 2008-2014

The growth process slowed during 2008-09 in the wake of the global economic crisis, although some indicators of slowdown had made their presence felt even earlier. Global economic crisis resulted in (i) fall in inflows of foreign direct investment, (ii) rise in outflows on account of portfolio disinvestment, (iii) decline in export orders from developed market economies, as a result of which domestic investment, employment and consumption slowed down. The slowdown affected all sectors of the economy; growth rate in service sector during 2008-09 came down to 9.3 per cent, against 10.8 in 2007-08, in agriculture to 1.6 per cent from 4.9 per cent, and in industry to 3.9 per cent from 7.4 per cent. The decline in service activity could be attributed to lower demand for off-shoring and IT and IT-enabled services from the US and Europe, where several economies are grappling with debt problems. There was also an impact on financial services as banking activity slowed down on account of higher interest rates and investors were scared of parking their funds in stock markets. Real GDP growth rate slowed down to 6.5% per cent during 2011-12. It continued to be low on subsequent two years 2012-13 and 2013-14. Apart from the slow recovery in India's export destinations there were several domestic policy concerns including— ban on iron ore mining, cancellation of coal blocks, delays in environmental clearances, emergence of the Non Performing Asset (NPA) crisis and the consequent double balance-sheet problem that resulted in this slowdown.

Another major concern at this stage, though not entirely unexpected, was the sharp dip in the growth rate of private consumption. Four factors seem to have contributed to this slowdown. *First*, it could be due to the wealth effect, resulting from a decline in the asset (equity/property) prices. *Second*, the uncertainty in the labour market and some decline in employment in India's tradable sectors may have moderated the growth in consumption expenditure. *Third*, cutbacks in consumer credit by private banks, NBFCs and other lenders, because of their limited deposit base and difficulties in secondary market financing because of the knock-on effect of global financial market freezing. *Fourth*, during slowdown a dominance of precautionary motive may have induced consumers to either defer their spending decisions or shift to unbranded lower quality alternatives.

Similarly, the slowdown in the growth rate of gross fixed capital formation (GFCF) was an area of policy concern from the point of an early return to the high GDP growth path. Apart from the demand shock to the economy several reasons could have contributed to deceleration in growth of GFCF. *First*, surge in domestic inflation in the first half of 2008 reinforced the tightening of monetary policy. It affected the cost and availability of funds for investment. *Second*, since inflation was largely on account of metals and fuels, bulk of it was absorbed by industry, which affected its internal accruals and profitability, reducing the investible funds. *Third*, despite monetary policy becoming accommodative in the second half of 2008, decline in interest rates were not up to the industry expectations.

A significant stimulus package in three tranches was put in place by the government involving expansion in government spending and reduction in indirect taxes to boost domestic demand. By the end of the year 2008-09, India was rapidly returning to the buoyant years preceding 2008.

Phase V: 2014-2019 and 2019 onwards

During the period from 2014-15 to 2018-19, Indian economy registered an average GDP growth rate of 7.5 per cent. Several initiatives taken by the government to spur growth include — government following the 4 R approach of Recognition, Resolution, Recapitalisation and Reforms to strengthen banks and foster clean and responsible banking, simplification of the Labour Laws, bringing reforms in Corporate Affairs, introduction of e-Clearances, relaxing foreign direct investment rules, easing Know Your Customer (KYCs) for investors in Capital Markets, rendering more support to Non-Banking Finance Companies (NBFCs)/ Housing Finance Companies (HFCs) and Micro, Small and Medium Enterprises (MSMEs), introduction of indirect tax reform in the form of Goods and Services Tax (GST), introduction of Insolvency and Bankruptcy Code (IBC) for the speedy resolution of insolvency and bankruptcy cases of companies, Demonetisation to curb black money, corruption and counterfeit notes, which in turn opened gates for cashless economy, etc.

India's GDP growth moderated to 5 per cent in 2019-20 as compared to 6.8 per cent in 2018-19, amidst a weak environment for global manufacturing, trade and demand. The economic state of the Indian economy from 2019 onwards may be identified as 'pause phase'. During the pause phase the clouds over India's economic performance and prospects are getting bigger and darker. First, India's economic growth has slowed, aggregate investment has slackened and it could get worse. Second, inflation needs to be monitored. Third, the country's external imbalances are growing at a time when capital flows are becoming more volatile. Fourth, with investment momentum remaining significantly below its trend, the persistent weakness in consumption is a concern. Consumption has typically provided a steady and elevated floor for India's growth. Fifth, the sub-segment of "trade, hotels, transport and communications," which is typically an important source of resilience for the services sector, is slowing consistently. Sixth, growth in agriculture may take some hit. Seventh, the fiscal-monetary mix is completely out of work and there is hardly any flexibility on the fiscal front. More importantly, some fiscal responsibility will warrant spending cuts and revenue enhancement in order to shrink the fiscal deficit. Likewise, the RBI is expected to anchor expectations without offering one-or two-year forward guidance. Finally, the impact of Covid-19 pandemic on the Indian economy has been largely

disruptive in terms of economic activity as well as a loss of human lives. Almost all the sectors have been adversely affected as domestic demand and exports sharply plummeted with some notable exceptions where high growth was observed. Tourism, Hospitality and Aviation were among the worst affected sectors. Consumption also got impacted due to job losses and decline in income levels of people particularly the daily wage earners. Greater uncertainty about the future course and repercussion of Covid-19 also made the financial market extremely volatile. There is likelihood that the three major components of aggregate demand — consumption, investment, and exports are likely to stay subdued for a prolonged period of time. On the supply side, shutdown of factories and the resulting delay in supply of goods from China affected many Indian manufacturing sectors. Some sectors like automobiles, pharmaceuticals, electronics, chemical products etc. faced an imminent raw material and component shortage.

Check Your Progress 1

- 1) What do you understand by ‘Hindu Rate of Growth’?

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- 2) What are the reasons for the slowdown of the Indian economy after the year 2008 i.e., post-global financial crisis?

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- 3) How do you see the impact of the post-2014 policy measures on the Indian economy?

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2.3 STRUCTURAL CHANGE IN THE ECONOMY

The process of development requires structural change. The structural change of an economy takes place mainly along two dimensions: one is the changing sector-wise shares in GDP and the second is the changing share of the labour force, engaged in each sector. Other forms of changes encompassing the structural change include changing share of the organised and unorganised sectors as well as rural and urban sectors in output and employment, and also the share of consumption, government spending, investment and net exports in India's GDP. The share of public and private sectors may also be considered to reflect structural change in the Indian economy.

2.3.1 Composition of Gross Domestic Product

The composition of GDP of an economy explains the relative significance of the different producing sectors. When a country is in a state of underdevelopment, primary sector (agriculture and allied occupations) makes the largest contribution to the national income. As the country grows and gets developed, no matter how fast the primary sector grows, in keeping with the Kuznet's Law the contribution of the industrial and services sectors gradually increases. The explanation for this shift is as follows: Income elasticity of demand for agricultural products is relatively low; as a result, with rising levels of income, the demand for agricultural products relatively declines and that for industrial goods increases and, after reaching a reasonably high level of income, demand for services increases sharply. Accordingly, the shares of different sectors in the national product get determined by the changes in the pattern of demand. On the supply side, agriculture, being mainly dependent on a fixed factor of production, namely land, faces a limit on its growth and is subject to early operation of the law of diminishing returns. Industry, specially manufacturing, on the other hand, offers large scope for use of capital and technology, which could be augmented almost without limit with human effort. The same applies to services where application of technologies seems to offer much larger scope. Table 2.1 below brings out the on-going structural changes in India's GDP.

Table 2.1: Sectoral Distribution of India's GDP at Factor Cost (2011-12 prices) (%)

Sector	1960-61	1990-91	2000-01	2010-11
Primary	51.0	33.0	25.0	17.0
Secondary	18.0	24.0	24.0	24.5
Tertiary (Service)	31.0	43.0	51.0	58.5

Source: Economic Survey (Various issues)

Services sector is the largest sector of India. Gross Value Added (GVA) at current prices for Services sector is estimated at Rs. 92.26 lakh crore (54.40 per cent of total India's GVA) in 2018-19. With GVA of Rs. 50.43 lakh crore, Industry sector contributes 29.73 per cent, while, agriculture and allied sector shares 15.87 per cent.

This pattern of structural change in Indian economy has deviated from the development pattern of Western and South East Asian economies. Those economies experienced first a shift from primary to secondary sector and only in their advanced stage did they experience a significant shift in favour of tertiary sector. This pattern of development enabled them to transfer growing labour

force from primary to secondary sector. In India this has not been possible because secondary sector has not expanded fast enough to absorb growing labour force. Although the manufacturing sector has grown at a fast pace the section's contribution less as compared to countries. The unskilled and uneducated rural masses have continued to struggle in the primary sector and those who have been forced out by economic, social and political factors have joined the urban slum sector. Moreover, the sharp increase in the share of tertiary sector in GDP in India has occurred at a much lower level of per capita income than that in the developed countries when they experienced a similar expansion. This pattern of growth underlines the link between the growing poverty and unemployment and the inadequate growth of manufacturing and building activity in the country. This failure in turn could be attributed to absence of structural attributes like a basic literacy in the workforce upon which further skills can be imparted, physical infrastructure (*i.e.*, power, roads, railways and access to ports), access to financial capital and, crucially, policies that encourage allocation of resources through export-oriented manufacturing.

2.3.2 Sectoral Share of Employment

There have been significant changes in the sectoral pattern of employment. The proportion of the work force engaged in the primary sector declined by 12 per cent between 1983 and 2004-05 and it showed faster decline between 2004-05 and 2009-10. Between 2009-10 and 2017-18, the share of employment in primary sector further declined to 44.6 per cent. In the Secondary sector, the share of employment increased from 21 per cent in 2009-10 to 24.4 per cent in 2017-18. However, the Tertiary sector has performed very well in employment as its share jumped from 25 per cent (2009-10) to 31.0 per cent (2017-18). This marks an important phase of structural transformation for the Indian economy, in which, the share and number of workers in agriculture has been declining with corresponding rise in employment in non-farm sectors. Among the non-firm sectors, service sector is primarily driving the employment growth during 2009-10 and 2017-18.

Table 2.2: Changes in Sectoral Shares of Employment (UPSS) (Percentages)

		Primary	Secondary	Tertiary	All
Rural	1983	81.80	8.60	9.50	100.00
	2004-05	73.00	13.20	13.80	100.00
	2009-10	68.60	16.70	14.70	100.00
Urban	1983	15.60	32.60	51.80	100.00
	2004-05	9.40	33.30	57.30	100.00
	2009-10	8.10	33.80	58.10	100.00
Total	1983	68.90	13.30	17.80	100.00
	2004-05	57.00	18.20	24.80	100.00
	2009-10	53.80	20.90	25.39	100.00
	2017-18	44.6	24.4	31.0	100.00

2.3.3 Share of Organised and Unorganised Sector in Output and Employment

Another way to look at the structural change in the income is to look at the organisational pattern of the economy. The NAS divides the economy into two sectors: organised sector which is identified with a modern market economy and

unorganised sector or traditional economy. The unorganised sector or traditional economy. The unorganised sector is defined to include “all unincorporated enterprises and household industries – other than organised ones and which do not maintain annual accounts and balance sheets.” During the last couple of decades, organised sector has been growing faster than the unorganised sector. This trend has been facilitated by policies like reduction in excise duties and tariffs. It indicates growing modernisation in the organisation pattern of the economy.

However, notwithstanding all these changes and trends towards modernisation, the unorganised sector continues to dominate the economy with two-thirds of the National Domestic Product (NDP) and this is not due only to the agricultural sector. In fact, the unorganised sector is to be found not only in the unincorporated and individually-owned, if not also in the individually-operated, enterprises, in most other sectors of industrial origin, except, of course, public administration and defence. A basic change here could influence the economy considerably.

2.3.4 Share of Rural and Urban Sectors in Output and Employment

A classification of the economy between rural and urban areas is useful for a study of the organisational set-up of industries, the type of activities dominating the economic system in the rural and urban areas and the way of living of the population residing in areas categorised under the two groups. Information relating to rural-urban distribution of domestic product is available from various research surveys and studies, including those by the NCAER. During the last two decades the rural economy has grown much faster (7.5 per cent per annum) compared to urban (5.6%) on the back of strong growth in the rural non-farm sector. As a result, whereas in 1980-81, the rural sector accounted for 41 per cent of the GDP, in 2010-11 this proportion has been estimated at 51 per cent, i.e., the rural sector is estimated to have overtaken the urban sector.

Growth in per capita income in rural India has been almost double compared to urban India, though on a much lower base. It would mean that the fruits of economic reforms are finally getting filtered down to rural areas.

Another important feature is that the rural economy is no more predominantly agrarian. Whereas in 1970-71, 73.8 per cent of the rural GDP got generated in the farm sector, this proportion has declined to 41.6 per cent in 2010-11, i.e., about 60 per cent of rural GDP gets generated in the non-farm sector. Moreover, rural India has been far more resilient in the face of the abrupt turn around in the economy than the rest of India. There are several reasons for this.

- i) The government is no longer spending only on programmes that deliver the final product to the beneficiaries – whether in the form of subsidised food, electricity or building a dam to provide irrigation water to farmers – but has added a new dimension wherein funds are transferred to the beneficiary. This, in fact, gives the beneficiaries the freedom to spend the money and mitigate leakages.
- ii) India's agriculture has been at the receiving end of a clutch of positive imperatives. Between 2004-05 and 2011-12, MSPs were raised for common paddy by 40 per cent and for wheat by 80 per cent, while inflation between these two periods rose by around 24 per cent.

- iii) The global commodities boom has ensured new agricultural export markets that strangely seem insulated, even after the onset of a global recession.
- iv) Farmers have hardly seen an increase in input costs, with the exception of higher wages for labourers in the recent past, ensuring that their surpluses are maximised.
- v) Rural areas are now significantly more connected to the rest of India, largely due to fast spread of mobile phones and road network.
- vi) Several thousand farmers across the country have benefited from the farm loan waiver scheme.

2.3.5 Share of Consumption, Government Spending, Investment and Net Exports in GDP

As per 'India Development Update' report released by the World Bank in 2018—the share of consumption in GDP has been consistently declining, particularly the Private Consumption, while the share of Investment and Exports has increased. While private consumption accounted for nearly four-fifth of GDP in the early 1970s, this share declined to about three-fifth in 2017. Despite its declining share, consumption growth has been a key driver of aggregate GDP growth, contributing on an average 3.76 percentage points to growth annually between 1971 and 2017. After a small increase over recent decades, government expenditure has stabilised at nearly 12 per cent of GDP. Equally salient is the steady increase in the rate of investment. The period 2004-2008 witnessed an investment boom with the Gross Fixed Capital Formation (GFCF) to GDP increasing from 30.7 per cent to 34.7 per cent in 2008. Post the global financial crisis, this ratio moderated to 31 per cent in 2013. The moderation in the GFCF to GDP ratio continued in the period from 2014-17. The ratio declined from 30.1 per cent in 2014 to 28.6 per cent in 2017. The ratio picked up to 29.4 per cent in 2018. Moderation in GFCF, a measure of fixed asset creation raises concerns about growth of output in the economy.

India has also become more integrated into the global economy, with its trade ratio—the ratio of exports and imports to GDP—adding up to about 40 per cent of GDP in 2017, five times the ratio of 7.6 per cent in 1971, yet lower than the peak ratio of 57 per cent in 2014. Exports as a per cent of GDP tripled from 7.3 per cent in 1991 to 22 per cent in 2007, and were 25.5 per cent of GDP in 2014. The contribution of net exports to growth has been muted, with import growth exceeding export growth in a majority of years.

2.3.6 Share of the Public and the Private Sector in GDP

As per 'India Development Update' report released by the World Bank in 2018—historically, public and private investment contributed approximately equally to total investment, but the role of public investment in growth has diminished over time. After peaking at 12.7 per cent of GDP in 1986-87, public and private investment started to diverge, with public investment accounting for only approximately 7 per cent of GDP in more recent years, compared to private investment exceeding 20 per cent of GDP.

- 1) Discuss the significant factors highlighting the structural change in the Indian Economy.

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- 2) Consumption spending as a component of national income has been contributing majorly to the economic growth in India. Do you agree?

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- 3) Discuss the reasons behind growing contribution of the Rural Economy in India.

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2.4 THE RISE OF TERTIARY SECTOR: COMPOSITION, CAUSES AND PROSPECTS

2.4.1 Composition of the Service Sector

A recent study divides the service sector into three parts. Group 1 comprises traditional services such as trade, transport, public administration, defence; Group 2 includes hotels, education, health and community and social services; and Group 3 is the modern services sector, including financial services, computer services, business services, communications, and legal and technical services. The share of Group 1 activities has stagnated, which is in accordance with the trend in the OECD (Organisation for Economic Cooperation and Development) countries. The rise in the share of Group 2 services too is in line with the trend. But what is unusual is the rapid rise in Group 3 services since 1990. Contribution of communications, business services, and financial services has in fact risen to the point where it contributes more to growth of GDP than manufacturing. In particular, communications, business services, financial services, education, health and hotels accounted for roughly half of total growth of the service sector in 2000-20.

2.4.2 Causes of Rapid Increase in Tertiary Sector

The tertiary, *i.e.*, the non-commodity sector, has been growing at a much faster rate than the commodity sector. This in essence means that income generated in the process of circulation grew at a much faster pace than that in the directly productive process, and thereby resulting in an increase in the share of the non-commodity sector. This trend can be attributed to a number of factors, among which the more important are as follows:

- i) A very important factor has been the advent of information technology and the knowledge economy. This has enhanced the growth of the high productivity segment of the services sector as well as a variety of service activities involving low productivity activities catering to a large mass of people.
- ii) A large part of the service sector consists of infrastructure such as banking, insurance, finance, transport and communication and social and community services such as educational and medical facilities. An urgent requirement of development is the proper expansion of infrastructure to cater to the needs of other sectors of the economy and the expansion of the social and community services for the well-being of the people.
- iii) Public services grow more rapidly where national Governments have significant role in planning and production in the economy as a whole. In fact, the 'visible hands' of the modern governments as reflected in the government policies and in the expansion patterns of the national and international authorities during the last few decades are directed towards the creation of fast economic and social infrastructures.
- iv) Operation of the demonstration effect as a consequence of the growing mobility due to expanding foreign trade, tourism and cultural and educational tours is another important factor.
- v) Increasing urbanisation may be regarded as another cause of expansion of the service sector in the economy. In fact, urbanisation is closely associated with a rise in demands for infrastructure services such as communications, public utilities and distribution services. A substantial change in the private consumption pattern of the economy is observed with increasing urbanisation. Many new goods and services enter into the consumption basket.
- vi) Tourism is becoming more and more international as knowledge is being spread through television and Internet, and modern technology has made air transport and hotel accommodations quite comfortable. Tourism in turn has promoted all types of services.
- vii) With the increasing complexities of modern industrial organisation, manufacturing industries have become service oriented. This has been reflected in the increasing functions of accounting, finance, legal services, advertisement, marketing, public relations etc. Because of the prevalent labour laws, these services are being increasingly outsourced, so that growth in industry is actually being counted as growth in services.

viii) Another factor, albeit very important, has been the favourable international environment. The changing liberalised environment opened up immense possibilities for the exports of India's service sector. An important contribution has been made by the IT sector, as also entertainment industry, etc. India and the ASEAN, the 10-member regional grouping, moved closer to completing a bilateral trade pact, but finalising a free-trade agreement (FTA) on services and investment. The pact will enable free movement of professionals from here such as doctors, engineers, architects and management consultants across the ASEAN markets.

In addition to the above factors, an increase in the share of the non-commodity sector in the GDP can also be attributed to slow growth in the commodity producing sector. While a part of this is explained by difficulties inherent in bringing about a fast rate of growth in the primary sector, a part is undoubtedly due to the failure of the secondary sector and its major component, which is manufacturing and construction, to grow at the much faster rate that was necessary to give the commodity sector a comparable status with the non-commodity sector in the growth rate.

2.4.3 Prospects and Opportunities

Both domestic and international factors augur well for the growth of services sector in India.

A) *Domestic Factors.* Some of the important factors can be briefly stated as follows:

- i) As real per capita GDP grows, demand for services increases more than proportionately and this, in turn, reinforces GDP growth itself.
- ii) Within the services sector, demand for producer and government services, which constitute mainly intermediate consumption, have strong multipliers impacting on real GDP.
- iii) The growth of such dynamic service activities, which are intensive users of communication and information technology, will generate employment opportunities on a rising scale.
- iv) The process of economic growth has itself led to the emergence and expansion of new services such as advertising, publicity, marketing, etc. These sub-sectors provide essential service inputs to other sectors in the economy, thereby developing strong linkages with the rest of the economy.
- v) Efficient delivery of services increases the productivity of both labour and capital in the economy as a whole. In general, services sector appears to be highly growth-inducing with positive externalities for other services, making services a catalytic agent of growth.

B) *International Factors.* Some of the recent global developments which provide opportunities for substantial growth are as follows:

- i) The fastest growing segment of services is the rapid expansion of knowledge-based services, such as, professional and technical services. India has a tremendous advantage in the supply of such services because of a developed structure of technological and educational institutions, and lower labour costs.

- ii) Progress in IT is making it increasingly possible to unbundle the production and consumption of information-intensive service activities. These activities—research and development, computing, inventory management, quality control, accounting, personnel administration, secretarial, marketing, advertising distribution and legal services— are performed in all economic sectors.
- iii) Unlike most other prices, world prices of transport and communication services have fallen dramatically. The cost of communication is becoming independent of distance. India's geographical distance from several important industrial markets is no longer an important element in the cost-structure of skill-based activities.
- iv) India does not necessarily have to be a low-cost producer of certain types of goods (*e.g.*, computers or discs) before it can become an efficient supplier of services embodied in them (*e.g.*, software or music). It is possible now to provide value added services without waiting to 'catch up' in technology for production of sophisticated equipment or products.
- v) The decline in the share of manufacturing in the output of rich countries implies a relative decline in their demand for industrial raw materials and fuels. It means that growth in exports of developing countries in the future will depend less on natural resource endowments and more on efficiency in providing services and service-intensive goods.
- vi) The aging of population in the developed world implies that the demand for services will continue to grow.

As a result of the above developments, the sources of comparative advantage of nations are vastly different now from what they were 50 or even 20 years ago. And, there are very few developing countries which are as well placed as India to take advantage of the phenomenal changes that have occurred in production technologies, international trade, capital movement and deployment of skilled manpower. It is now possible for India to take advantage of a virtuous circle of higher growth, higher capital inflows and higher domestic incomes and savings, which in sum can lead to further growth.

2.4.4 Limitations

However, the service sector, as at present, suffers from low productivity and quality in spite of fairly large investment in technology. The sector faces multiple challenges for sustained growth over the years. A number of services where India enjoys comparative advantages experience lack of clear policy thrust. A number of services in India are either predominantly associated with the Government or are not liberalised enough to ensure growth through organised private initiatives. Services like professional, legal, postal, accountancy and insurance need further liberalisation to harness their potential. Unless sustained efforts are put in to improve these, with the increasing importance of the services in wake of structural adjustment and liberalisation in the economy we may get into two alternate scenarios.

- a) Economic and social position of workers in the service sector will steadily go down— since real incomes cannot be higher than productivity for any

extended length of time. This means economic stagnation and consequent social tensions; or

- b) The workers in this sector will use their numerical strength to get wages higher than their economic contribution justified. This will impoverish others— reducing everyone's income and increasing unemployment.

Further, the growth of service sector is constrained by slower growth in the manufacturing sector. While the inter-linkages between manufacturing and service sectors are two-way, the expansion of certain manufacturing activities boosts specific service industries. Many modern manufacturing companies outsource technical and business-related services such as research and development, financing, marketing, branding and logistics. Manufacturing industries such as mechanical and electrical engineering or even textiles depend crucially on services such as technical and design support, data processing, customer services, and advertising. As manufacturing firms grow and become more specialised, services tend to get more and more incorporated into their value chain.

Manufacturing expansion spurs the development of physical infrastructure such as roads, ports and railways, which are critical inputs to improve manufacturing productivity. In turn, demand for infrastructure-related services such as transportation, telecommunication and financial intermediation grows. Manufacturing growth, therefore, gives a boost to services. However, weaknesses need to be addressed. We are very poor in what service customers view to be the most important dimension— that of delivering on promises without being chased. Recent research on a major Indian corporation revealed that it spends around 40 per cent of its time on “following up” each other. This is par for the course around India. If that is correct, this weakness alone could wreck us.

2.4.5 Need for an Integrated Policy

The contribution of the services sector to the Indian economy has been manifold: a 57 per cent share in GDP, growing by 10 per cent annually, contributing to about a quarter of total employment, accounting for a high share in FDI inflows and over one-third of total exports, and recording very fast export growth. To make services-led growth more widespread and sustainable, it is important to systematically and simultaneously remove those constraints from which the sector suffers presently. To do this, a coherent integrated services policy (in line with the agricultural and industrial policies) needs to be developed. Reforms in services in India have evolved in an *ad hoc* manner rather than as part of an overall strategy. Consequently, the depth and pace of reforms lack uniformity across sectors. Given the strong inter-linkages between different services, opening a particular services sector may not yield results if not backed by corresponding reforms in other complementary services. Such an integrated services policy should also define the sequence as well as the pace of reforms to be undertaken simultaneously in different services. Liberalisation should be followed in a phased manner accompanied by social policies in sectors that have surplus labour so as to avoid creating unemployment and social unrest. This will go a long way in sustaining the dynamism of services-led growth.

Check Your Progress 3

- 1) Discuss in brief the causes of the rapid increase in tertiary sector in India.

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- 2) Discuss in brief the limitations from which the service sector suffers in India.

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- 3) Outline the need for an integrated service sector policy in India.

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2.5 MEDIUM AND LONG-TERM GROWTH PROSPECTS OF THE ECONOMY

In the medium to long-term, the expectation is that India's pace of economic development will pick up. There are two reasons for this expectation. *One*, given the momentum in the savings and investment rates and also the fact that India's demographic dividend is yet to peak and there is evidence that the savings rate for the working-age population of India, especially for those in the 30s and 40s, is high, investment rate could potentially improve. *Two*, the fraction of investment that is going towards building up infrastructure has been rising. The importance of infrastructure for sustainable and inclusive development is now well recognised and the government is seeking to give this a large boost. It is known that once an economy begins to operate close to potential savings and investment rates, sustenance of growth momentum requires productive improvements, which depends in turn depends on improvement in human capital on skill upgradation, technology and innovation in production. There are several initiatives underway to address these requirements as highlighted in the earlier section. Importantly, there is nothing preordained about India's economic rise— i. The sustenance of the growth story needs nourishment, not merely sound bites.

2.5.1 Major Policy Initiatives in the Recent Decades

2.5.1.1 Containing Inflation and Soaring Fiscal Deficits

Following an agreement between Government of India (GOI) and Reserve Bank of India (RBI), a Monetary Policy Committee (MPC) was constituted in February, 2015 with the mandate to target a headline inflation of 4 per cent, with a band of two percentage points on either side. The framework has been successful in containing inflation. Since April 2015, when the MPC was first convened, the monthly headline inflation has always remained within the band except for one month.

Discipline was also imposed on the Gross Fiscal Deficit (GFD). The Fiscal Responsibility and Budget Management (FRBM) Act of 2003, which got a new lease of life since 2016, determines the glide path for the ratio of GFD to GDP to reach an eventual target of 3 per cent. The ratio declined from 4.5 per cent in 2013-14 to 3.4 per cent in 2018-19. Other macro-stability indicators have similarly improved.

2.5.1.2 Beneficiary Focus and Targeted Delivery

In addition to re-establishing macroeconomic stability, the government also focused on last-mile delivery of basic services to the poor, on basic safety-nets, and on creating pathways for the benefits of growth to reach the bottom of the socio-economic ladder. The promulgation of the Aadhaar (Targeted Delivery of Financial and Other Subsidies, Benefits, and Services) Act, 2016 was one such initiative that opened a major pathway to this trickle-down. By assigning a unique identification number to every individual, the government now has the ability to provide targeted support. Presently, Aadhaar coverage stands at more than 90 per cent of the country's population.

Another pathway for the trickle-down is the Pradhan Mantri Jan Dhan Yojana (PMJDY), a financial inclusion initiative. The linking of mobile numbers with bank account numbers and subsequently Aadhaar, created a JAM (Jan Dhan, Aadhaar, Mobile) trinity that further secured Direct Benefit Transfers (DBT) to the intended beneficiaries.

Major schemes implemented under DBT include MGNREGS (Mahatma Gandhi National Rural Employment Guarantee Scheme), NSAP (National Social Assistance Programme), PMAY-G (Pradhan Mantri Awas Yojna-Gramin), besides various scholarships and fertilizer subsidy schemes. A key initiative for last-mile delivery was the Pradhan Mantri Ujjwala Yojana (PMUY) that was launched in 2016 to provide LPG connections to BPL (Below Poverty Line) families. In 2018, another effort to provide a basic safety net was launched through the Ayushman Bharat Yojana (ABY), which provides an insurance cover of Rs. 5,00,000 for cashless treatment to each of the 100 million BPL families at a nominal premium of Rs. 100 per month.

2.5.1.3 Infrastructure

The creation of physical infrastructure accelerated significantly during 2014-19. In April 2018, electricity finally reached every village in India with the effort to electrify every home still ongoing. The construction of national highways (NH)

proceeded at a rapid pace with more than 20 per cent of the existing highway length of 132,000 km being constructed in the last four years alone. The UDAAN scheme was launched in 2017 to foster regional connectivity by extending flight connectivity to Tier-3 and Tier-4 towns in the country. The infrastructure of the North-Eastern states was a special focus and there has been a significant improvement in connectivity with the building of key bridges, and the expansion of railways/highways.

2.5.1.4 Federalism

Fiscal federalism strengthened significantly when the Fourteenth Finance Commission increased the share of states in the divisible pool of central taxes from 32 per cent to 42 per cent. Although central grants to states saw compensatory cuts, the shift empowers states to manage their revenues and expenditures independently. The launch of the GST (Goods and Services Tax) in July, 2017 added a new dimension to centre-state and inter-state financial relations. The GST Council experience provides key learning for implementing cooperative federalism in several other areas such as labour and land regulation. Niti Aayog has helped institutionalise cooperative federalism by setting up teams from both the states and the central government to jointly evolve strategies for addressing development challenges. States have also been involved in a friendly competition to improve their Key Performance Indicators (KPIs).

2.5.1.5 Corporate Exits

When the Insolvency and Bankruptcy Code (IBC) was introduced in 2016, it consolidated the insolvency resolution process into a single law by repealing/amending multiple rules and processes earlier in operation. IBC set a time limit for closing of insolvency and bankruptcy cases within which assets of a defaulting borrower are auctioned to pay off the debt owed to lending institutions. Following the operationalisation of IBC since 2017, a significant number of non-performing assets have been brought under its ambit. In addition to the large sums recovered by creditors from resolution or liquidation, the introduction of a framework for exit has improved the overall business culture of the country.

2.5.1.5 Demonetisation

The government of India took a bold step to demonetise Rs. 500 and Rs. 1000 currency with effect from 8 November 2016 midnight. It was a major decision which had its impact on all sections of the society. It was aimed to reduce funds to terrorism, decrease the corruption rate, eliminate counterfeit notes, and open gates for a cashless economy. Through the demonetisation exercise, the government has been pressing hard to become a cashless economy and is encouraging more and more people to adopt the digital payments system for their transactions.

2.5.1.6 Goods and Services Tax (GST)

Implemented on July 1, 2017, the Goods and Services Tax (GST) is regarded as the biggest and substantial indirect tax reform since independence. GST has replaced a number of Central and State taxes, made India more of a national integrated market, and brought more producers into the tax net. It has subsumed all sorts of indirect taxes like Central Excise Tax, VAT/Sales Tax, Service tax,

etc. and implement one taxation system in India. The main aim of GST is to create a single, unified market which will benefit in the development of country's economy. GST taxes only the final consumer. Hence the cascading of taxes (tax-on-tax) is avoided and production costs are cut down. The system is expected to improve tax collections and boost up India's economic development and break all tax barriers between Central and State Governments.

Aided by all these features, the Indian economy rebounded back on high growth trajectory. While rest of the world was cooling off with growth rates slowing down, the Indian economy recorded highest-ever growth rates during the period 2014-19, clocking an average of about 7.5 per cent per annum. It is widely-accepted that India cannot meaningfully regain its economic momentum unless corporate investments are brought on track. The sort of demand stimulus that the government has preferred despite supply constraints will only add to inflationary pressures. Public investment cannot play a major role in the recovery unless there is a significant shift of public spending away from subsidies and towards asset creation. A private investment revival is thus the magic key. Unwinding the current policy tangle is key to reviving animal spirits.

2.5.2 The Challenges That Remain

GDP growth in India has followed an inverted U-shaped curve, accelerating from a low of 5.5 per cent in 2012-13 to a peak of 8.2 per cent in 2016-17 and then decelerated to 6.8 per cent in 2018-19. The GDP growth decline is due to rise in real interest rates, enforcement of tighter norms on Bank NPAs and implementation of the Indian Bankruptcy Code, decline in GFCF and other factors. Despite the promising growth trajectory that Indian economy has been experiencing and is believed to experience, there remain several challenges that need to be addressed to ensure welfare and development along with the sustained growth. These include:

2.5.2.1 Non-farm Employment Opportunities

Over the years, the rural non-farm sector has been gaining importance in providing gainful employment and additional income opportunities to the growing rural workforce. Yet the country is still struggling to move rural workers away from agriculture. More than 70 per cent of the rural poor are dependent on agriculture either as cultivators or as agriculture labour. Besides, livestock rearing is again a key livelihood of the poor. Thus, it becomes imperative to make rural non-farm activities lucrative enough to attract the growing rural workforce. For this, analysing the barriers of entry into this sector employment and the different activities undertaken in each state or region becomes important.

2.5.2.2 Demographic Transition and Dividend

According to United Nations Population Fund (UNFPA), demographic dividend means, "the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population (15 to 64) is larger than the non-working-age share of the population (14 and younger, and 65 and older)". India has the largest proportion of young people in the world. The working-age population (15–64 years) constitutes 64 per cent of the population. The country has a distinctive 20 to 25 years' window of opportunity which needs to be exploited. Considering the fact the country's IT industry employs just 0.4 per cent of the workforce— with the vast majority of Indians doing low

productivity jobs in areas such as transportation or construction— development of a labour-intensive manufacturing sector becomes vital for the country to take advantage of its rapidly growing population.

2.5.2.3 Urbanisation

India is urbanising at a much faster pace. As per World Urbanisation Prospect 2014, Revision report India is projected to add 404 million urban dwellers between 2014-2050. This will add additional pressure to the existing urban centres which are already in the grip of issues like house shortages, traffic congestion, air pollution, rising greenhouse gas emissions, poor public health, etc. resulting from tremendous demographic pressure, inadequate infrastructure and resources to cater, unplanned growth of the peri-urban sprawls characterise. Urbanisation in India is inevitable thus, the need for solving the various problems associated with it requires a combination of actions, starting with increased investment; strengthening the framework for governance, and most importantly capacity building for the people and the institutions engage in urban affairs. Along with this, the country needs to avoid excessive sprawl and address infrastructure bottlenecks, particularly in the transport, power and water sectors.

2.5.2.4 Poverty and Inequality

Poverty elimination has remained a major challenge right from independence and lies at the core of India's national development agenda to create a just and equitable society. Poverty has always been a matter of concern in the Indian economy. A significant part of the country and the population is deprived of access to basic health care, food, drinking water, sanitation as well as financial services, making the minimum standard of living out of their reach, largely due to long years of centralised development and inequitable distribution of income. Poverty is worsened by the relatively high level of income inequality. Hence, there has always remained the need of an attempt to eliminate poverty.

2.5.2.5 Environment and Climate Change

India is both a major greenhouse gas emitter and one of the most vulnerable countries in the world to projected climate change. The country is already experiencing changes in climate and the impacts of climate change, including water stress, heat waves and drought, severe storms and flooding, and associated negative consequences on health and livelihoods. With a 1.3 billion but growing population and dependence on agriculture, India probably will be severely impacted by continuing climate change. This calls for innovations, new technologies, and new approaches to economic development.

2.5.2.6 Infrastructure

India's ambition of sustaining its relatively high growth depends on one important factor: infrastructure. The country, however, is plagued with weak infrastructure incapable of meeting the needs of a growing economy and growing population. The corporate growth and investments can also be hampered if the government fails to close the infrastructure deficit, which some experts estimate costs 4-5 per cent of GDP due to inefficiencies. Also in order to fulfil Sustainable Development Goal number 9, India needs to develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure to support

2.6 LET US SUM UP

In this unit we have reviewed the growth profile of the Indian economy. For this purpose we have relied upon the national income data published by the Central Statistical Office of the Government of India. The analysis of the data has thrown some interesting facts which are briefly stated as follows:

- Over the last seven decades growth has maintained a rising trend.
- Although rising, the rate of growth has been relatively slow.
- The growth has been topsy-turvy; dramatic increase in some years followed by a sharp fall in subsequent years, e.g., the period 2015-19 followed by the year 2019-20.
- Medium and long-term prospects are bright; but the economy would have to bear the global fate. Growth rates are projected to fall over whole of the globe.
- Macro-economic stability is an essential prerequisite for achieving the growth needed for development.
- Growth does not trickle down; development must address human needs directly.
- No one policy will trigger development – a comprehensive approach is needed.
- Institutions matter, sustained development should be rooted in processes that are socially inclusive and responsive to changing circumstances.

We have also analysed the data to examine the changes that have taken place in the structure of the Indian economy over the last seven decades. This analysis has brought out a unique feature of India's economic growth: structural change in the Indian economy has deviated from the historical experience of other countries, to begin with, build up a strong agricultural base that laid foundations for rapid growth of industry. This resulted in evolution of a sound industrial base that served as a jumping pad for another transition: transition to a service/commercial economy. India, on the contrary has made a jump from the first stage to the third stage. The result is an absence of a strong manufacturing foundation this has remains implications for removing poverty and unemployment.

We will address the issues in the subsequent units of the present course.

2.7 TERM - END EXERCISES

- 1) Examine in brief the different phases of growth of the Indian economy since 1991.
- 2) “The pattern of structural change in the Indian economy has deviated from the development pattern of Western and South Asian economies.” Examine this statement.
- 3) The unorganised sector dominates the Indian economy. Do you agree?

2.8 KEY WORDS

Association of Southeast Asian Nations (ASEAN)	: A regional grouping that promotes economic, political, and security cooperation among its ten members: Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Vietnam.
Federalism	: The distribution of power in an organisation (such as a government) between a central authority and the constituent units.
Fiscal Deficit	: The difference between the total income of the government (total taxes and non-debt capital receipts) and its total expenditure.
Free Trade Agreement (FTA)	: A treaty between two or more countries to facilitate trade and eliminate trade barriers.
Gross Fixed Capital Formation	: As per RBI, Gross capital formation refers to the 'aggregate of gross additions to fixed assets (that is fixed capital formation) plus change in stocks during the counting period.'
Insolvency and Bankruptcy Code (IBC), 2016	: The bankruptcy law of India which seeks to consolidate the existing framework by creating a single law for insolvency and bankruptcy to resolve insolvency in a time-bound manner.
Minimum Support Prices (MSP)	: MSP is an agricultural product price, set by the Government of India to purchase directly from the farmer.
Unorganised Sector	: As per 'Ministry of Labour and Employment'—Unorganised sector means an enterprise owned by individuals or self-employed workers and engaged in the production or sale of goods or providing service of any kind whatsoever, and where the enterprise employs workers, the number of such workers is less than ten.

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2.10 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) See Section 2.2
- 2) See Section 2.2
- 3) See Section 2.2

Check Your Progress 2

- 1) See Section 2.3
- 2) See Sub-section 2.3.5
- 3) See Sub-section 2.3.4

Check Your Progress 3

- 1) See Sub-section 2.4.3
- 2) See Sub-section 2.4.4
- 3) See Sub-section 2.4.5

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UNIT 3 DEMOGRAPHIC TRANSITION AND ITS IMPLICATIONS

Structure

- 3.0 Objectives
- 3.1 Introduction
- 3.2 The Theory of Demographic Transition
- 3.3 Demographic Profile of India
 - 3.3.1 Size and Growth Rate of Population in India
 - 3.3.2 Birth Rates and Death Rates
 - 3.3.3 Gender Composition of the Population
 - 3.3.4 Literacy and Gender Composition
 - 3.3.4.1 Gender Selective Abortions in India
 - 3.3.4.2 Government Response
 - 3.3.5 Age Composition
 - 3.3.6 Life Expectancy
 - 3.3.7 Rural-Urban Migration
- 3.4 Population Growth and Development
 - 3.4.1 Population Policy
 - 3.4.2 National Population Policy, 2000
- 3.5 Demographic Change and Economic Growth
 - 3.5.1 Age Structure and Economic Growth
 - 3.5.2 Concept of Demographic Dividend
 - 3.5.3 Population Health
- 3.6 Demographic Dividend and Policy Interventions
 - 3.6.1 Capturing India's Demographic Dividend
- 3.7 Let Us Sum Up
- 3.8 Term-end Exercises
- 3.9 References
- 3.10 Key Words
- 3.11 Answers or Hints to Check Your Progress Exercises

3.0 OBJECTIVES

After reading this unit, you will be able to:

- understand the impact of demography on economic growth and comprehend the concept of demographic dividend in detail;
- assess the role of health, education, and employment in harnessing the demographic window of opportunity;
- recognise the constraints that a nation faces in harnessing the benefits of the demographic dividend;
- know the demographic profile of India; and
- analyses how the population growth affects economic development.

3.1 INTRODUCTION

The relationship between population growth and economic development has been debated for several decades. The early Malthusian view was the pessimistic argument stating that population growth impedes economic growth resulting in reduction in per-capita income and resources which results in deterioration of quality of life. The optimistic argument emphasises that population growth promotes economic development as experienced by several East Asian countries. A young educated population increases productivity and contributes to invention and innovation of technologies.

An increase in the proportion of working age population (15-59) and fall in the proportion of dependent population of age groups (0-15) and 60+ gives birth to a window of opportunity termed as demographic dividend. The working age population helps in increasing savings, investment and improves the economic prosperity and standard of living of people. However, the benefits of demographic dividend are not automatic or guaranteed. It depends upon several factors like education, health, employment, infrastructure, right economic policies, and good governance. The potential demographic dividend if not actualised may turn into demographic disaster where young population becomes a liability or permanent burden on the economy.

3.2 THE THEORY OF DEMOGRAPHIC TRANSITION

The process by which fertility rates eventually decline to low and stable levels has been called demographic transition. Fertility rate is defined as the average number of children per women in the reproductive age group. Demographic transition postulates three stage sequences of birth and death rates which are associated with economic development. It explains phasing out process of population growth rates starting from virtually stagnant growth stage characterised by high birth and death rates through a rapid-growth stage with high birth and low death rates to stable, low growth stage in which both birth and death rates are low. This demographic transition has been witnessed in contemporary developed nations as they developed and one can identify the developing nations as they move through the different stages of this transition. The issue is what explains this transition or what are the factors that contribute to it.

First Stage of Demographic Transition

In this stage the death rates are high due to absence of effective medical aid, primitive sanitation, and poor diets. The birth rates are also high on account of absence of knowledge about family planning techniques, early age of marriage, illiteracy and deep-rooted social beliefs, and customs about the size of the family including, as an insurance against high child mortality rates. The actual rate of growth of population is low since high birth rate is balanced by high death rate.

Second Stage of Demographic Transition

With economic development resulting in high incomes, improvement in public health facilities there is a marked decline in mortality that raises life expectancy from under 40 years to 60 years. However, the decline in death rate is not immediately accompanied by decline in fertility. In this stage of demographic

transition, with declining death rate, birth rate does not fall correspondingly. This leads to transition from stable or slow growing population to rapidly increasing population.

Third Stage of Demographic Transition

The forces and influences of modernisation (including increase in female work participation rate and move towards nuclear families) and economic development causes fertility rate to decline so that falling birth rate eventually converges with the death rate leaving little or no population growth. The characteristics of the third stage are low birth rate, low death rate, small family size and low growth rate of population.

3.3 DEMOGRAPHIC PROFILE OF INDIA

3.3.1 Size and Growth Rate of Population in India

The study of India's demography is essential to understand the dynamics of economic development and economic welfare. Theory of demographic transition helps to understand and analyse the change in the magnitude of population.

India has around 2.4 per cent of the total land area of the world and approximately 17 per cent of the world population residing in this country. In 2011 the population of India was 1210 million, making it the second largest in the world. Area-wise, India is at the seventh position in the world.

India's Demographic Phases:

A study of growth rate of India's population can be categorised into four phases

Phase I: 1891-1921(Stagnant Population)

During the first phase of 30 years India's population grew from 236 million in 1891 to 251 million in 1921. High birth rate was neutralised by high death rate that ensured that population growth was stable during this period. Population increased by 15 million only and the compound annual growth rate was just 0.19 per cent per year. India's first stage of demographic transition was marked by stagnant population.

Phase II: 1921-1951(Steady Growth)

During the second phase of demographic transition population grew from 251 million in 1921 to 361 million in 1951. The population grew by 110 million with compound growth rate of 1.22 per cent per year. The death rate during this period decreased from 47 per thousand to 27 per thousand. The fall in death rate was mainly due to control of widespread epidemics like plague, smallpox, cholera etc. that took heavy toll of human lives. From 1921 onwards India entered the second phase of demographic transition marked by steady but low growth rate of population.

Phase III: 1951-1981(Rapid Growth)

During the third phase of 30 years India's population grew from 361 million in 1951 to 683 million in 1981. There was a record growth of population by 322 million with compound annual growth rate of 1.22 per cent per annum. With the beginning of planning, the extension of hospitals and medical facilities was under-

taken on a large scale. This resulted in sharp decline in death rate to 15 per thousand, but the birth rate did not fall at the same pace. It fell from 40 to 37 per thousand and this led to population explosion during this period. A steep rise in population growth rate (over 2 per cent) was due to a steep fall in the mortality rate accompanied by high fertility rate.

Table 3.1: Growth of Population in India (1891-2008)

Census Year	Populations in millions	Increase or Decrease (in millions)	Percentage Increase or Decrease
1891	236		
1901	236	0.0	0.0
1911	252	+16	+5.7
1921	251	-1	-0.3
(1891-1921)		+15	+0.19
1931	279	+28	+11.0
1941	319	+40	+14.2
1951	361	+42	+13.3
(1921-1951)		+110	+1.22
1961	439	+78	+21.6
1971	548	+109	+24.8
1981	683	+135	+24.7
(1951-1981)		+322	+2.14
1991	846	+161	+23.9
2001	1029	+183	+21.5
2011	1210	+181	+17.64
(1981-2011)			

Source: Census of India 2001, Series 1, Paper 1 of 2001, Provisional Population Totals, Economic Survey, 2009-10, Census 2011 (Provisional Population Totals)

Phase IV: 1981-2011 (High growth with definite signs of slowing down)

India entered the fourth phase of demographic transition marked by high population growth with definite sign of slowing down. Total population increased from 683 million in 1981 to 1210 million in 2011 indicating an increase of 77.2 per cent during the 30 year period. The compound annual growth rate of population reduced from 2.14 per cent (1991-2001) to 1.64 per cent (2001-2011). Most Indian states such as Kerala, Tamil Nadu, Andhra Pradesh, West Bengal, Punjab, Himachal Pradesh, Gujarat and Assam have recorded low birth rates during this phase. States like Madhya Pradesh, Uttar Pradesh, Bihar and Rajasthan will take some more years for complete implementation of family planning programme.

Table 3.2: Compound annual Growth Rate of Population

Year	Growth Rate
1891-1921	0.19
1921-1951	1.22
1951-1981	2.15
1981-2001	1.93
2001-2011	1.64

Source: Census of India 2001

Although the results from the Census 2021 have been delayed due to COVID 19, there are indications that India is moving faster than earlier projected towards attaining replacement level fertility rates at the state level and the consequent stabilisation of population. Recent surveys show that in majority of Indian states fertility rate has fallen well below the replacement level of 2.1 and the country is fast approaching the replacement level itself. The total fertility rate of India stands at 2.2 as of 2017.

3.3.2 Birth Rates and Death Rates

The rate of growth of population depends on birth rate and death rate. The difference between birth rate and death rate gives us acceleration or deceleration in the growth of population.

- 1) The growth of population was very low before 1921 due to prevalence of high birth rate and high death rate. The birth rate varied between 46 and 49 per thousand and death rate fluctuated between 42 and 48 per thousand.

Table 3.3: Average Annual Birth and Death Rates in India

Decade	Births per 1000	Deaths per 1000
1891-1900	45.8	44.4
1901-1910	48.1	42.6
1911-20	49.2	48.6
1921-30	46.4	36.3
1931-40	45.2	31.2
1941-50	39.9	27.4
1951-60	40.0	18.0
1961-70	41.2	19.2
1971-80	37.2	15.0
1985-86	32.6	11.1
2010-11	21.8	7.1

Source: Census of India, 1971, Age and Life Tables and Census of India 1981, Series I, Paper 1 of 1984 and Office of Register General and Ministry of Health and Family Welfare, Annual Report (2000-01) and Economic Survey (2009-10)

- 2) After 1921 the gap between birth rate and death rate widened. There was fall in the death rate from 48.6 per thousand in 1911-20 to 7.1 per thousand in 2001-2010.

- 3) The birth rate also showed a decline after 1971 due to family planning programs. States like Kerala, Tamil Nadu, Maharashtra, Andhra Pradesh, West Bengal, Karnataka and Punjab achieved a birth rate below 20 per thousand. But states like Haryana, Gujarat, Uttar Pradesh, Rajasthan, Bihar, Madhya Pradesh had high birth rates ranging from 27-28 per thousand. Hence India as a whole did not enter third stage of demographic transition.
- 4) The high growth rate of population in India is an outcome of consistently high birth rate but relatively fast declining death rate.

3.3.3 Gender Composition of the Population

Gender ratio is a perfect way to find the number of women in any country. Gender ratio shows ratio of females to that of males in India. According to Census 2011, there were 940 females per 1000 males compared to 933 females per 1000 males in 2001. The imbalance in gender ratio in India has been persistent, showing a continuous declining trend since 1901, with the exception in 1981 and 2011, when it recorded a marginal improvement. It has been found that the probability of women to live longer than men is high. This is supported by evidence in the advanced western countries where the proportion of women in total population is higher than that of males. In India 108 females are born per 100 males but the loss of more females or problem of missing women as highlighted by Prof. Amartya Sen is due to reasons including the following:

- 1) Ignoring the nutrition needs of a girl child leading to higher mortality
- 2) High maternal mortality due to insufficient care and attention
- 3) Sex selection abortions due to social preference for a boy across communities
- 4) Female infanticide
- 5) Deterioration in the gender ratio at birth

Table 3.4: Gender 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

As a consequence, in 2011 females per thousand males were 940, while in Russia it was (1,140), in Japan (1041) and in U.S.A (1029). The imbalance in gender

ratio can be seen at state level. The gender ratio varied from 818 in Chandigarh to 1084 in Kerala in 2011. In case of Child Sex Ratio (CSR) Haryana was at the bottom with CSR of 834 while Meghalaya and Mizoram were at the top with CSR of 970. Pondicherry and Kerala have maximum number of women in India while Haryana and Daman & Diu have lowest gender ratio. Few states like Maharashtra, Karnataka and Andhra Pradesh showed improvement in gender ratio in 2011.

There has been sharp deterioration in the gender ratio in Bihar from 946 in 1981 to 916 in 2011. In Punjab, U.P and Haryana gender ratio varies from 877 to 908 per 1000 males.

**Table 3.5: Gender Ratio (female per 1000 males) in Major States of India
Arranged in Descending Order on the Basis of 1991, 2001 and 2011 Census**

S. No.	State	1991	2001	2011
1.	Kerala	1040	1058	1084
2.	Tamil Nadu	972	986	995
3.	Andhra Pradesh	972	978	992
4.	Odisha	972	972	978
5.	Himachal Pradesh	996	970	974
6.	Karnataka	960	964	968
7.	West Bengal	917	934	947
8.	Assam	925	932	935
9.	Madhya Pradesh	932	920	930
10.	Rajasthan	913	922	926
11.	Maharashtra	936	922	925
12.	Gujarat	936	921	918
13.	Bihar	912	921	916
14.	Uttar Pradesh	882	898	908
15.	Punjab	888	874	893
16.	Haryana	874	861	877
17.	India	927	933	940

Source: Census of India 2001, Series 1, Paper 1 of 2001, Provisional Population Totals, Census of India 2011, Provisional population, Totals.

3.3.4 Literacy and Gender Composition

Literacy is an important indicator of development. It helps in advancing modernisation, urbanisation, industrialisation, communication, and commerce. It plays a vital role in economic mobility, creating equality and contributing to social development including by addressing the factors behind imbalances in the sex ratio. The spread of education and improvement in educational status has led to the fall in the sex ratio. As per the reports of NFHS-5 (National Family Health Survey, 2019-20) Andhra Pradesh (68.6%), Bihar (57.8%) and Telangana (66.6%)

accounted for lowest literacy rates among women, while Kerala (98.3%), Lakshadweep (96.5%) and Mizoram (94.4%) recorded the highest literacy rate among women in surveyed states and UTs. Literacy according to the survey refers to women or men who completed standard 9 or higher and women or men who can read a whole sentence or part of sentence.

3.3.4.1 Gender Selective Abortions in India

The proportion of female in India's total population has been low and declining since several decades. The declining gender ratio or sex imbalances have been the cause of grave concern since it reflects the mindsets of people. India is a country where son is given strong preference compared to daughters in many families. There are various social, cultural, and economic factors like economic support, property inheritance, old age security, prestige, beliefs about religious rituals and salvation that leads to preference for sons over daughters. The son is seen as an insurance against old age in the absence of strong social security system. The discriminatory allocation of good diet, medical care and other family resources in favour of sons over daughters is due to the consideration of potential benefits that puts sons above daughters. Daughters in many families in India are still considered as financial liability by their parents. A study conducted by CARE (Co-operative for American Relief Everywhere) for pre-school children in Punjab showed that 29 per cent of male children suffered from severe malnutrition but the proportion was 71 per cent in case of females. Consequently, infant mortality rates are high among girl child even in states like Punjab which has the highest per-capita income.

The sudden fall in the number of girls aged 0-6 years age group shows linkages between invention of new medical technologies such as pre-natal diagnostic techniques and increased incidence of sex selective abortions or female foeticide. The advancement in medical technologies has led to misuse of sex determination technologies such as ultrasound scanning and amniocentesis. These technologies were introduced to determine genetic abnormalities among fetus and were used to detect sex of the child.

The recent legislation about Medical Termination of Pregnancy embodied in 1971 Act states that abortion can be performed legally if pregnancy causes danger to the life of the women or if it affects her physical or mental health or if the child is going to be born with serious abnormalities. The proliferation of sex determination tests (amniocentesis) has made it possible to kill female foetus before birth. The unregulated sex determination and female infanticide prior to birth has exercised a negative influence on sex ratio which is moving against the females.

3.3.4.2 Government Response

Sex determination tests have become a part of strategy to ensure desired family sex composition. Sex selection in fact is preferable alternative to female infanticide or discriminatory ill-treatment of girls after birth. The response of Indian government has been slow and ineffective.

In 1998 The Prenatal Diagnostic Techniques Regulations and Prevention of Misuse Bill was introduced. The law covers all the clinics, hospitals and laboratories offering prenatal testing.

The salient features of the bill are as follows-

- 1) Prenatal Diagnostics can only be conducted to detect genetic abnormalities (including sex linked genetic diseases).
- 2) The test may only be undertaken by high-risk pregnant women who meet at least one of the following criteria
 - a) Age over 35 years
 - b) History of 2 or more abortions
 - c) History of exposure to hazardous substances
 - d) Family history of genetic disorder
 - e) Any other conditions as specified by the authorities
- 3) Use of prenatal diagnostic technologies for indicating the sex of the foetus is banned. Offences are punishable by both imprisonment and a fine.

The government sponsored girl child schemes like Beti Bachao Beti Padhao, Sukhanya Samridhi Yojana, Balika Samridhi Yojana, Dhanalakshmi Scheme, C.B.S.E Udaan Scheme have been introduced to bring change in social attitude towards girl children. The government also needs to address the issues like low levels of education, poor health, unhygienic living conditions and poverty to uplift the status of the women in society. With economic development and high female literacy and female labour force participation rate the gender bias against women are bound to decline and the sex ratio will improve.

3.3.5 Age Composition

The age structure or composition of a population is the distribution by age of the population. Age is the central concept in demography for two reasons:

- 1) Demographic behaviour and benefits of demographic dividend depends on the age structure of the population.
- 2) Populations of different age structure relate to each other.

As populations shift from high mortality and high fertility to low mortality and low fertility there will be a bulge in the younger age group. This youth bulge can be a burden or dividend depending upon policies, institutions, and economic circumstances. If the economy hits rock bottom and there is high unemployment youth may turn to criminal activity or generate social unrest. Otherwise, demographic dividend helps in accelerating economic growth.

In the age group 0-14 the male population is about 1 per cent more than the female population. A higher proportion of male and female in the working age group 15-59 live in the urban areas as compared to rural areas. The Table 3.6 shows that a declining child population (0-14) and old age group (60+) reflects a declining dependency ratio in the rural and urban areas. An increasing working age population reflects that India is enjoying the benefits of favourable demographics and potential demographic dividend in near future. This youth bulge can be demographic dividend or demographic disaster depending upon governance, infrastructure, education, health, employment opportunities etc.

Table 3.6: Percentage distribution of population by Broad Age Groups to Total population by Gender and Residence, India, 2011

Residence	Gender	Broad Age Groups (years)		
		0-14	15-59	60+
	Total	29.5	62.5	8.0
Total	Male	30.0	62.2	7.7
	Female	28.8	62.8	8.4
	Total	30.9	61.0	8.1
Rural	Male	31.5	60.7	7.8
	Female	30.3	61.3	8.4
	Total	25.5	66.6	7.9
Urban	Male	26.1	66.2	7.6
	Female	24.9	66.9	8.2

Note: Total percentage may not add to 100 on account of rounding in broad age groups

Source: Census of India (2011)

3.3.6 Life Expectancy

Life expectancy is the number of years a newborn child would live if subjected to the mortality risks prevailing for the population at the time of child's birth. In the period 1901-10, life expectancy was very low (23 years). The rise became substantial from 1951. It was 41.3 years in 1961, 45.6 years in 1971 and 50.5 years in 1981 and 63.4 years in 2004. At present it is 69 years with women expected to live for 70.4 years and men for 67.8 years.

3.3.7 Rural-Urban Migration

The process of economic development is associated with growth of urbanisation. The urban population has been growing rapidly since 1961. As per cent of total population, the urban population was about 11 per cent in 1901, about 18 per cent in 1961, about 26 per cent in 1991, 29 per cent in 2004 and 31 per cent in 2011. With slowing of the rate of growth of population and acceleration of industrialisation, the pace of rural-urban migration is expected to increase. Factors like higher incomes, job security, education, health, entertainment attract people to urban areas. The push and pull factors have played an important role in the degree of urbanisation.

Check Your Progress 1

- 1) Elaborate the theory of Demographic Transition. Highlight the main trends of population in India.

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- 2) Explain the problem of missing women in India as coined by Prof. Amartya Sen.

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- 3) Explain the pattern of population growth in India since 1891.

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3.4 POPULATION GROWTH AND DEVELOPMENT

Economic development is possible when a nation optimally utilises labour force and capital so that productive potential is realised. Labour force expansion has positive and negative effects on the process of economic development. According to K. Sundaram the implications of growing demographic pressures in India for the process of development in general and the progress towards poverty eradication become clearer once we focus on the labour force consequences of the population growth. The magnitude of the addition to the workforce brings forth challenges pertaining to their productive absorption and capital constraints in the labour market. Skilling and training millions of youth entering the labour force is a herculean task for any government.

- 1) Population and Agriculture

The rising labour force puts pressure on land thereby reducing per-capita cultivated area. The fall in the cultivated land-man ratio can be compensated by making efforts to raise productivity. Irrigation potential if fully utilised can raise agricultural productivity and fulfil the requirements of rising population. With green revolution India has become self-sufficient in the production of food grains, but the distribution of food grains has still remained a critical issue. The incidence of nutritional deprivation and undernourishment has been highest in India. Hence the challenges of food production, food consumption and food availability have to be seen in this light.

- 2) Population Growth and Per-capita Income

A high growth rate of population has been a retarding factor to raise per-capita income. There is cumulative effect of the growth of population and increase in economic activity. This effect depends on several factors like

food and nutritional adequacy, environmental degradation, infrastructural pressures etc. Economic growth can also increase on sustainable basis if we improve the education and health status of the population and create productive employment opportunities for the people joining labour force. The advantages and the limitations of population growth depend on the pace of human capital formation and its deployment in productive activities.

3) Population and Unemployment

Rising population is accompanied by rise in the labour force that has a bearing on the problem of unemployment. Millions of youth enter labour force every year and absorption of all of them in the manufacturing and services sector is a challenging task. Generating employment opportunities to absorb the increasing labour force and the backlog of the unemployed pool has to be a priority of the government. Job creation requires significant amount of resources invested in infrastructure, tourism, manufacturing, construction, MSMEs, railways, etc. Similarly, promotion of women's employment opportunities and female literacy can play a vital role in harnessing the demographic dividend of the nation.

4) Population Growth and Environment

The demographic growth has implications on environmental resources, including on water resources, fodder and forest products, fisheries, air quality, soil, and other non-renewable resources. The degradation of environment has a deteriorating impact on the quality of life and well-being of the people. The greater reliance on solar and nuclear energy, judicious use of water resources, afforestation and organic farming can play a significant role in preserving the environment.

5) Population Growth and Social Infrastructure

Population growth leads to excessive pressure on social and economic infrastructure including sewage systems, hospital facilities, education institutions, highways, railways network, power grids, garbage-processing plants, and other public amenities. Due to urban agglomeration, there has been qualitative deterioration of social and physical or economic infrastructure. The pace of rural-urban migration has further increased slums in metropolitan cities burdening the already inadequate infrastructure resources. India needs to increase its expenditure on health and education to enhance labour productivity and employability. Creating quality education institutions at primary, secondary and tertiary level and expenditures on skill development and training are essential to take advantage of new and innovative technologies in future. Similarly, India suffers from problem of low doctor-population ratio and high out of pocket expenditure on health. Hence, by increasing public expenditure on health we can improve medical facilities and achieve goals of eradicating malnutrition and disease burden. The task of providing housing to every Indian requires allocation of resources and political will to execute the required social interventions.

3.4.1 Population Policy

The alarming increase in population calls for an effective population policy that can slow down the rate of population growth.

Family Planning and Five-year Plans

India became the first country in the world to adopt an official national population policy in support of family planning (Cadwell 1988, Visaria and Jain 1976). In the third five-year plan (1961-66), the objective of stabilising the growth of population within a reasonable period was put at the centre of India's planned development. The late 1960's saw a shift in the emphasis of family planning delivery from clinic-based approach to wider community extension strategy. In 1968 a demographic goal was set to reduce birth rate from 41 to 23 per 1000 within 10 years but the performance was far from desired.

By early 1970's India experienced very high rate of population growth. The 1971 Census showed a decadal increment of 109 million. Consequently, there was renewed emphasis on targets, compensation payments and male sterilisation. In the fifth five-year plan Prime Minister Indira Gandhi tried to implement population control using coercive and dictatorial powers. The Emergency in 1975-77 saw forced sterilisation in mass camps that ended up being a failure and undermining family planning in the country.

The rhetoric of the population control and forced sterilisation largely disappeared in the Sixth Plan (1980-85). However, family planning became more widespread in practice. Since Seventh Plan there were efforts to tailor family planning programme to the conditions prevailing in different states and adoption of multi-sectoral approach that recognised linkages between birth control and education programmes.

To achieve family planning goals government adopted following measures:

- 1) Motivation programme to spread knowledge of family planning through newspapers, radio, T.V., film, etc.
- 2) Involvement of private sector in contraceptive delivery to all rural and urban population.
- 3) Financial incentives and political restrictions to encourage family planning.
- 4) Extensive sterilisation of both males and females.

With the fall in fertility rate, there was preference for boys over girls that resulted in problem of missing women in India. In 2010, the ratio of males to females in India had reached 108 to 100, one of the highest in the world. Kerala emphasised on poverty reduction and human development and achieved a sharp decline in fertility rate in India. In Kerala, more than 85 per cent of women are literate, which means they have more power in household and opportunities in the work force. The success of Kerala suggested that by bringing in women empowerment, literacy, and human development we can bring in reduced fertility rates and preferences for small family could be improved.

3.4.2 National Population Policy, 2000

The National Population Policy, 2000 was announced on 15th February 2000 with an objective to control the rapidly growing population and stabilise it at reasonable level.

Immediate Objective

The immediate objective is to provide for facilities to meet the unmet needs for contraception, health care infrastructure and health personnel and an integrated service delivery for basic reproductive and child health care.

Medium-term Objective

The medium objective is to bring Total fertility rate (TFR) to replacement level by 2010.

Long-term Objective

The long-term objective is to stabilise population by 2045, at a level consistent with requirements of sustainable economic growth, social development, and environmental protection.

National Population Policy listed the following measures to achieve a stable population by 2046.

- 1) Reduction of infant mortality rate below 30 per 1000 live births.
- 2) Reduction of maternal mortality rate to below 100 per 1,00,000 live births.
- 3) Health insurance cover of Rs. 5000 for couples below poverty line, with two living children, who undergo sterilisation.
- 4) To achieve 80 per cent deliveries in regular dispensaries, hospitals, and medical institutions with trained staff.
- 5) A special reward for women who marry after 21 and opt for terminal method of contraception after the second child.
- 6) Self-help groups at village panchayat levels comprising mostly of housewives to engage with health care workers and gram panchayats.
- 7) Strict enforcement of Child Marriage Restraint Act and Pre-Natal Diagnostic Techniques Act.
- 8) Access to information containing AIDS, prevention and control of communicable diseases.
- 9) Incentive to adopt two child small family norms. The message of small family is to be spread through dissemination of information, education, and communication.
- 10) Facilities for safe abortions to be increased. Contraceptive technology and research in the reproductive and child health are to be encouraged.
- 11) Elementary education to be made free and compulsory.
- 12) A National Commission on Population headed by Prime Minister to monitor implementation of new policy.
- 13) A National Population Stabilisation Fund renamed as Janasankhya Sthirata Kosh (JSK) to support projects schemes, initiatives and innovative ideas designed to help population stabilisation and provide window for canalising resources through voluntary contributions.

Achievements

It has been estimated that 320 million births have been averted during the period 1956-2011 through family welfare programme. The incidence of acceptance of family planning methods peaked at 62.9 million at the beginning of 2011. The couple protection rate has gone up to 48.0 per cent (against the world average of 61 per cent).

It brings out that the demographic transition has already set in India and is moving swiftly to its final stage. The resulting differential impact on fertility level and on population growth rate is clearly reflected in 2011 census. India will reach the threshold of the Net Reproduction Rate of 1 within a decade from now. The desired family size is already close to replacement level in 10 states. In other states it is much lower than the actual number of children born.

The population policy seems to have great potential for attaining the goal of a stable population in the stipulated time frame. There are opportunities that are untapped. If we seize these opportunities we can reduce birth rate, infant mortality rate and promote adoption of small family norms in the country.

Limitations

- 1) Population control programme is led by government bureaucracy, which can be effective in addressing technical matters, but here we need transformation in the attitudes of people in the favour of small family norm.
- 2) The main targets laid down in the Population policy are over-ambitious. Goals like making school education up to age of 14 free and compulsory, reducing school drop-out rates to below 20 per cent for both girls and boys, achieving TFR of 2.1 by 2010, reducing infant mortality rate to 42 per 1000 live births, reducing maternal mortality rate to below 100 (from 437) per 100000 live births, achieving universal immunisation of children against all vaccine preventable diseases are too ambitious to be achieved in the stipulated timeframe.
- 3) The incentives mostly in cash resulted in widespread corruption and cooking of data. These incentives did not reach people who were living in areas where the fertility is high (urban slums, tribal communities). The social transformation can only be brought with effective implementation of policies at the grass root level and requires an active participation of people.

Check Your Progress 2

- 1) Critically examine the link between population growth and economic development in India.

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- 2) How does population growth hinder economic development in India? Discuss the measures that have been undertaken in India to check population growth.

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- 3) Examine the population policy and government measures to control population growth in India.

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3.5 DEMOGRAPHIC CHANGE AND ECONOMIC GROWTH

India has witnessed rapid population growth from 448 million in 1960 to 1.04 billion in 2000 to 1.21 billion in 2010. India's population is currently growing at a rate of 1.4% per year. This rapid growth of population has been accompanied by an unparallel decline in mortality rates and an increase in income per-capita.

3.5.1 Age Structure and Economic Growth

There have been two significant breakthroughs regarding the impact of demography on economic growth. The first is the effect of changing age structure of the population and the second relates to population health.

The age structure of the population can have a large effect on economic growth. This can be due to shifts as a result of baby booms and busts and their echo effects. The baby boom is not caused by increase in births but by the sharp reduction in infant and child mortality due to increased access to vaccines antibiotics, safe water and sanitation. This type of baby-boom starts with higher survival and fertility declines as couples recognise that fewer births are needed to reach their targets for surviving children and those targets are moderated. Presence of more children requires more resources for food, clothing, housing, medical care, and schooling. This gives boost to consumption led growth. The babies born will reach working ages with period of 15-25 years where they become productive and contribute to the process of economic growth and development.

3.5.2 Concept of Demographic Dividend

Demographic Dividend is an accelerated economic growth that a nation experiences once in a lifetime when working age population grows at a faster pace than dependent population, provided that government policies and

institutions are conducive to create employment opportunities for an expanding labour force. Demographic dividend is a window of opportunity when the share of working age population in total population rises, which is known to have many benefits flow to its people. Before the dividend begins the nation is burdened with high dependency ratio, with a large and growing share of population below working age of 15. Once the dividend period has passed share of elderly population rises and they have to be provided with pension and health benefits. Demographic dividend lying between two periods is characterised by low dependency ratio and high share of working age population.

The Population Reference Bureau defines Demographic Dividend as follows

“The demographic dividend is the accelerated economic growth that may result from decline in a country’s mortality and fertility and the subsequent change in the age structure of the population. With fewer people to support a country has window of opportunity for rapid economic growth if the right social and economic policies are developed and investments made.”

Demographic Dividends are composite of five distinct forces-

- 1) The swelling of labour force as baby boomers reach working age.
- 2) The ability to divert social resources to investments in physical capital, job training and technological progress.
- 3) The rise in women’s work-force activity or labour force participation rate that naturally accompanies a decline in fertility.
- 4) The working age or age between 15 years to 59 years is prime age for savings which augments accumulation of physical and human capital and technological innovation.
- 5) With increase in life expectancy there is boost to savings that occur, as the incentive to save for longer periods of retirement increases.

The East Asian miracle happened because demographic change accounted for approximately 2 percentage points of growth rate of income per-capita, representing one-third of the supposed miracle. East Asian’s rapid economic growth was spurred by its demographic transition with decline in the fertility. Fertility decline lowers youth dependency immediately but does not appreciably affect the working age population for 20-25 years. As the share of working age population increases and dependent population declines there is an opportunity for economic growth.

However, demography dividend is not destined. An increase in working age population or productive population does not automatically lead to acceleration of economic growth. In order to capitalise the demographic dividend we need appropriate policies and institutions that would enable this working age population to find productive employment opportunities, thereby boost economic growth. In the absence of right policies and good governance, a nation may find itself with large number of unemployed or underemployed working age individuals. This unemployed pool in some instances would promote state fragility and failure with adverse political, social, economic, and ecological spill overs. Demographic dividend in that scenario gets turned to demographic disaster.

India began reaping the benefits of demographic dividend in the early 1980’s, more concretely in 1990s and is expected to reap till 2040. India has 20 more

years to realise the benefits of this demographic dividend. India needs visionary policies in the field of education, health and employment and speedy decision making to increase and sustain GDP, reduce poverty, and enhance human capabilities of our citizens. We need to ensure employment-intensive growth and social inclusion for the next quarter century to capitalise on the demographic window of opportunity.

3.5.3 Population Health

Health is a strong driver of economic growth. A productive and healthy workforce can be easily absorbed in the labour market thereby maximising the benefits of demographic dividend. Healthy populations have higher savings rates and better cognitive skills. They also attract higher foreign direct investment. According to Bloom (2011), healthier countries experience faster growth in average income and that a 10-year gain in life expectancy translates into as much as 1 additional percentage point of annual growth of income per-capita.

India's health and nutrition indicators are very poor relative to the developed and developing nations. This is because healthcare has been one of the most neglected sectors of development and has suffered from persistent neglect in the public policy. The lack of effective public involvement with health matters in India has played no small part in the resilience of India's health predicament. (Dreaze and Sen, 2013)

It is important for India to develop a comprehensive vision of health care for the country. This should be accompanied by better health delivery mechanism through institutional change and by devoting greater proportion of GDP to public expenditure on health. This has to go hand in hand with cultivation of greater efficiency and accountability in public services. Lessons can be learnt from states like Tamil Nadu, Kerala and Himachal Pradesh that have demonstrated the possibility of making rapid progress in health at an early stage of development. India can also learn from countries like Thailand, Brazil, Mexico, and China that have transformed health policies for the well-being of their citizens.

3.6 DEMOGRAPHIC DIVIDEND AND POLICY INTERVENTIONS

According to National Population Stabilisation Fund, India's population stands at 1.34 billion constituting 17.25 per cent of the world population and growing at 1.2 percent per annum. India will have around 1.53 billion people by 2030 and will boost of world's largest working age population which is expected to touch 962 million by 2030. The growth rate of labour force will continue to be higher than the dependent population. This shows that India's demographic window of opportunity or demographic dividend shall witness huge potential during this period.

According to the Economic Survey 2014-15 '300 million youth will enter the labour force by 2025 and 25 per cent of the world's workers in the next three years will be Indians. Population projections indicate that in 2020, the average age of India's population will be lowest in the world around 29 years compared to 37 years in China and United States of America, 45 years in West Europe and 48 years in Japan.' Consequently, while the global economy is expected to witness

a shortage of young population of around 56 million by 2020, India will be only country with a youth surplus of 47 million. (Report on Education, Skill Development and Labour Force (2013-14) Volume III, Land Bureau, 2014). India will not only have a young work force to fulfil its domestic needs but also an opportunity to become the global hub for skilled work-force. (Niti Aayog, 2017).

According to Dyson “More than half of the demographic growth during 2001-2026 will occur in the northern states like Bihar, Madhya Pradesh, Rajasthan and U.P. The populations of these four states will increase around 45-55 per cent over this period, but those of other states will grow by only about 20-30 per cent.” Unleashing the demographic dividend is one of the biggest challenges that India faces today. Some states like Kerala, Goa, Tamil Nadu, Andhra Pradesh, Punjab, Himachal Pradesh and West Bengal have surpassed average age of 29 years and hence shall be experiencing population ageing soon. States like Bihar, Madhya Pradesh, Rajasthan, and Uttar Pradesh have huge potential demographic dividend that can be utilised if timely action is taken. Equipping the young population with health, education, employment opportunities and adequate skills is of paramount importance.

The demographic window of opportunity has several challenges.

1) Education and Skills

Human resource development plays an important role in unlocking demographic dividend. Investment in education helps in increasing productive labour force and empowers them with increased knowledge and skill. The public expenditure on education has been very low (around 3.6 per cent) as against the goal of 6 per cent. The current contribution is significantly less if we aim universalisation of elementary education, universal provision of resources, universal enrolment and retention and growth in secondary and higher education. Education can act as a powerful instrument of social change and economic development. The quality of education needs to be addressed immediately which is possible if we increase investment in education and allocate resources judiciously.

Education empowers youth with skills and vision that help them contribute productively in today's knowledge economy. India dreams of becoming skill capital in today's world. For that we need to work on the quality of India's primary, secondary and tertiary education. Quality education augments knowledge, skills and productivity of students who later on get employed productively in different sectors of the economy. Hence education is the back-bone of young India's ability to harness the demographic dividend. Girl's education can further serve as an instrument for promoting fertility decline. Education raises the opportunity cost of having children and hence working and educated women prefer having less number of children. The cost of investment per child also goes up as parents invest more in health and education of each child raising productive capacity of future generation.

States need to adopt specific policy measures in the field of education-

- i) Improving access to education considering high dropout rates among senior students.
- ii) Removing gender disparity in the higher age group and in the rural areas.

- iii) Improving quality of education, including pupil-teacher ratios and provision of amenities in schools, especially in view of the declining learning levels. (Economic Survey 2014-15).

Southern states had harnessed the benefits of demographic dividend since they had higher education enrolment and better quality of education and learning levels. The northern states have huge demographic potential due to declining fertility rate. They have time to plan and pursue policies in several areas like education, health, gender issues and employment generation to garner the benefits of demographic opportunity.

2) Employment

The benefits of demographic bonus with diminishing dependency ratio cannot be reaped unless the country's working age population to total population improves in the face of expansion in employment opportunities. The benefits of demographic dividend are neither automatic nor guaranteed. India's economic growth has not been very employment friendly. The quality of available employment has fallen as the share of unorganised and casual work in total employment has risen. Roughly 93 per cent of the workforce is employed in the informal sector. India's high rate of informality is a drag on its economic development and source of economic inequality. Informal workers lack job security and are vulnerable to shocks such as loss of income and illness. They earn less, work in unsafe environment and are hence less productive compared to the formal workers.

India experienced three paradoxes of economic growth (Santosh Mehrotra, 2016)

- i) There has been social inclusion but very little inclusive growth. Inclusive growth can be defined as one where output growth is accompanied by employment growth. When the growth is inclusive, the benefits of growth reach the bottom sections of the society. It was found that, despite high growth rate of national income, most of the increase in the employment took place in unregistered enterprises in the form of informal employment.
- ii) In the period of sustained rapid economic growth from 2005-10 manufacturing employment declined in the absolute terms and services employment barely grew at all. Employment increase has been concentrated in construction sector which absorbed unskilled workers leaving agriculture, due to slow agricultural growth and chronic rural distress driven by shrinking farm size.
- iii) The female labour force participation rates have been falling, despite rising per-capita income. Women's labour force participation rate dropped from 42.7 per cent in 2004-05 to 31.2 per cent in 2011-12 and further to 27.4 per cent in 2015-16. The participation rates are lower in urban areas and among the educated women.

India is at a crucial point of its demographic dividend since window of opportunity will not last forever. The youth must get productive jobs in agricultural and non-agricultural sector for the demographic dividend to be realised.

The realisation of India's demographic dividend depends upon favourable demographics and capacity to create productive employment opportunities for youth. We have the advantage of being youngest nation on the planet but we still have not skilled our youth sufficiently and created ample job opportunities. Youth unemployment is one of the biggest challenges that our nation is facing today. To overcome this challenge we have to adopt certain policies:

A) Efficient Infrastructure

Economic infrastructure includes reliable roads, railways, telecommunications, water supply, sanitation, agricultural needs etc. Social infrastructure also comprises of education and health services that needs to be improved considerably. Investment in education and training will equip the youth with different skills and enhance their employability capabilities. Expansion of primary and secondary schools along with quality up gradation can help in achieving goal of universalisation of literacy and promote employment opportunities. Expansion of health services will promote demand for doctors, paramedical personnel and other diagnostic centre that will enlarge employment.

Provision of rural infrastructure can be tapped as an important source of employment generation. Connecting roads in rural areas to urban areas and four lane highways projects should be encouraged. Prime Minister's Gram Sadak Yojana is aimed at connecting all villages with pucca road and is a labour-intensive project.

B) Information Technology

IT industry has opened employment opportunities for educated youth and has a great future. Government has a major role in expanding computer education to rural areas and bottom sections of the society so that the capabilities of youth are directed towards IT jobs.

C) Small Scale Industries

In the manufacturing sector, small scale industries contribute 86 per cent of the employment while medium and large scale industries contribute 14 per cent of the employment. The major problem with SSI units is credit and upgradation of technology. The government's initiatives in providing higher amount of credit through MUDRA schemes would enlarge employment generation.

D) Reformed Outlook towards Informal Sector

Informal sector employs a large proportion of casual workers and self employed workers in total labour force. Around 93 per cent of the work-force is absorbed in the informal or unorganised sector. Hence it is important to make it easier and accessible for the job seekers to find self-employment in productive work during the transformation of economic structure into organised system. All the legal and regulatory hurdles in form of difficulties in availability of credit and marketing should be addressed by the government immediately. Encouraging the informal sector by providing the workers social security and cash transfers would help them to sustain lives and improve their standard of living.

3) **Environmental Issues**

The future population growth will have a major impact upon country's demand for water, food production, forest products, non-renewable resources, etc. The aim is to ensure that development is sustainable where the needs of present generation are met and the resources for future generation are secured. The rapid urbanisation and growth of industrial production had a major impact on environmental quality. Hence it is important to ensure that benefits of demographic dividend do not come at the cost of the environment.

4) **Family Planning Programme**

India's demographic window of opportunity involves acceleration of fertility decline. The expansion of family planning services and satisfying India's unmet need for contraception would help India bring down the total fertility rate below replacement level. Secondly vaccination against childhood disease would improve the probability of infant and child survival and lower fertility rate. Expansion of coverage of established and inexpensive vaccinations such as those against polio, tetanus, measles or inclusion of expensive vaccinations against rotavirus, pneumococcal disease and Haemophilus influenza type b (Hib) would address the leading causes of child death in India.

The provision of high-quality family planning and reproductive health care services will certainly benefit the bottom sections of the society and women. The faster pace of fertility decline will also ensure that growth of youth entering labour force decline which would enhance employment prospects and increase standard of living of people. Parents can invest in health and education of their children that would help in building skilled and productive workforce of our nation. Family planning is also instrumental in reducing pressure on environmental resources.

5) **Good Governance**

In a nation where institutions function efficiently there is transparency in legal system, low level of corruption, respect for property rights and sanctity of contracts exist, the development accelerates at a fast pace. A good governance model is the key ingredient to balanced growth, equity and stability in the nation. It helps in channelising the resources in an efficient manner so that youth gets productively absorbed in the agriculture, manufacturing and services sector. Policies that promote inclusive economic growth avoid severe trade imbalances and reduce inflation should be encouraged. The governance model comprises not only of prudent fiscal and monetary policies but also well developed and competitive financial markets. Labour markets with labour reforms can ensure that rights of workers are protected and secured.

The daunting challenge of training large workforce and skilling them while ensuring quality and speed with the help from private and public sector is before us. To realise the benefits of demographic dividend India needs reforms in primary, secondary and higher education along with health infrastructure that can equip the young population. We also need to correct the mismatch between demand and supply of skills and address these issues in time-bound manner. Massive effort is needed in improving investment in social infrastructure, empowerment of women and skill development.

In the long run population growth shall necessitate administrative reforms and decentralisation of governance. With millions of people getting added every year we need modern technology and strong public service delivery. With the help of information and digital technology India can remove multiple layers of governance. Schemes like direct benefit transfer, Jandhan yojana, e-payment under Mahatma Gandhi National Rural Employment Guarantee facilitated the beneficiaries and were useful social sector programmes. The success, however, depends upon greater degree of accessibility to information for the public, greater accountability, transparency, efficiency and proper execution of policies of the government.

3.6.1 Capturing India's Demographic Dividend

India has the advantage of harnessing the benefits of demographic dividend but this is neither obvious nor guaranteed. It requires favourable policies and institutions along with good governance to reap the benefits in time bound manner. The proper execution of right policies will reduce the gap between potential demographic dividend and the actual demographic dividend. India has huge potential and opportunities in health and education sector. The establishment of Public Health Foundation of India and National Rural Health Mission is significant step in promotion and protection of health including training and deployment of health professionals who focus on prevention, treatment and care. Similarly India's demographic dividend is nothing but education dividend based on empirical findings of research papers. The secondary and higher education will equip India's youth with skills that are needed in knowledge and technology based economy. The productive work-force and ample job opportunities are essential in unlocking the demographic dividend.

A new model of development is essential to capture demographic dividend. The model should emphasise on three pillars of development- Education, Health and Employment. India needs combination of various approaches and policies and proper execution to harness the window of opportunity. The model of development should reconcile growth rate with employment generation and 'decent work for all' as its ultimate objective. Instead of spending on subsidies the government should spend resources on development of rural infrastructure in form of minor irrigation and watershed development that raises productivity and employment opportunities.

Poor states like Bihar, Madhya Pradesh, Rajasthan and Uttar Pradesh have been experiencing falling fertility rates and rising share of working age population. But favourable demographics are not supported by quality education and productive employment opportunities for millions of youth entering labour force. Hence the untapped demographic potential will go waste if not acted upon at the right time. The role of government is to identify skill gaps in different states and execute the policies that are suitable to capture the demographic dividend.

Check Your Progress 3

- 1) Explain the concept of Demographic Dividend. Is India's demographic transition supportive of enabling her to harness this dividend?

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- 2) In order to realise the demographic dividend India needs reforms in education, health and employment generation. Explain.

- 3) Youth unemployment is one of the biggest challenges that our nation is facing today. Explain. What are the policies that government should adopt to overcome this challenge?

3.7 LET US SUM UP

Demographics matter for economic development. India has several advantages that can make potential demographic dividend become actual demographic dividend. But there are several constraints as well that make the gap between the potential and the actual demographic dividend difficult to bridge. Demographic dividend manifests itself when there is careful interaction of demographic change with policies in the areas of education, health, trade, governance, labour market conditions and capital markets. A productively employed working age population is the key to realisation of actual demographic dividend. A healthy workforce that is educated and productively absorbed in different sectors is always an asset for a nation. To attain the goal of absorption of millions of youth entering labour force every year we need to emphasise on improved health care facilities, human resource development skills, quality education, reduction of malnutrition and productive employment opportunities. The effect of labour force participation rates especially female labour force participation shall also determine India's ability to unlock the demographic dividend. This window of opportunity will close around 2040. Hence, given the limited time and resources and huge unemployed pool of manpower it is a challenging task for any government. It will not take much for the demographic dividend to turn into demographic disaster. How effectively India tackles this issue will determine its progress to becoming a developed nation in the near future.

3.8 TERM - END EXERCISES

- 1) “India has the advantage of harnessing the benefits of demographic dividend but this is neither obvious nor guaranteed.” Explain.
- 2) “The Demographic Dividend is one time opportunity and is expected to last for 25 years.” In the light of the statement explain the challenges on the way of reaping demographic dividend in India.
- 3) Write Short Notes on:
 - i) National Population Policy
 - ii) Age Structure of the population
 - iii) Population Health
- 4) ‘The problem of imbalance in the gender ratio in India is a disturbing revelation showing a continuous trend of decline in gender ratio since 1901.’ Explain the problem of missing women in India. What has been the response of Indian government in its attempts to improve the gender ratio?

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3.10 KEY WORDS

Crude Birth Rate	: The number of children born alive each year per 1000 population.
Death Rate	: The number of deaths each year per 1000 population.
Demography	: A study of the different aspects of population.
Demographic Dividend	: It is an accelerated economic growth that a nation experiences once in a lifetime when working age population grows at a faster pace than dependent population provided that government policies and institutions are conducive.
Demographic Transition	: The theory postulates three stage sequences of birth and death rate which is associated with economic development. It explains phasing out process of population growth rates from virtually stagnant growth stage characterised by high birth rates and death rates through a rapid-growth stage with high birth rates and low death rates to stable, low growth stage in which both birth rates and death rates are low.
Life Expectancy	: It is the number of years a new born child would live if subjected to the mortality risks prevailing for the population at the time of child's birth.
Population Growth Rate	: It is calculated as the difference between the birth rate and the death rate of a given population after adjusting for immigration and emigration.
Total Fertility Rate	: It is defined as the average number of children per women in the reproductive age group.
Youth dependency ratio	: The proportion of young people under age 15 to the working population aged 16-59 in a country.

3.11 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) See Section 3.3
- 2) See Sub-section 3.3.3

- 3) See Sub-section 3.3.1

Check Your Progress 2

- 1) See Section 3.4
- 2) See Section 3.4
- 3) See Sub-sections 3.4.1 and 3.4.2

Check Your Progress 3

- 1) See Sub-section 3.5.2
- 2) See Section 3.6
- 3) See Section 3.6



UNIT 4 NATURAL RESOURCES

Structure

- 4.0 Objectives
- 4.1 Introduction
 - 4.1.1 Knowledge of Natural Resources
- 4.2 Land and Soils
 - 4.2.1 Land Utilisation in India
 - 4.2.2 Issue of Land acquisition
 - 4.2.3 Need for a Comprehensive Land-Use Policy
 - 4.2.4 Soils
- 4.3 Cropping Pattern in India
 - 4.3.1 Crop Diversity
 - 4.3.2 Future Cropping Pattern in India
- 4.4 Water Resources
 - 4.4.1 Water Issues and Solutions
 - 4.4.2 National Law on Water
- 4.5 Biodiversity
 - 4.5.1 The Biological Diversity Act, 2002
- 4.6 Forest Resources
 - 4.6.1 Present Position
 - 4.6.2 National Forest Policy
- 4.7 Mineral Resources
 - 4.7.1 Features of Minerals
 - 4.7.2 New Mineral Policy, 2008
 - 4.7.3 Acquiring Mineral Sources Abroad
- 4.8 Allocation of Natural Resources
- 4.9 Environment and Economic Development
 - 4.9.1 Environmental Protection in India
 - 4.9.2 National Environment Policy, 2006 (NEP)
- 4.10 Let Us Sum Up
- 4.11 Term-end Exercises
- 4.12 Key Words
- 4.13 References
- 4.14 Answers or Hints to Check your Progress Exercises

4.0 OBJECTIVES

As you go through this Unit, you will begin to appreciate the:

- importance of natural resources in the growth process of an emerging economy like India;
- significance of policies to create an eco-system for optimum utilisation of natural resources;

- the present status of knowledge and availability of different natural resources in India;
- policy framework guiding the use of natural resources in India; and
- need for a comprehensive resources-use policy and suggested outline for such a policy.

4.1 INTRODUCTION

The availability of resources, their utilisation, and the capacity to mobilise additional resources, determine an economy's ability to overcome the constraints on its development. As the world's resources grow scarce, India faces an uphill task to secure the resources required for its progress and future. On the demand side, growth in population and urbanisation is increasing competition for all kinds of resources. Meanwhile, resource supplies are being constrained by geopolitical factors and inadequate complementary infrastructure to support resource exploration and generation at a required pace. As a result of this double-edged scarcity, concerns are growing over the availability and prices of resources. Yet, approached imaginatively, the quest for efficiency of resource use can become an important source of economic growth and job creation.

As in most other Emerging Economies (EEs), a large proportion of population of India is dependent upon agriculture and other primary activities which consist in direct exploitation of natural resources. The natural resources of India, as the following survey indicates, are varied and provide an adequate basis for building a diversified modern economy.

4.1.1 Knowledge of Natural Resources

Information on stock of natural resources is much better in case of India than in most EEs. Basic resource survey agencies have been in existence for a century or more and systematic surveys and investigations of resources have been undertaken by them.

Work on mapping and surveys of natural resources has expanded greatly under the Five-Year Plans. Some of the institutional arrangements put in place in this regard are:

- The older agencies, such as the Survey of India and the Geological Survey, have been expanded to enable them to undertake larger programmes of work, and new agencies have been created to undertake specialised tasks or surveys in fields which had not been covered earlier.
- The *Indian Bureau of Mines* was established in 1950 to undertake an economic assessment of natural resources and to formulate programmes of development.
- The *Oil and Natural Gas Commission*, established in the late 1950's to undertake exploration and development of petroleum resources, has been responsible for major discoveries of oil and natural gas in Assam, Gujarat and Bombay High.
- The *Central Water and Power Commission* (now bifurcated into two), established in 1945, has the responsibility for the coordination of hydrological investigations and assessment of natural resources.

- A *Soil Land Use Survey* has been established under the Indian Council of Agricultural Research; systematic soil surveys are being undertaken by it in cooperation with the State Departments of Agriculture.
- The newly introduced Forest Survey, the State of Forest Report which is published at regular intervals, etc. are regular source of information and data for policy-makers.
- The national laboratories and institutes of scientific research also undertake studies relating to evaluation for utilisation of natural resources.

The experience under the Plans has demonstrated the need for further expansion or acceleration of work in some directions: a greater use of modern survey and mapping techniques and an adequate economic assessment of natural resources. Investigations of soil fertility and assessment of groundwater reserves will need to be improved to provide data for an intensive use of chemical fertilizers and efficient water management, which are essential for the successful use of the new high-yielding varieties of seeds or other programmes of intensive cultivation. Modern survey techniques, such as aerial photography, aero-magnetic survey and remote-sensing, which have advanced very rapidly in recent years, but which are not used adequately by the Indian survey agencies will need to be used much more. The use of these techniques reduces the time requirements of surveys and preparation of maps; makes it possible to survey inaccessible areas and helps in the location or estimation of reserves of minerals and other natural resources.

4.2 LAND AND SOILS

India measures 3,214 kms. from north to south and 2,933 kms. from east to west with a total land area of 32,87,782 sq. kms and a coastline measuring 7516.5 kms., plus 1,197 islands. It is the seventh largest *landowner* in the world after Russia, Canada, China, the U.S.A., Brazil and Australia in that order. In brief, India is a vast country and has a considerable strategic significance on account of its location, size, and economic resources. Standing at the heart of the Indian Ocean, the country is in a much better position than any other in the area to control the Indian Ocean routes, most of which touch the Indian ports. The air routes between Europe, West Asia, Africa and East Asia, South-East Asia and Japan also pass through India. It gives India an advantage in terms of international mobility of persons and commodities.

4.2.1 Land Utilisation in India

The available land, on the basis of its use, can be classified into two parts, *viz.*, (1) Agricultural land, and (2) Non-agricultural land.

A) Agricultural Land

It includes net sown area, current fallows and land under miscellaneous tree crops and groves. Agricultural land in India totals a little over 50 per cent of the total geographical area in the country. This is the highest among the large or medium-sized countries of the world, indicating -

- the influence of favourable physical factors such as large area, the extent of plains and plateaus and a very small extent of arid areas (about 15.8 per cent of the country's geographical area is arid.)
- the extension of cultivation to a large proportion of the cultivable land.

But, because of the large population of the country, arable land per capita is not high; the figure of 0.14 hectares is lower than the average for the world (0.22) and is only one-fourth of the U.S. (0.59) figure. About 15 per cent of the sown area is multi-cropped (sown more than once in a year), while one-fourth of the gross cropped area is irrigated. Most of the multi-cropped area is irrigated and the security provided by irrigation facilities is a major factor in intensive application of labour and inputs to obtain high yields.

B) Non-agricultural Land

This includes land under forests, permanent pastures and other non-agricultural uses (towns, villages, roads, railways, etc.) and land classified as cultivable waste as well as barren and uncultivated land of mountain and desert areas.

Three important changes in the land utilisation witnessed during the last seven decades are:

- reclamation of waste and fallow lands
- a significant increase in the 'area sown more than once'.
- a significant fall in the land area under cultivation.

Perspective. It is clear that the total supply of land is a fixed factor. Therefore, what is required is that an effective rationing of land among the varied uses be made. As far as possible, no further encroachments on cultivable land should be allowed; priority should be given to the use of non-cultivable land for non-agriculture uses. This will not only save cultivable land for agriculture but will also promote a balanced regional development.

4.2.2 Issue of Land Acquisition

With increasing population, explosive urbanisation and growing industrialisation land resources are increasingly coming under stress. The issue merits serious attention and calls for satisfactory solution.

Compulsory land acquisition continues to foment profound distress and often violent resistance in many parts of the country. At the heart is a colonial law of 1894, which equipped government with powers to compulsorily acquire land at low costs. This was widely used to coercively obtain land from millions of usually impoverished, and often tribal, landholders, for large dams and public infrastructure projects. Their pauperisation led to democratic as well as militant struggles which rocked many parts of the country.

But public discontent grew further in the last three decades, when governments used this power to compulsorily acquire arable lands for private industry and real estate developers. A politically volatile – and ethically complex – debate has grown around whether governments should use the power vested in it for public good, to force landowners to sell their land to private industry.

There is a larger context to it, including concerns of food security. The policy needs to be based on a fair and just reading of the Doctrine of Eminent Domain. When the state recognises private property, the private owner is the absolute title holder. However, the state is the paramount title holder. Should it need a piece of land for a clear and apparent public purpose – building a highway, for instance – it can resort to land acquisition. Of course, this should be done with generous compensation and not just a textual interpretation of 'market rate'.

The Doctrine of Eminent Domain cannot be misused to acquire land for favoured industrialists or real estate companies. That would be a gross misuse. As we saw in West Bengal in the Left Front years, it would lead to crony capitalism and sweetheart deals. If private players want to build factories or condominiums, they must buy from the farmer directly.

However, it is not as if private companies should be free to buy agricultural land at will. As a pre-requisite to a new land acquisition law, India needs a proper, digital, and easily available (it must be online, for instance) map of its entire land area. This map must establish exactly which tracts of land are fertile and suitable for multi-crop cultivation. Such land is a national asset. It is critical to growing food for our 1.3 billion people and serve as a bulwark for food security. Therefore, it must be a 'no go' area for industry.

One view is that governments should not coerce landowners to part with their lands for profit-led corporate entities. Let private industry negotiate with landowners, and give them what they demand, if they voluntarily agree to sell their lands. The problem with this view is that it would amount to exposing powerless farmers to highly unequal negotiations with powerful corporate bodies, which might arm-twist or short-change them. In addition, a just land acquisition law needs to recompensate agricultural workers and tenants; provide land for land, jobs, and a house. None of these would be on offer by unregulated purchases by private industry.

A fair deal for all persons who will be displaced by industry can be ensured only if all or most affected persons first freely consent to the purchase. It should then be mandatory for industry to approach government, at least above a certain threshold and for public purpose; and for government to ensure that they get paid fairly that the landless and tenants are also compensated, and all are humanely rehabilitated.

The country is in the throes of potentially explosive competing land hunger of peasants and large industry. It is the duty of the state to ensure that displacement is minimised, and all displaced persons get a fair deal. It cannot do this by just standing by and hoping markets will protect the poor.

4.2.3 Need for a Comprehensive Land-use Policy

Although India is one of the fastest growing economies in the world, its growth potential has been compromised by resource misallocation, especially when it comes to land. India is one of the most land-scarce countries in the world, and demand for land has accelerated with the increase in the pace of industrialisation and urbanisation. But huge distortions in land markets have slowed the pace of growth. If these resources could be used more efficiently, India has the potential to achieve double-digit growth.

Conventional wisdom has focused on the labour market as being the most distorted in India. But there are even bigger distortions in the other factor markets.

Distortions in land markets are much bigger than those in labour markets. A comparison of factor misallocation indices at the district level has shown that an increase in the misallocation of all factors is associated with a huge decrease in output per worker in the manufacturing sector. Most of this decline originates from the misallocation of land and buildings. This appears to be at the root of

much of the misallocation of output, and it accounts for a large share of the differences in productivity.

If land is so highly misallocated, this has repercussions on capital allocation through financial markets.

The two are interconnected. Most bank loans require some form of collateral to guarantee the loan. Land is simply the best form of collateral due to its immobility (i.e. the debtor cannot run off with land). While borrowers can often pledge 80 per cent of the land value against loans, for most other forms of fixed investment, the loan-to-collateral value ratio is substantially lower.

Misallocation in labour market inputs has no adverse impact on the allocative efficiency of financial loans. When it comes to land misallocation, however, the consequent degree of financial misallocation has only worsened over time as large manufacturing firms have moved out from cities and into rural areas in search of more land.

Distorted land markets are a breeding ground for crony capitalism and political subsidies. While the policy focus on improving land administration and regulation is well-placed, there are bigger growth benefits that can be derived from shifting the policy focus from reducing land “regulatory tax” to increasing land revenue tax. This will enable more efficient firms to grow faster and increase the budgetary revenue to maximise finance for development, and additional revenues needed for investments in infrastructure, urbanisation, housing, and social programmes.

Broadening the tax base will not only enable India to improve efficiency in resource use and accelerate growth, but it will also make growth more inclusive.

4.2.4 Soils

Long ago, Aristotle described soil as the stomach of the plant. Even now over 90 per cent of the world’s food comes from the soil and less than 10 per cent comes from both inland water and the oceans.

The cropping pattern of the country is greatly influenced by the soils and the elements of the physical environment. The Indian Council of Agricultural Research divides the soils found in the country into eight major groups which are: (i) Alluvial soils including the coastal and deltaic alluvium; (ii) Black soils of varying types; (iii) Red soils, including red loams; (iv) Laterite and lateritic soils; (v) Forest soils; (vi) Arid and desert soils; (vii) Saline and alkaline soils; and (viii) Peaty and organic soils. Keeping in view their extent and agricultural importance, the first four, viz., alluvial, black, red and laterite soils in that order, form the most important soil groups in the country. Almost the entire cultivated area in the country is covered by these soils.

- Alluvial soils are suitable for the cultivation of almost all kinds of cereals, pulses, oilseeds, cotton, sugarcane, and vegetables.
- Black soils are known for their fertility. They give good yields despite continued cultivation and without proper manuring. Cotton, cereals, oilseeds and many kinds of vegetables and citrus fruits are some of the crops suited to black soils.

- Almost all kinds of crops can be grown on *red soil*, although it seems to be more suitable for the cultivation of rice, ragi, tobacco and vegetables.
- Laterite soils are suitable, among others, for rice and sugarcane.

Different types of soils distributed evenly throughout the country, abounding in fertility and higher yields, and highly responsive to improved inputs are found in the country. For example, we find the desert-like region of Rajasthan on the one hand and the rich cultivable land of Gujarat on the other. The variety of soils coupled with the fact that we have in the East the world's highest rainfall zone and in the West one of the driest regions along with every shade of climate throughout the country, makes possible the production of almost every kind of crop starting from those of the temperate zone to tropical production.

However, through constant use the quality of these soils has deteriorated. Moreover, large tracts of land have been eroded. It has been estimated that about 106 million hectares is suffering from varying degrees of soil degradation. Localised soil waterlogging and salinity are most severe in India (27 per cent of irrigated land), Pakistan (20 per cent) and China (15 per cent).

Although our Plans have given priority to soil conservation and land stock improvement, we can identify the following difficulties in containing the degradation of land resources and bringing them back to productive uses:

- i) issues related to management of community land;
- ii) lack of infrastructural development;
- iii) high investment and long gestation;
- iv) non-availability of institutional finance due to low credit worthiness of the beneficiaries having marginal and sub-marginal lands.

4.3 CROPPING PATTERN IN INDIA

By the term 'crop pattern' we mean the crop - wise distribution of the cultivated land area between different crops, the changes in the distribution over time, and the determinants of this distribution. The crop pattern in India presents some distinct features as follows:

4.3.1 Crop Diversity

Being a country almost of a continental size, India is endowed with a variety of soils, which make it possible to grow almost every kind of crop. The various crops being cultivated in India can be grouped into (a) food crops, (b) fibres, (c) oilseeds, (d) drugs and spices. Food crops are both of a cereal and non-cereal type. Among the cereals the more important are rice, wheat, besides maize, jowar, bajra, barley, etc. The more important non-cereal food crops are pulses like gram, moong, urad, etc. Among fibres, cotton and jute are the important crops. Among oilseeds, groundnut is the most important besides rapeseed and mustard. Similarly, a number of spices and medicinal crops are also cultivated throughout the country. Newer crops are emerging – products of tree crops, of the jungle and so on – which rakes in large sums of money while the going is good.

The Indian farmer has adopted a necessity-oriented approach. He has concentrated on food crops in preference to commercial crops: about three-fourths of the total

sown area in the country has been devoted to the production of food crops. Some of this has been induced by agricultural pricing policies of the government.

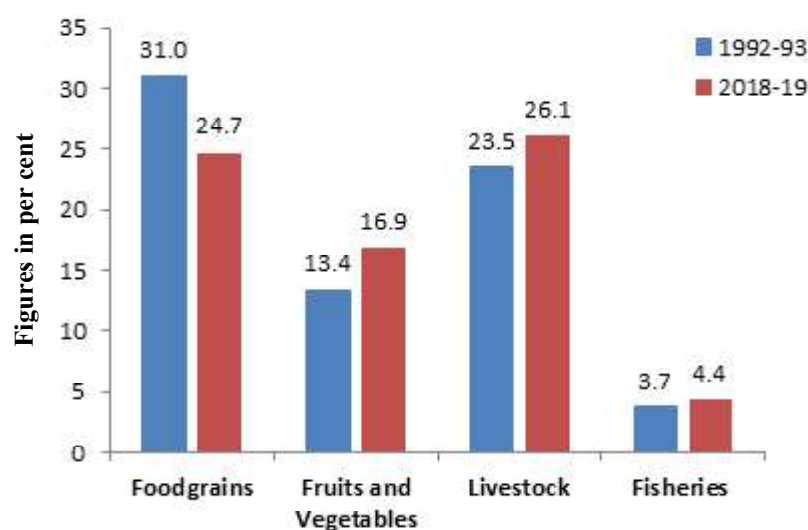


Fig. 4.1: Share in Value of Agricultural Output

Recent trends indicate that agriculture mix has been undergoing a silent and steady shift away from grains (refer Figure 4.1). With rising incomes, this change is driven by consumers' tastes and preferences. The composition of the production basket is also changing as is evident from the rising share of high value commodities (fruits, vegetables, fisheries, and livestock products). The value of output of these commodities has gone up from 40.6 per cent in Triennium Ending (TE) 1992-93 to 47.4 per cent in TE 2018-19, while the share of foodgrains has come down from 31 per cent to 24.7 per cent over the same period. This will be good for the farmers as it helps augment their incomes and achieve household food security.

Preponderance of Cereals among Food crops

Within the broad group of food crops, cereals like Wheat and Rice dominate. About 82 per cent of the land area under food crops has been put to the cultivation of cereals. The attraction of cereal crops, as already stated, is explained by their relatively better prices and less risk in production, and finally, the availability of better-quality seeds. As a result of this tendency per capita availability of cereals has improved from 334.2 gms. per day in 1951 to 407.4 gms. in 2018, and India has successfully transformed itself into a 'net exporter' of cereals from the position of a 'net importer', the per capita availability of pulses (otherwise a nutrition rich food) has declined from 60.7 gms. per day in 1951 and 74.9 gms in 1959 to only 35.5 gms in 2018. Since 2015 there has been a major break-through in production of pulses. Their total output has gone up by more than 50 per cent in this short-period.

Inferior cereals like jowar, bajra, maize, millets, barley, etc. account for a little less than one-fourth of the total area under cereal cultivation.

These crops are cultivated under dry conditions. Although the productivity is low, the crops are safer and are not sensitive to the vagaries of monsoon. Therefore, the farmers often have resorted to their cultivation as an insurance against misery arising out of crop failure.

4.3.2 Future Cropping Pattern in India

In India, the policy objectives regarding the future crop pattern should be based on the following considerations:

A) Rise in Income Levels

As the economy grows, the level of income will rise. It is only to be expected that this would involve an increasing demand for superior cereals. Simultaneously, as the size of India's middle class increases, there will be changes in consumption patterns leading to significantly increased demand for higher value crops. Therefore, in the long run it is imperative that crop pattern is adjusted to the changing requirements by shifting land under cultivation from inferior crops to superior crops.

B) Need for Diversification

There is a need for diversifying the crop pattern by encouraging the cultivation of different crops, due to the following reasons:

- It will ensure stability in over-all agricultural production, in as much as some crops may always compensate for fall in output of some other crops.
- The shift to high-valued crops will raise the total value of agricultural output.
- It will provide a base for increasing surplus of those products that are in increasing demand abroad. It will help to raise foreign exchange for the economy.
- The farmers with a reasonably-sized land, co-operatives with land of very small farmers pooled in, will gain from stable or higher incomes.

C) Need to adapt to Water Scarcity

It is high time that crop pattern changes should be introduced in regions increasingly faced with water shortages. Crops like rice and sugarcane have been described as "*parasites on water*". These crops may be substituted by light irrigated crops like millets, pulses, oilseeds, cotton, fruit, flowers and vegetables, especially in water scarce areas. There is no case in the present context of India's food economy to grow rice in Punjab and Haryana or Western Uttar Pradesh or sugarcane in Parts of Maharashtra.

D) Need to adapt to National Priorities

A "desirable cropping pattern" should contribute towards national priorities, namely: employment generation, sustainability, higher productivity ensuring stable farm income and food-security, combating climate change, etc. By implication, a desirable cropping pattern should be one which favours crops which are labour-intensive and have greater second-round employment effects. Simultaneously, given water as a binding constraint, the cropping pattern should attempt to maximise returns to this input and favour crops that are ecologically sustainable. The agriculture productivity should also be enhanced to make sure farmers are assured of minimum returns and that there are no food shortages in the times of climate extremities.

This last point calls for a little further attention. At a global level, India is one of the richest nations in terms of biological diversity. India supports 15,000 species

of flowering plants, 317 species of mammals, 969 species of birds, 389 species of reptiles, 206 species of amphibians, and so on. In any *sustainable agricultural system*, the concern regarding bio-diversity cannot be ignored.

4.4 WATER RESOURCES

Water is the most important source of energy in the Indian economy. About 25 per cent of electricity generated in the economy is from the hydel sources. The other important use of water is in irrigation. In a country where agriculture anchors the economy, availability of water can make all the difference; it can either stimulate the economic activity or depress it altogether.

The important sources of water can be classified into: (i) surface water, and (ii) ground water. *Surface water* is available from such sources as rivers, lakes, etc. *Ground water* is available from wells, springs, etc. Other sources of water which have not as yet been tapped in the country, but nevertheless represent a potential source are: wastewater, saline lakes, saline springs, etc. Surface water sources are replenished by rainfall.

Of the two sources, surface water is more important and possesses potential for growth in future. Surface water is available in the form of vast network of rivers available in the country.

Overall, India possesses large reservoirs of water, but these are inadequate as compared to country's requirements. Compared to countries such as the USA, which stores about 5,000 cubic meters per capita and China, which stores around 1,000 cubic meters per capita, India's dams can only store 200 cubic meters per person.

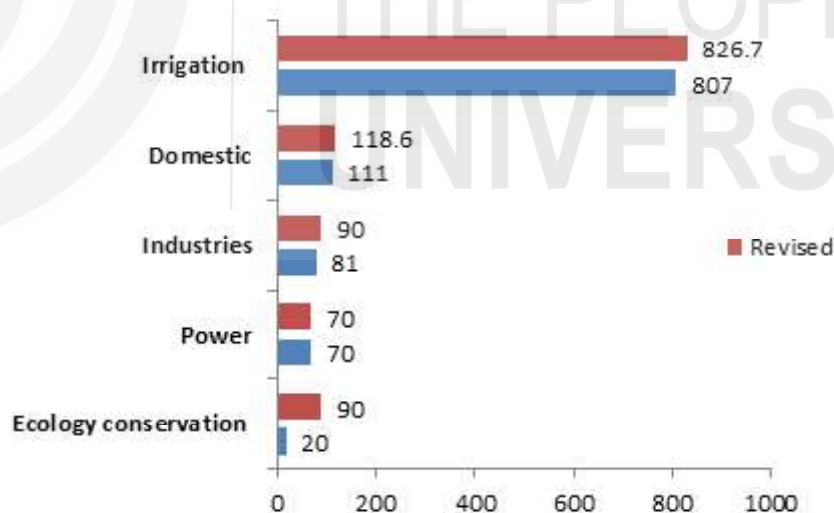


Fig. 4.2: Estimates of Demand for Water in India

Through the decades, profligacy in the use of water by industrial units and during irrigation has brought the country close to a “water famine”. In fact, many parts of India are already water-stressed, with per capita availability significantly less than the national average. At about 1,000 cubic meters, the national average, too, falls way short of the ‘comfort point’ set by the World Bank. No wonder many states remain at daggers drawn over sharing water from rivers that flow through them.

4.4.1 Water Issues and Solutions

The principal issues facing the country are as follows: (i) Demand for water is increasing from all sectors, (ii) Lack of a rational water pricing policy between and within sectors is further driving demand, (iii) Policies and institutions mandated to solve conflicts are directly or indirectly contributing to further conflicts, (iv) New conflicts are increasingly arising within states rather than between states, and (v) Conflicts over groundwater are widespread across the country.

Solutions

The following solutions suggest themselves:

- 1) The one over-riding lesson from the global resolution in the provision of public services is that competition matters. Hence, it is important to unbundle the bulk provider of the irrigation system from the distribution function. Further, there should be variety of forms— cooperatives, and private sector players— to handle water distribution to farmers.
- 2) There is a need to increase user charges for the services provided, as well as to increase budgetary support. But user charges or tariffs linked to costs can only be possible if services are provided in an efficient and accountable manner.
- 3) It is by ensuring the economic and social development of local communities and their participation that India can hope to build major dams.
- 4) The government should give formal water entitlements to people as with land and other property rights. Once established, such entitlements give rise to a fundamental and healthy changes including improvement in efficiency of resource use.

Four interconnected programmes as follows assume significance in this context: (i) watershed development programme, (ii) renovation of all water bodies linked to agriculture which have fallen into disuse, (iii) correcting the deterioration of public irrigation works, notably state canal systems, due to cumulative neglect of maintenance and repair over the years, and (iv) rainwater harvesting.

Another encouraging development is that more and more futuristic technologies are being readied in research labs to make desalination and water treatment processes more energy efficient.

4.4.2 National Law on Water

Why is a national law on water necessary?

- 1) Under the Indian Constitution water is primarily a State subject, but it is an increasingly important national concern in the context of:
 - a) the judicial recognition of the right to water as a part of the fundamental right to life;
 - b) the general perception of an imminent water crisis, and the dire and urgent need to conserve this scarce and precious resource;
 - c) the severe and intractable inter-use and inter-State conflicts;

- d) the pollution of rivers and other water sources, turning rivers into sewers or poison and contaminating aquifers;
- e) the long-term environmental, ecological and social implications of projects to augment the availability of water for human use;
- f) the equity implications of the distribution, use and control of water;
- g) the international dimensions of some of India's rivers; and
- h) the emerging concerns about the impact of climate change on water and the need for appropriate responses at local, national, regional, and global levels.

It is clear that the above considerations cast several responsibilities on the Central government, apart from those of the State governments. Given these and other concerns, the need for an overarching national water law is self-evident.

- 2) Several States are enacting laws on water and related issues. These can be quite divergent in their perceptions of and approaches to water. Some divergences from State to State may be inevitable and acceptable, but extreme and fundamental divergences will create a very muddled situation. A broad national consensus on certain basics seems very desirable.
- 3) Different State governments tend to adopt different legal positions on their rights over the waters of a river basin that straddles more than one State. Such legal divergences tend to render the resolution of inter-State river-water conflicts extremely difficult. A national statement of the general legal position and principles that should govern such cases seems desirable.
- 4) Water is one of the most basic requirements for life. If national laws are considered necessary on subjects such as the environment, forests, wildlife, biological diversity, etc., a national law on water is even more necessary. Water is as basic as (if not more basic than) those subjects.
- 5) Finally, the idea of a national water law is not something unusual or unprecedented. Many countries in the world have national water laws or codes, and some of them (for instance, the South African National Water Act of 1998) are widely regarded as very enlightened. The considerations behind those national codes or laws are relevant to India as well, although the form of a water law for India will clearly have to be guided by the nature of the Indian Constitution and the specific needs and circumstances of this country.

Check Your Progress 1

- 1) Outline the significance of the size of land area and its location for the Indian economy.

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- 2) What in your view would be a desirable future cropping pattern for India?

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- 3) Highlight the different issues related to water availability and its use in India.

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4.5 BIODIVERSITY

India contains a great wealth of biological diversity in its wetlands and in its marine areas. There are about 350 species of mammals, 1,224 species of birds, 408 species of reptiles, 197 species of amphibians, 2,546 species of fishes, and 15,000 flowering plants. The importance of these biological resources cannot be over emphasised for the continued wellbeing of Indian population.

A large number of both flora and fauna are faced with threat of extinction because of the increasing demand being made on natural resources.

The government has responded by taking several measures including legislative measures, among which the more important is the Biological Diversity Act, 2002.

4.5.1 The Biological Diversity Act, 2002

The Act covers conservation, use of biological resources and associated knowledge prevalent in India for commercial or research purposes or for the purpose of bio-survey and bio-utilisation. It provides a framework for access to biological resources and sharing the benefits arriving out of such access and act. The Act also includes in its ambit the transfer of research results and application for intellectual property rights relating to Indian biological resources.

4.6 FOREST RESOURCES

Forests produce the requisite raw materials for industries, defence, communications, domestic use, and other public purposes. They contribute to the country's exports and create a large volume of employment in the primary, secondary, and tertiary sectors. They also provide materials like fuelwood, small timber, fodder, etc. for direct use by the agriculturists. The benefits from forests in the matter of soil conservation, recreation, wildlife, etc. have been well-recognised.

4.6.1 Present Position

Forests occupy about 807.3 lakh hectares or about 24.5 per cent of the total geographical area. (Of this dense forest category, *i.e.*, 40 per cent or more of the area covered by trees, amounts to about 58.0 per cent.) About 433 lakh hectares or 61.0 per cent are exploitable; another 178 lakh hectares or about 25 per cent are potentially exploitable. Among the States, Madhya Pradesh has the maximum forest area of 77,265 sq.km., followed by Arunachal Pradesh (68,045 sq.km.) and Chhattisgarh (56,448 sq.km.).

The area under forests in India is low not only as compared to the forest area in countries like Japan (64 per cent), Sweden (66 per cent), South Korea (63 per cent), Canada (27 per cent), and USA (25 per cent), but is also much less than the norm of 33 per cent of the total reported area recommended in the National Forest Policy of 1952. The per capita forest land in India is 0.06 hectares as against the world average of 2.06 hectares. Further, the productivity of Indian forests is very low: 1.2 cubic meters per hectare per year as against the world average of 2.1 cubic meters.

Forests in India are still under huge pressure and are shrinking over time. Firstly, the rate of forest land diverted towards development projects has been happening at an unprecedented rate. But this diversion also happens because there is no value seen in forests—other than the cost that has to be paid for diversion of land by the project proponent. Instead, there is value in the dam, road or mine for which the land is needed. So, this pressure on forest land is bound to increase. We must also note that forests are the last remaining public lands in the country and the acquisition of private land will become even more expensive and contentious in future.

Secondly, the compensatory plantation done to replace the original, natural forests during diversion of forestlands for projects have so far yielded no impactful results. Some of these new areas were even earmarked for other projects or expansion of existing ones, even though they remain classified under government's Recorded Forest Area (in terms of legal status).

Thirdly, forests are under pressure to meet local needs and on account of illegal extraction. Today, it is an inconvenient truth that the poorest people in India live in the country's richest forests. The management of this green wealth has not brought any benefits to the locals. Amid all this, while deforestation and forest diversion will grow, we do not have any viable strategies for re-greening these lands. Thus, we will lose them gradually.

So how do we change this? *One*, we need to urgently value the economic, ecological and livelihood potential of forests and to incorporate this into national accounts. We need a robust methodology to bring the tangible (what we can measure) and intangible costs together. Though there is much talk about green accounting, the methodology is weak. For instance, there is no real assessment of minor (non-timber) forest produce. Other assessment of the contribution of forests to livestock or the hydropower sector is inflated or non-existent.

Two, we need to use this methodology to pay for standing forests. The 12th and 13th Finance Commissions allocated funds for standing forests, but this is a pittance. We, then, need states to transfer payment for standing forests—protected

for biodiversity, watershed, or other purposes– to local custodians. This will build local economies and local support for forest protection.

Three, at least 60 per cent of districts in India are affected by forest fires each year, and the top 20 districts in terms of fire frequency are located mainly in the Northeast, a joint report by the Ministry of Environment and Forests and Climate Change (MoEFCC) and World Bank has brought that out.

The top 20 districts in terms of area affected by fire from 2003 to 2016 account for 48 per cent of the total fire-affected area, the report found. In line with other parts of the world, people are the main driver of fires in India and forest fires are distributed close to people and infrastructure. Forest fires contribute to climate change by releasing carbon stored in trees, undergrowth, and soil into the atmosphere.

We need to use robust accounting methodology to increase the productivity of the remaining forest land. But we know that the business of cutting and planting trees that survive cannot be successful without the engagement of people who live in the forest. This has to be seen as the new opportunity for employment and economic growth. The way ahead is to build inclusive economies using green wealth.

4.6.2 National Forest Policy

The national forest policy was first enunciated in 1952 and subsequently revised in 1988. The important distinguishing features of this policy are as follows:

- 1) The policy lays emphasis on the conservation of forests and meeting the requirements of the tribal and rural people. The Scheduled Tribes and Other Forest Dwellers Act, 2006 has been enacted in pursuance of this policy.
- 2) Tribals will also be associated with the protection, regeneration and development of forests, and cooperatives run by them or by the Government will replace the present contractor system which has resulted in unchecked devastation of reserved forests.
- 3) Realising the fact that uncontrolled expansion of forest-based industries would adversely affect the conservation objective, the revised policy has made the following stipulations:
 - No forest-based industry, except in the small-scale and cottage sectors, would be permitted unless sustained availability of raw material is ensured.
 - As far as possible, a forest-based industry should produce its own raw material requirements.
 - Natural forests would not be made available to industries for undertaking plantations and for other objectives.
 - Forest produce would not be supplied to industries at concessional rates.

The initial results of the new policy have been mixed. Under the Green India Mission, it is proposed to increase forest cover by 5 million hectares and improve the quality of forests on another five million hectares over the next 10 years. The Green India Mission is one of eight missions under the National Action Plan on Climate Change. It aims to increase forest cover on 5 million hectares (ha) of

forest/non-forest land and improve the quality of forest cover on another 5 million ha. Funding for the scheme to come from the Plan outlay and convergence with the Mahatma Gandhi National Rural Employment Guarantee Scheme, the compensatory afforestation management and planning authority, and the national afforestation programme.

The Union government to provide 90 per cent of the funds for implementing the scheme in the north-eastern states, and 75 per cent of the funds for other states. State governments to meet the balance requirement.

Forest policy in India is victim of the fact that decision-making on environmental issues in India is quite fragmented. While the ministry of environment and forests implements various central laws— including the Forest Conservation Act 1980— the state governments, too, have powers in this domain. There are other ministries and decision-making authorities that are involved as well. If that is not all, the Supreme Court and other (Green) tribunals, too, are active participants in the ongoing story of India's forests. Other stakeholders— tour operators, villages located in forest areas and various illegal, interest groups such as timber smugglers and poachers also manage to exercise influence through the political system.

All this makes for serious collective action problems. As a result, formulating coherent policies for forest and wildlife conservation and implementing them effectively are well-nigh impossible.

4.7 MINERAL RESOURCES

The mineral resources of India encompass a wide range of products that are necessary for a modern developed economy. There are, according to the Geological Survey of India, 50 important minerals and 400 major sites where these minerals occur. (Out of total land area of 3.28 million sq.kms, hard rock area covers 2.42 million sq.kms.). These can be divided into four categories as follows:

- 1) Minerals of which India's exportable surplus can dominate the world market; to this category belong iron-ore and mica;
- 2) Minerals of which the exportable surplus forms an important factor; these include manganese ore, bauxite, gypsum and others;
- 3) Minerals in which it appears that the country is self-sufficient, like coal, sodium salts, glass sand, phosphates, bauxite, etc.;
- 4) Minerals for which India has to depend largely or entirely on foreign markets like copper, nickel, petroleum, lead, zinc, tin, mercury, platinum, graphite, etc.

The various minerals can also be classified into three categories based on their nature and end use. These three categories are: (i) Fuels like coal, lignite, natural gas and petroleum; (ii) Metallic minerals like bauxite, iron-ore, manganese, etc.; (iii) Non-metallic minerals like phosphorite, graphite, gypsum, limestone, mica, etc.

Minerals provide a base for the rapid industrialisation of the economy. The changeover to an open market economy has opened further avenues for faster industrial growth and greater requirement of minerals, “besides the fact that the geological setting of the country holds great promise for a boom in mineral productions.” [Expert opinion is that given the size of deposits in South Africa and Australia, large reserves can be expected in India also (because of similar geological structures). A recent Price Waterhouse Report has identified India as the most promising mining location worldwide.]

Notwithstanding this, India’s spending on exploration is only about 0.8 per cent of the global spending with private sector contributing only 3 per cent of that. There are a few essential aspects that need to be worked into a proper mineral policy.

- 1) The mineral resources are very unevenly distributed.
 - The Great Plains of Northern India are almost entirely devoid of any known deposits of economic minerals.
 - Jharkhand and Odisha on the north-eastern parts of peninsular India possess large concentration of mineral deposits, accounting for nearly three-fourths of the country’s coal deposits and containing highly rich deposits of iron-ore, manganese, mica, bauxite and radioactive minerals.
 - Mineral deposits are also scattered over the rest of the peninsular India and in parts of Assam and Rajasthan.
 - With the implementation of the new UN law on the Exclusive Economic Zone (EEZ), new areas in deep seas, hitherto unexplored, would become available to us. These areas are believed to contain rich deposits of oil, gas, manganese, nickel, cobalt and copper.
- 2) The country is deficient in certain minerals like crude oil or petroleum;

Nearly 80 per cent of the present domestic demand is being met by imports. In view of the rising prices of these minerals in international markets, it would be necessary, on the one hand, to curb their growing use in the economy, and, on the other hand, sustained efforts should be made to augment the domestic sources of supply of these minerals.
- 3) There are minerals which are lucrative foreign exchange earners. Efforts should be made to devise a suitable policy to have a proper utilisation of these minerals keeping in view the national interests.
- 4) Due to paucity of funds, the mining industry is mired in obsolete technology, for decades. India’s mining sector is in trouble. The sector’s troubles stem from profit-seeking, poor regulation, and galloping demand from countries such as China. This has led to courts stepping in and banning all mining activity in a region. Environmental clearance, and the human cost involved, are other matters the industry has just begun to deal with.

4.7.2 New Mineral Policy, 2008

A committee was set up in the late-2005 under the chairmanship of Anwar-ul-Hoda. The New Mineral Policy, 2008 has incorporated most of the recommendations made in the Hoda Committee Report.

- i) The new policy manifestly recognises that private sector will be the main source of investment in reconnaissance and exploration. It takes a pragmatic view of the risks associated with the business of finding/producing minerals and therefore ensures security of tenure and rights of transferability of various awards– reconnaissance permits (RPs), prospecting licenses (PLs) and mining leases (MLs).
- ii) The new policy provides for introducing Long Area Prospecting Licences to help the investors achieve economies of scale. These licences will be given only with regard to non-bulk minerals which, from the investors' point of view, is a high-risk, high reward area.
- iii) The policy emphasise that mining is a standalone industrial activity, it can thrive in conjunction with value-addition activities.
- iv) Export policies will be formulated after taking stock of the mineral inventories and short, medium and long-term needs of the country. It is stated in the policy document that efforts shall be made to export minerals in value-added forms as far as possible.
- v) The policy envisages steps to be taken by the governments to facilitate financing of mine development and exploration which are integral to the mining projects.
- vi) There is also a plan to develop appropriate capital market structures to attract risk investment in survey and prospecting. Flow of 'risk funds'– from capital market and venture funds– will be eased with policy interventions. The public private partnership model would be useful for building mining infrastructure.
- vii) The policy seeks to bring certain level of uniformity in mineral administration in the country.

Further, acting on the recommendations of the Ashok Chawla committee, the Government sought to seek outside help to increase the pace of mapping of potential mineral reserves in India to meet a government target that aimed to complete prospecting for natural resources in the five years beginning April 1, 2012.

India's mining sector is set for a cleanup. Some of the steps in that regard are:

- Setting up of coal regulator to set methodologies for price fixation by Coal India;
- Competitive bidding for allocation of captive blocks to private companies;
- Improved coal supply for power plants as coal and power ministries iron out differences over issues in new supply pacts;
- Higher production by Coal India as fresh clearances start coming after Prime Minister Office's (PMO's) intervention;

- Improved iron ore availability in Karnataka after mines restart operation following implementation of Resettlement and Rehabilitation (R&R) schemes;
- Continued downfall in iron ore output and exports from Goa and Odisha at the back of allegations of illegal mining.

4.7.3 Acquiring Mineral Sources Abroad

In view of the worsening commodity-crisis, the government has been advised to adopt the Chinese Model of buying foreign minerals and mining rights. The principal focus in the Chinese Model is on acquisition of ownership of reserves in coal, oil and gas.

Acquiring mineral reserve in other resource-rich nations is considered key to India's energy security, owing to domestic constraints in exploiting reserves and the global rise in commodity prices. Also, holding such assets acts as a strategic tool in energy diplomacy for developing and maintaining foreign relations.

4.8 ALLOCATION OF NATURAL RESOURCES

With growth gaining pace not only in India but in many emerging economies, the pressure on natural resources is on the rise. Innovations and technological progress have opened up undreamt vistas of use of natural resources. This in turn implies unprecedented opportunities to make private profit from publicly-owned goods.

Crony capitalism, which involves both corrupt politicians and unscrupulous businessmen in a close embrace to manipulate and use the discretionary powers vested in government for private profit. The allocation of publicly controlled natural resources and land is the biggest playground for this collusion.

In 2012 judgement on 2G case, the Supreme Court made a serious attempt to control such collusion; it has made efforts to ensure that the resource rents should go to the public treasury.

There are different methods to distribute scarce resources like (i) first-come-first-served method, (ii) auction, and (iii) open access, etc.

- i) **First-come-first-served:** In the first-come-first-served method all the intending buyers are put in a queue. The available resources are allotted to an entity as per the sequence in the queue. The process is complete when the last available unit has been allocated. On the face of it this method appears both transparent and non-discriminatory, and hence worth adopting. But a major shortcoming of this method is that in our system, somebody or the other will always get or, more likely be given, advance information so that they can position themselves up ahead in the queue.
- ii) **Auction or competitive bidding:** The Supreme Court (SC), like the Ashok Chawla committee earlier, has come out strongly in favour of auction method of allocating the right to publicly controlled resources. The SC in its order said: "When it comes to alienation of scarce natural resources like spectrum etc. the state must always adopt a method of auction by giving wide publicity so that all eligible persons may participate in the process. Auctions or

competitive bidding would be the more appropriate method as it is likely to lead to allocation of resources to those who can use them most efficiently.

But this method also suffers from various limitations. (i) Designing an auction requires prior consideration about how many licenses should share the resource to ensure an adequate level of competition— and that is a judgement call that can be distorted by ulterior motives. (ii) Any workable auction will also have to have some qualifying criteria on who is eligible to compete and that is even more liable to manipulation. (iii) The experience shows that disclosure requirements are often lax which allows interested parties to corner resources through front companies. (iv) This method can be used when there are technical or logistical reasons for apportioning and giving licensees *de facto* ownership rights. But that is not always necessary. The Supreme Court has also held this view.

- iii) **Open Access.** An alternative is to provide open access to the resources to all eligible users against a usage charge, which could be calibrated to ensure that the demands on the resources match availability. Open access with pay-per-use is better for maintaining competition and easing entry by new players.

Open access will not work when the resource deplete with overuse. It would lead to what has been described as the tragedy of commons, where it is in the commercial interest of each user to extract as much as possible without regard to optimum rates of exploitation. When a resource can be over-exploited, the right of access to the resource has to be organised so as to create checks for staying within sustainable yields or by setting up barriers to excessive exploitation. One approach, typically followed in mineral and oil concessions, is to give the licensee long-term rights over a well-defined resource block. In principle, the licensee should be interested in avoiding unsustainable rates of exploitation that reduce the total return over time.

Another approach, typically followed in forestry, is to give short-term rights of access with controls that specify the amounts that can be extracted. This approach depends on honest and effective policing, and the evidence from the past history of forestry in India does not give any grounds for confidence that it would work ultimately, the goal must be to eliminate the discretionary powers of politicians and bureaucrats to choose concessionaries, instead they should be chosen through a system of public auctions, both for outright transfer of rights or for public-private appropriation of resource rents, ensure free and fair competition and create incentives for each user to stay within the limitations of optimal exploitation. It is necessary that the competition for natural resource markets, must be transformed to competition in those markets. A truly transparent and honest system will require some independent scrutiny of the design and the rulers of process that all resource concessionaries should follow.

Check Your Progress 2

- 1) What are the major issues related to biodiversity and forestry that India must address in keeping with its current needs and future objectives?

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- 2) Why should India have a policy to acquire mineral resources located abroad?

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- 3) Examine the different methods used in natural resource allocation. Based on your understanding and India's recent experience in undertaking those allocations, suggest the preferred approach in that regard.

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4.9 ENVIRONMENT AND ECONOMIC DEVELOPMENT

Environment has been defined as the aggregate of all the external conditions and influences affecting the life and development of an organism. It comprises the whole range of external influences acting on an organism, of both the physical and the biological forces of nature surrounding the human individual. All living beings are part of balanced and interacting eco-system: they draw sustenance from the solid, liquid, and aerial resources on the earth. They undergo passage through the phases of reproduction, sustenance, and extinction. The ultimate source of energy for the entire ecosystem is the solar energy. The ecosystem consists of subsystems such as sea, forests, water reservoirs, plants, trees, insects, animals in a forest– all of them are inter-connected in a network of devourer-devoured relationship. None of the elements in the network is useless or purposeless, each one of them helps to regulate the balance of the subsystem. Bio-gas-chemical cycles are essential for the process of reproduction in the physical environment. The process of reproduction is in balance as long as the natural cycles, their interrelations and the hierarchy of the food-chain are not disturbed.

There are many different models of the relationship between the environment and the economy. The simple model depicted in Figure.4.3 illustrates the four functions of the environment in supporting economic activity and the effects of this activity on the environment. These four functions are life-support, supply of natural resources, absorption of waste products and supply of amenity services. The economy is represented in Figure 4.3 by households consuming goods and services, and firms producing with natural resources provided by the environment, with labour and man-made capital provided by households.

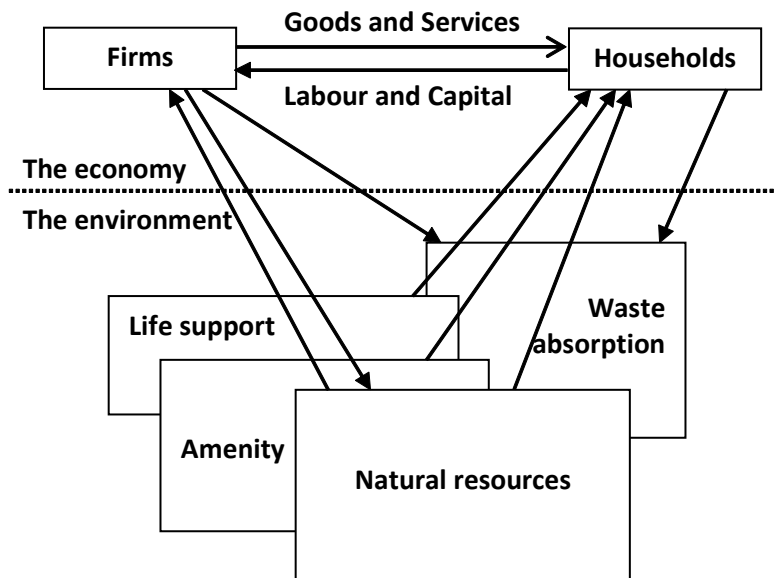


Fig. 4.3

Man's desire for joy and comfort has led him to exploit nature's free goods to the extent of reducing its natural capacities for self-stabilisation. As countries industrialise, they increase their global footprint, which is the pressure they put on the Earth's resources. The footprints of Europe and Japan are about 4.7 global hectares per person, and the USA's is 9.7. India's footprint at present is 0.8 and China's has reached 1.6. Mankind's overall global footprint, which was about 60 per cent of the global biocapacity in the 1960s, has already reached 130 per cent. This gets reflected in growing environmental problems. Environmental problems centre on human activities resulting in pollution of the atmosphere, oceans, and land. These range from the global (greenhouse warming and ozone depletion) to the regional (acid rain and desertification), national (deforestation) and local (soil erosion, contamination of freshwater resources and urban pollution). The relevance of such concerns and the priority attached to each varies between the developing and developed countries.

4.9.1 Environmental Protection in India

Rapid growth has become an obsession with decision makers. Growth is important for the resources it generates, but the welfare of the Indians at whom this growth is being targeted also depends on the quality and integrity of their living environment.

Rapid growth means more mega-projects for infrastructure, mining and manufacturing, and a rapid expansion of urban areas. All large projects involving the exploitation and use of natural resources and urban expansion have environmental consequences which may involve one or more of the following:

- large-scale land use changes often in ecologically sensitive areas;
- displacement of a large number of people from their homes and livelihood sources;
- extensive interventions in natural hydrological regimes;
- disruption of local biotic regimes;

- loss of forest cover, especially owing to mining projects since a very large proportion of the unexploited mineral wealth of India, including coal, lies in forest land; and
- a substantial increase in the air and water pollution load which may be of local, regional, national, or even global concern.

The environmental consequences of rapid urbanisation will become a growing concern. Vehicle ownership is expected to go up by a factor of seven. But with higher vehicle efficiency standards, more public transport in cities and a shift of freight traffic to rail and coastal shipping, growth in energy consumption for transport and the consequential environmental impact may go up by about five times. The requirements of the growing urban population for living and working space, water and waste disposal will have environmental consequences that will have to be managed. Rural-urban conflicts for scarce water and landfill sites for solid waste disposal will arise.

For example, used paper cups thrown outside juice and coffee shops (indicators of rising incomes) could be behind the disappearing population of honeybees that pollinate 80 per cent of all crops. The same is true of the use of plastic in our daily lives, which is finding its way into our food chains, plant and animal based. As World Wildlife Fund Study shows that India is already using 50 per cent more ecological resources each year than can be replenished by nature.

India is ranked a disappointing 101st out of 146 countries for which the Environmental Sustainability Index (ESI) was prepared in early 2005 (The most sustainable country is Finland and the least sustainable is North Korea). The ESI is based on 21 indicators and 76 measurements, including natural resource endowments, past and present pollution levels, and policy efforts. Another waking reminder comes from the Environmental Performance Index 2012 which has placed India at 125th place.

State-wise, the best performing state in India in terms of the ESI is Manipur, followed by Jammu and Kashmir and Tripura. All these states are sustaining their stocks of natural resources. They face less stress on their environmental systems and are exerting lower impacts on environment and health. The lowest ranking states are Gujarat, Punjab and Haryana. These states have diminished stocks of natural resources, especially in terms of air and water quality. They also score low on land use pattern.

Environmental degradation and diseases are responsible for 23 per cent of child mortality, according to a World Bank report. Moreover, the costs of environmental damage are equivalent to 5.7 per cent of the country GDP (in 2009). However, the report says, India can make green growth a reality by putting in place strategies to reduce the damage at a minimal cost of 0.02 per cent to 0.04 per cent of its average annual GDP growth rate.

In short, the present mode of development is wholly unsustainable. The clash between growth imperatives and the environment will become sharper. Therefore, a decision-making framework that anticipates this and puts in place a mechanism that reconciles growth, land acquisition and environmental protection is good for growth, social justice and the environment. The key lies in five elements:

- i) full provision of data and information on project design and impact;

- ii) stakeholder engagement from an early stage, where necessary in public hearings;
- iii) negotiated solutions in which people's rights are affected;
- iv) generous compensation, relief, and rehabilitation assistance; and
- v) careful monitoring by an independent watchdog.

4.9.2 National Environment Policy, 2006 (NEP)

The NEP 2006 is being described as a statement of India's commitment to making a positive contribution to international efforts.

The NEP builds on the earlier policies, like the National Forest Policy, 1988, National Conservation Strategy and Policy Statement on Environment and Development, 1992, National Agricultural Policy, 2000, National Population Policy, 2000, and National Water Policy, 2012.

Its major features are as follows:

- i) The dominant theme of the policy is to ensure that the livelihood of people dependent on forest products is secured through conservation.
- ii) It focuses on conservation of critical environmental resources, livelihood security for the poor, integration of environmental concerns in economic and social development and judicious use of the resources.
- iii) To achieve sustainable development, environmental protection shall constitute an integral part of the development process and cannot be considered in isolation from it.
- iv) Environmental Impact Assessment will continue to be the principal methodology for appraisal and review of new projects.
- v) The assessment processes are being revised. Under the new arrangement, there will be significant devolution of powers to the State/Union Territory level.
- vi) It also seeks to revisit the Coastal Regulation Zone notifications to make the approach to coastal environmental regulation more holistic and, thereby, ensure protection to coastal ecological systems, waters, and the vulnerability of some coastal areas to extreme natural events and potential sea level rise.
- vii) Involvement of Panchayati Raj Institutions and urban local bodies has been highlighted.

Check Your Progress 3

- 1) Examine the relationship between economic development and environment.

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- 2) Discuss in brief the different steps taken in India for protection of environment.

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- 3) State in brief the principal features of national environment policy 2006.

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4.10 LET US SUM UP

We have reviewed above a brief profile of the major natural resources of India.

Undoubtedly, India is blessed with a variety of resources. But the supply of these resources is to be viewed against their requirements on the one hand and possible utilisation within the given range of technology, on the other. The potential available in a number of resources matches requirements, but the present utilisation of almost all resources falls short of the requirements. Therefore, what is immediately required is:

- 1) Intensive surveys should be undertaken within the country to explore and to identify the hitherto unknown utilisable resources. This is true in the case of both renewable and non-renewable resources. This will require chalking out an integrated multi-pronged national policy.

Equally important is the need to make an efficient use of available recorded or proven resources. This requires several interrelated steps: better technology, use of by-products, multipurpose use of resources, location of industries such that the transport cost of combining resources from different areas are minimised, etc.

- 2) There is the need to take such conservation measures that sustain the output over a longer period. Our forefathers designed institutions and practices to cope with the divergence between the individual and social rates of discount and its adverse effect on sustainable resource use. In good times and bad, by invoking the spirits or scriptures, and by creating institutions for conservation from above or below, our forebearers ensured sustainable use of natural resources. It is possible even now to revive the institutions by nurturing community consciousness.
- 3) All the above considerations will call for an effective organisational set-up. Privatisation by itself cannot be an end. In the recent past there has been

clear evidence of deals and attempts at deals for the transfer of publicly-owned resources to private hands on terms which are more than generous to the private parties and involve substantial losses in potential income as well as other costs to the public exchequer.

- 4) With rapid globalisation under way demand for scarce natural resources like land, water, mines etc. has been increasing at a fast rate. These natural resources are increasingly being grabbed by the mafia who have seen in these resources an opportunity for their sustainability. The mafia can easily hold on to this *loot* by bribing politicians, bureaucrats and other officials at different tiers of governance. Further, adverse consequences of the recent loosening up of the forest laws needs to be closely watched.

In the interest of swift economic development these considerations cannot be ignored. There is perhaps a larger role for the civil society to provide oversight and mobilise social action in this regard.

4.11 TERM-END EXERCISES

- 1) Mention in brief the different agencies engaged in task of exploring natural resources in India.
- 2) Make a brief review of the availability of soil, forest, and mineral resources in India.
- 3) Outline the need for a comprehensive natural resource use policy in India.
- 4) Outline the need for environment protection in India.

4.12 KEY WORDS

Biodiversity	: Also called <i>biological diversity</i> , it is the variety of all forms of life found on Earth.
Emerging Economies	: Economies that are transitioning from a low income, less developed, often pre-industrial economy towards a modern, industrial economy with a higher standard of living.
Governance	: Governance has been defined to refer to structures and processes that are designed to ensure accountability, transparency, responsiveness, rule of law, stability, equity and inclusiveness, empowerment, and broad-based participation.
Labour-intensive	: Labour intensive refers to a production process where the relative proportion of labour as compared to other factors of production is more.
Marginal Land	: Marginal land is land that has little or no agricultural or industrial value. Marginal land has little potential for profit and often has poor soil or other undesirable characteristics.
Unsustainable	: Something that cannot be maintained at the current rate or level.

4.13 REFERENCES

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- 2) Government of India: *Economic Survey*, 2018-19.

4.14 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) See Section 4.2
- 2) See Sub-section 4.3.2
- 3) See Sub-section 4.4.1

Check Your Progress 2

- 1) See Sections 4.5 and 4.6
- 2) See Sub-section 4.7.3
- 3) See Section 4.8

Check Your Progress 3

- 1) See Section 4.9
- 2) See Section 4.9
- 3) See Sub-section 4.9.2

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UNIT 5 PHYSICAL AND SOCIAL INFRASTRUCTURE

Structure

- 5.0 Objectives
- 5.1 Infrastructure in India
 - 5.1.1 Meaning and Significance
 - 5.1.2 Nature of Infrastructure
 - 5.1.3 Types of Infrastructure
 - 5.1.4 Infrastructure and Economic Growth
 - 5.1.5 Role of Public Private Partnership in Infrastructure
 - 5.1.6 Budget Allocations for Infrastructure Sector
 - 5.1.7 Social and Physical Infrastructure
- 5.2 Privatisation and Commercialisation of Infrastructure
 - 5.2.1 Need for Privatisation and Commercialisation
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 - 5.4.1 Education
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- 5.5 Infrastructure: Challenges and Way Ahead
- 5.6 Let Us Sum Up
- 5.7 Key Words
- 5.8 References
- 5.9 Answers or Hints to Check Your Progress Exercises

5.0 OBJECTIVES

After reading this unit, you will be able to:

- state the need for infrastructural development in India;
- distinguish between physical and social infrastructure sector;
- explain why both physical and social infrastructure are crucial for India's growth;
- identify the issues requiring policy attention arising out of India's economic growth; and

- pinpoint the issues crucial in infrastructure policy in the Indian economy.

5.1 INFRASTRUCTURE IN INDIA

In Economic literature, infrastructure is popular by the name “Overhead Capital” or “Social Overhead Capital”. The famous economist A.O Hirschman stated that Social Overhead capital is the “basic services without which primary, secondary and tertiary productive activities cannot function”. Importance of infrastructure in facilitating economic and social activity cannot be under-emphasised. Sustainable Development Goal (SDG) 9 aims to “Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all”.

This unit focuses on both the physical and social infrastructure sector; its importance in the economic growth, recent trends and government policies towards infrastructural development and challenges faced by the sector.

5.1.1 Meaning and Significance

Infrastructure means those basic services and support systems that facilitate different economic activities, thereby helping in the development of a country. Infrastructure comprises of activities such as (i) transport, (ii) communications, (iii) energy, (iv) aspects related to economic activity that contribute to increase in productivity of natural resources, such as irrigation, drainage, afforestation, etc., (vi) science and technology, (vii) information system, (viii) finance and banking, (ix) civic amenities like piped water supply, sanitation and sewerage, solid waste collection and disposal, and piped gas, and (x) human resource services like education and health. Core Infrastructure incorporates all the main types of infrastructure, for instance, roads, highways, railways, public transportation, water, and gas supply, etc. Core assets provide essential services and have monopolistic characteristics. It is useful to view infrastructure as physical infrastructure like roads or bridges and the infrastructure services like transportation, in this case. Most infrastructure services and part of physical infrastructure are non-tradable, and therefore their availability cannot be readily augmented through imports. They need to be domestically produced. Investors seeking to invest in core infrastructure look for five different characteristics: income, low volatility of returns, diversification, inflation protection, and long-term liability matching.

5.1.2 Nature of Infrastructure

The infrastructure sector has certain peculiarities that help us to distinguish this sector from other sectors of the economy. Among these, the more important distinguishing features can be identified as follows:

- Public Goods:** Most of the physical infrastructure services have some elements of public good in them. These services are available to the public; the consumers may be charged for these services or the same may be supplied free. But even when they are supplied against a price, it is not always possible to exclude those consumers who chose not to pay for them.
- Externalities:** The social benefit of the infrastructure services far exceeds the cost involved in their generation. This, in turn, creates problems in pricing

of these services. It makes it difficult to price them in order to recover the cost fully.

- iii) **Monopolies:** Due to the inherent nature of infrastructure services, it is difficult for more than one supplier to exist in one location. It thus creates the possibility for monopolies and their regulation.
- iv) **Public Sector Domination:** The existence of externalities particularly in the field of social welfare has resulted in a dominant position by public sector in production and supply of infrastructure services.
- v) **Lumpy Investment:** Infrastructure prospects, more generally, require lump sum investment, i.e., any expenditure on a part of the project is not useful until the whole project is ready for operations. A half-way road or a rail line are of no use. Similarly, investment in energy is useful only when the whole system of generation, distribution and its reach to the ultimate consumer is ready.
- vi) **Indivisibilities:** Lump-sum investment, in turn, is the result of indivisibilities, a characteristic feature of most infrastructure projects. One cannot divide and sub-divide such projects in small parts and activate them. These are indivisible.

Infrastructural facilities are very necessary and vital for the smooth functioning of the economy. According to Dr V. K. R. V. Rao, “The link between infrastructure and development is not a once for all affair. It is a continuous process and progress in development has to be preceded, accompanied and followed by progress in infrastructure; if we are to fulfil our declared objectives of a self-accelerating process of economic development”.

5.1.3 Types of Infrastructure

Infrastructure can be put into several different types including:

- **Soft infrastructure:** These types of infrastructure make up institutions that help maintain the economy. These usually require human capital and help deliver certain services to the population. Examples include the healthcare system, financial institutions, governmental systems, law enforcement, and education systems. Soft infrastructure refers to all the institutions that maintain the economic, health, social, and cultural standards of a country. This includes educational programmes, official statistics, parks and recreational facilities, law enforcement agencies, and emergency services.
- **Hard Infrastructure:** These make up the physical systems necessary to run a modern, industrialised nation. Examples include roads, highways, bridges, as well as the capital/assets needed to make them operational (transit buses, vehicles, oil rigs/refineries). The assets constituting the hard infrastructure support multiple services that are important intermediaries in the production process. Thus, roads support transportation services that are important to move inputs and outputs of a production process.
- **Critical Infrastructure:** These are assets defined by a government as being essential to the functioning of a society and economy, such as facilities for shelter and heating, telecommunication, public health, agriculture, or civic amenities, etc.

5.1.4 Infrastructure and Economic Growth

Infrastructural facilities are vital for the smooth functioning of the economy. They are like wheels of development without which the economy will not be able to function properly. Provision of adequate infrastructure, both in terms of quantity and quality, is essential for sustenance of economic growth. They contribute to improvement in factor productivity and by providing amenities that enhance the quality of life. The role of infrastructure development in economic growth has been well recognised in the literature. Discussed below are some of the most critical significance of economic infrastructure and its impact on the economy.

- 1) *Productivity and Growth*: Better quantity and quality of infrastructure can directly raise the productivity of human and physical capital and hence growth (e.g. by providing access, roads can: (i) improve education and markets for farmers' outputs and others by cutting costs, (ii) facilitate private investment, (iii) improve jobs and income levels for many). Studies reveal that 1 per cent growth in the stock of infrastructure often associates with 1 per cent growth in per capita GDP.
- 2) *Contributes to Domestic Market Development*: Infrastructural development also contributes to domestic market development. Rural roads in the developing countries have a major effect in improving marketing opportunities and reducing transaction costs. The marketing of agricultural commodities can account for 25-60 per cent of final prices of food stuffs in developing countries. About half of the marketing costs are attributable to transport. Thus, proper infrastructure can reduce the cost of marketing which in turn contributes to domestic market development.
- 3) *Infrastructure mobilises Savings (Domestic and Foreign)*. Infrastructure development typically involves high levels of upfront financial investment, given the heavy capital expenditure required during the construction stage. Thus, mobilising savings for infrastructure development becomes indispensable. In the globalised era infrastructure facilities plays an important role in attracting foreign capital. Foreign direct investment as well as portfolio investment flows to those countries where adequate infrastructure facilities are available.
- 4) *Infrastructure Generates Employment Opportunities*: Infrastructure is a base for larger investment, development of industry and agriculture which in turn creates more employment opportunities. Infrastructure improves mobility, productivity and efficiency of labour.
- 5) *Infrastructure and Social Development*: Infrastructure increases the employment opportunities which increase the income level of the people further enhancing the standard of living of the people. Thus, infrastructure development will change the total outlook of the society and will lead to social development.
- 6) *Assists to Reduce Poverty*: Creation of infrastructure helps to reduce poverty by improving the quality of life. Access to clean water and sanitation has direct consumption benefits in reducing mortality and morbidity that increases the productive capacity of the poor. Access to transport can

contribute to higher and more stable incomes enabling the poor to manage risk. Transport infrastructure has been found to expand opportunities for non-farm employment in rural areas. Improved rural transport can also ease the introduction of improved farming practices by lowering the costs of modern inputs.

- 7) *Promotes Social Change:* Infrastructural facilities also act as an instrument of social change. Development of industries, transport facilities and education changes the outlook of people. Apart from these, even science, technology and growth of towns and cities will lead to a changed economic outlook.
- 8) *Infrastructure and National Defence:* Infrastructure development in terms of proper transport and communication facilities, adequate facilities for research and development, proper military schools etc. increase the strength of the nation from defence perspective.

5.1.5 Role of Public Private Partnership in Infrastructure

Infrastructure may be owned and managed by governments or by private companies, such as a public utility or railway companies. Traditionally most roads, major airports and other ports, water distribution systems, and sewage networks have been publicly owned, but this is changing as now one finds many energy and telecommunications networks are privately owned, so are airports, roads and civic infrastructure. Government-owned and operated infrastructure may be developed and operated in the private sector or in public-private partnerships. Besides supplementing the public resources, public-private partnerships (PPPs) enable the public sector to benefit from private sector technical expertise, experience and efficiency, and transfer project-related risks to the private sector. In infrastructure, PPPs have helped addressing financial gaps. However, the actual performance of infrastructure sector PPPs has been mixed. While a few sectors like roads and highways and airports have been able to attract significant private investments, most others like ports, water treatment and recycling, health and education have seen limited traction. Over the last decade, the share of private investments in the sector fell from 37 per cent in 2008 to about 25 per cent in 2018. A number of important steps have been initiated by the government to provide a boost to infrastructure PPPs over last few years.

One of the most significant has been the setting up of the National Investment and Infrastructure Fund (NIIF), with the government contributing around Rs. 20,000 crore. A number of policy-related measures aimed at improving liquidity in infrastructure investments have also been taken such as announcement of Infrastructure Investment Trust guidelines by SEBI in September 2015, promulgation of the Insolvency and Bankruptcy Code, 2016 and the November, 2018 directive by SEBI to large corporates to fund at least 25 per cent of their borrowings through the corporate bond market with effect from Financial Year (FY) 19-20.

While these initiatives are steps in the right direction, there are a few other areas which need to be addressed on a priority basis given the global experience in public private partnerships. Firstly, there is a need to consolidate and update the existing PPP guidelines based on the experience gained across individual sectors over the last few years as well as best practices in other countries. Secondly, need to formulate an enabling framework to renegotiate concession agreements. Finally, there is an urgent need for a dispute-resolution process for

Public Private Partnership (PPP) arrangements, as long-pending disputes have significantly adverse financial impact and act as a deterrent for private partners.

5.1.6 Budget Allocations for Infrastructure Sector

The social and economic transformation of society depends on availability of inclusive and sustainable infrastructure amenities to the people and the ability of the economy to address its infrastructure bottlenecks. In the past decade (FY 2008-17), India invested about \$1.1 trillion on infrastructure. The challenge is to step-up annual infrastructure investment so that lack of infrastructure does not become a binding constraint on the growth of the Indian economy. In order to reach the GDP target of \$5 trillion by 2024-25, India needs to spend about \$1.4 trillion (Rs. 100 lakh crore) over these years on infrastructure, including social and economic infrastructure projects. To achieve this objective, a Task Force was constituted to draw up the National Infrastructure Pipeline (NIP) for each of the years from FY 2019-20 to FY 2024-25. NIP is set to enable a forward outlook on infrastructure projects which will create jobs, improve ease of living, and provide equitable access to infrastructure for all, thereby making growth more inclusive. As per the detailed reports of the task force, total project capital expenditure in infrastructure sectors in India during the fiscals 2020 to 2025 is projected at over Rs. 102 lakh crore, around 70 per cent of this is amounted by sectors such as Energy (24%), Roads (19%), Urban (16%), and Railways (13%).

5.1.7 Social and Physical Infrastructure

A country's level of human and economic development is closely related to its levels of achievement in physical and social infrastructure. While physical infrastructure is an important determinant of domestic production, good social infrastructure is vital for human development as well as economic progress through better educated, better skilled, and healthier citizens, or citizens with better human capabilities.

Social infrastructure

Social infrastructure refer to basic services such as health, education, skill formation and training that contribute to human resource development and its quality. It also includes sanitation, drinking water, housing, sewerage, etc. Social infrastructures are also termed as social overheads. These social overheads indirectly support the economic systems as they contribute to productivity improvements. Besides meeting some social objectives, the social infrastructure supports growth in the long run. For example, consuming education services does not directly affect economic activities like production and distribution of goods, but indirectly helps in the economic development of the country by producing the skill and knowledge sets in the form of scientists, technologists and engineers, who contribute to economic activity. Social infrastructure enhances social well-being and furthers economic growth by providing basic services and facilities which allow businesses to develop and flourish.

Trends in Social Sector Expenditure

As per Economic Survey 2020-21, the expenditure on social services (education, health and other social sectors) by the Centre and States combined as a proportion of GDP increased from 6.2 to 8.8 per cent during the period 2014-15 to 2020-21 (BE). This increase was witnessed across all social sectors. For education, it increased from 2.8 per cent in 2014-15 to 3.5 per cent and for health, from 1.2 per cent to 1.5 per cent during the same period. Refer Table 5.1.

Table 5.1: Trends in Social Service Sector Expenditure by the Centre and States combined (as a % to GDP)

Item	2014-15	2015-16	2016-17	2017-18	2018-19	2019-20 RE	2020-21 BE
Expenditure on Social Services of which:	6.2	6.6	6.8	6.7	6.7	7.5	8.8
i) Education	2.8	2.8	2.8	2.8	2.8	3.0	3.5
ii) Health	1.2	1.3	1.4	1.4	1.4	1.5	1.8
iii) Others	2.1	2.5	2.6	2.4	2.6	3.0	3.5

Source: Economic Survey 2020-21

Note: 1. Social services include, education, sports, art and culture; medical and public health, family welfare; water supply and sanitation; housing; urban development; welfare of SCs, STs and OBCs, labour and labour welfare; social security and welfare, nutrition, relief on account of natural calamities etc. 2. Expenditure on 'Education' pertains to expenditure on 'Education, Sports, Arts and Culture'. 3. Expenditure on 'Health' includes expenditure on 'Medical and Public Health', 'Family Welfare' and 'Water Supply and Sanitation'

School and Higher Education Infrastructure

Since the Indian economy will have the highest young population in the world over the next decade, the country's growth and development in the coming years will primarily rely upon its ability to provide high-quality educational opportunities to them. The progress in school and higher education infrastructure is given in Table 5.2.

Table 5.2: Increase in Number of Recognised Schools, Colleges and Universities Infrastructure

Year	Primary and Upper Primary Schools (in lakhs)	Secondary and Sr. Secondary Schools (in lakhs)	Colleges	Universities
2011-12	11.93	2.12	34852	642
2018-19	12.37	2.76	39931	993

Source: Education Statistics at a Glance, 2018 & U-DISE+ Report and AISHE Report 2018-19, M/o Education

Physical Infrastructure

Physical infrastructure implies those infrastructures which directly support the process of production and distribution in the economy. It is directly concerned with the needs of such production sectors as agriculture, industry, trade, etc. They indirectly increase the factor productivity and the economy sees the impact immediately. Physical infrastructure leads to growth in the short run. A few such examples are energy, irrigation, transportation, telecommunication, banking, insurance, technology, finance, etc.

Check Your Progress 1

- 1) What is the importance of infrastructure in a country's development? What kind of activities does it comprise?

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- 2) What are the types of infrastructure?

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- 3) Describe the relationship between infrastructure and Economic Growth with reference to the experience of the Indian Economy.

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- 4) Distinguish between social infrastructure and physical infrastructure and their importance for the economy.

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5.2 PRIVATISATION AND COMMERCIALISATION OF INFRASTRUCTURE

The heavy-industry-led-growth strategy embodied in our earlier plans contemplated an active role for the state in all spheres of economic activity. Investment in infrastructure became the exclusive preserve of the public sector. The public sector, although it recorded phenomenal growth, could not live up to

the opportunities and expectations offered by the changing technology and evolving new international environment. With the onset of the 1980s, it was becoming increasingly clear that there was no alternative but to commercialise the infrastructure sector and open it to private enterprise and capital. Private participation in infrastructure development depends upon its capability to commercialise the infrastructure services.

5.2.1 Need for Privatisation and Commercialisation

The different factors that call for immediate privatisation and commercialisation of infrastructure can be identified as follows:

Massive Investment Needs: Infrastructure development requires massive investments and it is not possible for the state to meet all the investment needs.

Managerial Constraints in the Public Sector: While the infrastructure business is becoming more complex, public sector has not been able to meet the managerial challenges and as a result, the supply could not grow at the desired pace. The fiscal stringency has also created a demand for accountability for public spending.

Therefore, a demand has arisen for commercialisation and greater privatisation of infrastructure sector in order to inject greater efficiency.

Changes in Technology: The possibility of marginal pricing and exclusion provides greater scope for commercialisation. Technological changes have made it possible to unbundle the infrastructure service thereby introducing the elements of competition. The use of new technology enables the charging of the marginal user.

Globalisation: The availability, quality, cost and reliability of infrastructure services are key factors in attracting foreign investment. Globalisation has been aided significantly by advances in transport, telecommunication and storage technology.

New Dynamism in World Capital Market: Since 1990s the capital markets, domestic as well as global, have witnessed a significant re-emergence. During this period there has been a nearly four-fold increase in gross private capital flows to the developing countries. Private flows are now around three times the official development assistance. Thus, the private sector now has access to the kind of resources needed for infrastructural development.

5.2.2 Prerequisites for Private Investment

Entry of private capital in infrastructure sector is not merely a matter of simple policy initiatives. A few other important and critical areas would have to be identified and a suitable environment created.

Commercialisation of Infrastructure: Infrastructure services should not be treated as public goods. In this regard, the possibility of commercialisation will depend on the ability to segregate payers and prevention of any incidence of 'free riding'. Thus the excludability is a key factor in commercialisation.

Pricing Policy: The role of private sector is not restricted to that of provider of funds. It has to play the role of efficient and accountable operator of the facility.

The issue of pricing of infrastructure services becomes critical here. In this sphere the long track record of uneconomic pricing and prevalence of subsidies will be major obstacles.

Demand Orientation of Services: The existing procedure of financing infrastructure facilities is based on plan allocation and is mainly supply-oriented. Insufficient stress on the existing infrastructure and the anticipated demand has resulted in deviations in different counties and consequently a large part of such investments are not providing sufficient returns. Privatisation will necessitate a demand-oriented approach.

The challenge for policy is to find appropriate market signals which indicate the future trend of infrastructure demand and to coordinate the supply of such facilities in such a manner that investment in infrastructure provides appropriate returns.

Allocation of Risk: Allocation of risk is of key importance in commercialisation of infrastructure. The risk should be appropriately demarcated and allocated to different stake-holders. This is important for two reasons:

- i) There is a tendency among the private shareholders to shift the risk to the government.
- ii) There is also a tendency among the shareholders to shift the risk on each other.

Direct Participation by the Government: While the existence of elements of monopoly in infrastructure will necessitate regulation by the government, constraints in financing and user charging will render the direct participation by the government necessary. Therefore, a transparent framework for promotion of synergistic firmness of public-private partnership in infrastructure is required.

A Suitable Regulatory Framework: Most of the infrastructure projects are right candidates for developing as a 'natural monopoly'. These cost per unit scale of output. But these units cannot be allowed, in the interest of public welfare, to eschew competition. A healthy guided competition is required for sound growth. This presupposes the existence of an effective regulatory system.

5.3 PHYSICAL INFRASTRUCTURE: GROWTH AND POLICY ISSUES

5.3.1 Transport Sector

Transport is an essential economic infrastructure for the rapid development of any region. The lack of transport facilities retards the process of economic development even if a region is endowed with rich natural resources. Transport has been recognised as an indispensable ingredient of a country's overall development.

5.3.1.1 Roads

India has the one of largest road network across the world, spanning over a total of 59 lakh km of road length. This road length includes National Highways (NHs), Expressways, State Highways (SHs), district roads, PWD roads, and project roads. In India, road infrastructure is used to transport over 60 per cent of total goods

and 85 per cent of total passenger traffic. Road transportation has gradually increased over the years with the improvement in connectivity between cities, towns, and villages in the country.

Market size

As of March 01, 2019, the total length of National Highways in India stood at 132,499 km. Huge investments have been made in the sector with total investment increasing more than three times from Rs. 51,914 crore in 2014-15 to Rs. 158,839 crore in 2018-19. The total national highways length increased to 122,434 kms in FY18 from 92,851 kms in FY14.

However, the roads sector has been facing several issues including:

- i) lack of equity with developers,
- ii) higher cost of financing,
- iii) shortfall in funds for maintenance,
- iv) unavailability of land for the expansion of NHs,
- v) significant increase in land acquisition cost,
- vi) bottlenecks and checkpoints on NHs which could adversely impact benefits of GST, and
- vii) the value of NPAs in the infrastructure sector (including roads and highways) has been increasing, with NPAs at around Rs. 2.6 lakh crore as of August 2016.

Issues with financing

As observed by the Standing Committee on Transport (2016), the Ministry of Road Transport and Highways does not have its own source of revenue other than budgetary support from the central government, also huge budget allocations by the central government would be unsustainable in the long-run. Hence, there is a need to set up Ministry's own dedicated financial institutions to generate funds for development of the road sector.

As noted by the Standing Committee on Transport (2018), road development needs concerted efforts in the form of mobilisation of funds from other sources as private sector involvement has been depleting in recent years.

Targets vs Performance

Achievement of construction targets (for NHs) has ranged between 55 per cent and 70 per cent during the period 2014-15 to 2019-20. The targets could not be met due to shortage of funds as noted by the Standing Committee on Transport (2017). Other reasons for incomplete projects include delays in obtaining clearances, poor financial and technical performance of the contractors, and law and order issues. The Economic Survey 2018-19 also highlighted issues, such as time and cost overruns, due to delays in project implementation, procedural delays, and lesser traffic growth than expected, which increased the risk factor of the projects resulting in stalling of projects.

Project Delays and increase in Project Costs

The Committee on Public Undertakings (2017) had noted that from 1995, till June 2016, out of the total 388 projects completed, only 55 projects were

completed on or before time. Delays in the completion of the projects were mainly attributed to: (i) the long time taken in land acquisition, and obtaining environment and forest clearances, (ii) poor performance of concessionaires due to economic slowdown, (iii) cash flow problems, and (iv) law and order issues. Such delays increase project costs, eventually making certain projects unviable.

Government Initiatives

Some initiatives undertaken by the government are as follows:

- The Government of India has allocated Rs. 111 lakh crore (US\$ 13.14 billion) under the National Infrastructure Pipeline for FY 2019-25. The Roads sector is expected to account for 18 per cent capital expenditure over FY 2019-25.
- Government of India approved the launch of Phase-III of its rural road programme Pradhan Mantri Gram Sadak Yojana (PMGSY) which aims at consolidation of 1,25,000 kms through Routes and Major Rural Links that connect habitations to Gramin Agricultural Markets (GrAMs), Higher Secondary Schools and Hospitals with an estimated cost of Rs. 80,250 crores for the period 2019-20 to 2024-25.
- A total of 65,000 km of roads and highways are to be constructed under Bharatmala Pariyojana.
- 100 per cent FDI is allowed under the Automatic route subject to applicable laws and regulations.
- **Connectivity in Remote Areas:** The Ministry of Road Transport and Highways also allocates funds towards the development of highways in areas with poor connectivity. Some of these projects include the Special Accelerated Road Development Programme in North East (SARDP-NE), Externally Aided Projects and Roads Projects in Left-Wing Extremism Affected Areas.
- In order to accelerate the pace of construction, large number of initiatives has been taken to revive the stalled projects and expedite completion of new projects by the Ministry of Road Transport and Highways. These include:
 - i) Streamlining of land acquisition and acquisition of major portion of land prior to invitation of bids.
 - ii) Award of projects after adequate project preparation in terms of land acquisition, clearances, etc.
 - iii) Close coordination with other Ministries and State Governments
 - iv) One time fund infusion
 - v) Regular review at various levels and identification/removal of bottlenecks in project execution
 - vi) Proposed exit for Equity Investors
 - vii) Securitisation of road sector loans
 - viii) Disputes Resolution mechanism revamped to avoid delays in completion of projects.

5.3.1.2 Railways

The Indian Railways is among the largest rail networks in the world. The Indian Railways route length network is spread over 1,23,236 km, with 13,452 passenger trains and 9,141 freight trains from 7,349 stations plying 23 million travellers and 3 million tonnes (MT) of freight daily. The railway network is ideal for long-distance travel and movement of bulk commodities, apart from being an energy efficient and economic mode of conveyance and transport. Indian Railways is the preferred carrier of automobiles in the country.

Government of India has focused on investing in railway infrastructure by making investor-friendly policies. It has moved quickly to enable Foreign Direct Investment (FDI) in railways to improve infrastructure for freight and high-speed trains. At present, several domestic and foreign companies are also looking to invest in Indian rail projects. Foreign Direct Investment (FDI) inflows into Railways Related Components from April 2000 to June 2020 stood at US\$ 1.12 billion.

Government initiatives

Few initiatives taken up by the Government are:

- **Freight on Priority:** Railways has embraced a “Freight on Priority” policy by pushing for an aggressive customer-centric approach to expand the freight carried not only from the traditional segments but also by attracting new customers to its fold.
- India entered a new era of mobility with Vande Bharat Express - India’s first high-tech, energy-efficient, self-propelled train. This is a prime example of the success of Make in India movement. This train will be proliferated across India and also exported globally.
- The Railways is undertaking measures for improving speed of both passenger and freight trains. Indian Railway is constructing more than 3000 km of Dedicated Freight Corridor (DFC), which would enable freight trains to run at speed of 100 kmph.
- Dedicated Freight Corridors which are special tracks and arrangements for goods trains are getting completed at unprecedented speed. They are expected to decongest the existing Indian Railway network, increase the average speed of goods trains from existing 25 to 70 kmph., run Heavy Haul trains, facilitate the running of longer (1.5 km) and double stack container trains, connect the existing ports and industrial areas for faster movement of goods, ensure an energy efficient and environment friendly rail transport system as per global standards, increase the rail share from existing 30 per cent to 45 per cent and reduce the logistic cost of transportation.
- New Services in Passenger Operations with PPP in Train Operations: Railways is now undertaking a partnership approach for passenger train operations in order to enhance overall service quality and operational efficiency. This aims at improving the passenger experience and bringing modern technologies and private investments
- India has made a huge leap of self-sufficiency in manufacturing related activities of the Railways. India is now building modern trains for itself and exporting it as well. For instance, in Uttar Pradesh only, the Locomotive

Works in Varanasi is becoming a big electric locomotive centre in India. The railway coaches which are being built here are now being exported to foreign countries also.

- A National Rail Plan (NRP) 2030 has been developed with a view to develop infrastructure by 2030 to cater to the traffic requirements upto 2050. Based on the NRP, a Vision 2024 document has been prepared to develop infrastructure by 2024 to enhance modal share of Railways in freight transportation to more than 40 per cent and to cater to the traffic requirements upto 2030.
- Electrification has been accorded high priority as a part of the national goal to transform India into a green nation. 66 per cent of track length has been electrified by November 2020. Railways aim to complete electrification of its entire broad-gauge network by 2023. The speed of electrification has been greatly scaled up from a level of 1176 km in 2014-15 to 5276 in 2018-19 and 4378 km in 2019-20.
- Government has enhanced the role of the PPP beyond providing maintenance in the areas such as redevelopment of stations, building private freight terminals and private container train operations.

5.3.1.3 Shipping and Ports

Ports are economic and service provision units of remarkable significance since they act as a place for the interchange of two transport modes, maritime and land, whether by rail or road. With a coastline of about 7,517 km. Indian ports and shipping industry plays a vital role in sustaining growth in the country's trade and commerce. According to the Ministry of Shipping, around 95 per cent of the country's trading by volume and 70 per cent by value is done through maritime transport. The country has 12 major ports and 212 notified non-major (minor/intermediate) ports along the coast-line and sea-islands. Many ports in India (such as Mundra Port, Sikka Port, Hazira Port, etc.) are evolving into specialised centres of economic activities and services and are vital to sustain future economic growth of the country. Over the last decade, there has been a steady increase in handling of cargo traffic at Indian ports (refer Table 5.3). The compound annual growth rate of total cargo throughput at Indian ports during the period 2001-02 to 2018-19 was 7.4 per cent.

Table 5.3: Growth of Cargo at Indian Ports

Parameters	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Trends in India's Select: Macro Parameters							
Total Cargo	2.2	4.1	8.2	1.9	5.8	6.6	6.1

Source: Based on Data from Major ports and Non-major ports.

However, Indian ports face several infrastructural and operational challenges. They include: (i) Operational efficiency of Indian ports still lags behind the global average. For instance, the turnaround time (TAT) at major ports was approximately 2.5 days in 2018-19, whereas global average benchmark is 1-2 days. (ii) last mile connectivity to the ports is one of the major constraints in smooth movement of cargo to/from the hinterland. Around 87 per cent of Indian freight uses either road or rail for transportation of goods where a significant share experiences "idle time" due to capacity constraints on highways and railway lines. Water-

borne transport which is much safer, cheaper and cleaner, compared to other modes of transportation accounts for less than 6% of India's modal split. Significant savings can be achieved by shifting movement of industrial commodities like coal, iron ore, cement and steel to coastal and inland waterways. (iii) location of industries / manufacturing centres vis-à-vis the ports is such that the country has a greater container exporting cost than that compared with competitors like China. Hence, greater savings could be possible with the presence of major manufacturing and industrial zones in coastal regions in India.

Government initiatives

The Indian Government plays an important role in supporting the ports sector. It has allowed Foreign Direct Investment (FDI) of up to 100 per cent under the automatic route for port and harbour construction and maintenance projects. Ports sector in India has received a cumulative FDI of US \$ 1.64 billion between April 2000 and March 2019. In March 2018, a revised Model Concession Agreement (MCA) was approved to make port projects more investor-friendly and make investment climate in the sector more attractive. In addition to this, project UNNATI has been started by Government of India to identify the opportunity areas for improvement in the operations of major ports. Under the project, 116 initiatives were identified out of which 91 initiatives have been implemented as of November 2018.

Sagarmala – a Port-led Development Programme

The concept of Sagarmala was approved by the Union Cabinet on 25th March 2015. As part of the programme, a National Perspective Plan (NPP) for the comprehensive development of India's 7,500 km coastline, 14,500 km of potentially navigable waterways and maritime sector has been prepared. Components of Sagarmala Programme are:

Port Modernisation and New Port Development: De-bottlenecking and capacity expansion of existing ports and development of new greenfield ports

Port Connectivity Enhancement: Enhancing the connectivity of the ports to the hinterland, optimising cost and time of cargo movement through multi-modal logistics solutions including domestic waterways (inland water transport and coastal shipping)

Port-linked Industrialisation: Developing port-proximate industrial clusters and Coastal Economic Zones to reduce logistics cost and time of EXIM and domestic cargo.

Coastal Community Development: Promoting sustainable development of coastal communities through skill development and livelihood generation activities, fisheries development, coastal tourism etc.

Coastal Shipping and Inland Waterways Transport: Impetus to move cargo through the sustainable and environment-friendly coastal and inland waterways mode.

The Indian government plans to develop 10 coastal economic regions as part of plans to revive the country's Sagarmala (string of ports) project.

Achievements

Some of the achievements of the government include: Turnaround time at major ports in India has decreased at a rapid pace from 82.32 hours in FY17 to 59.51 hours in FY19. Five times more growth in major ports' traffic recorded during 2014-18, compared to 2010-14. Increased efficiency has led three times increase in net profits of major ports between FY14-18.

5.3.1.4 Aviation

As of 2019, India is the ninth largest aviation market with a passenger throughput of 344 million. As of 2021, the sector has 91 international carriers comprising of 5 Indian carriers and 86 foreign carriers connecting over 40 countries; and the sector is contributing US \$ 72 billion to GDP. The Ministry of Civil Aviation is the nodal authority responsible for the formulation of national policies and programmers for development and regulation of the civil aviation industry in the country. The growth of airlines traffic in the Indian aviation industry is almost 4 times above the international average. In the year 1991, a total of 10,717,400 passengers were carried in Indian airlines. This number grew multifold to 139,822,450 in 2017. In addition to a robust GDP growth driving increased spends on air travel, low fares have led to a rise in demand in smaller-towns of India. India Airlines market despite of being the fastest growing market, has been one of the toughest aviation markets in the world due to—

- High fuel prices (a sales tax of nearly 30 per cent is levied on jet fuel which jacks up flight operations for airlines; also, there is an excise duty of 11 per cent levied on jet fuel since October 2018);
- Poor and insufficient infrastructure (air traffic is increasing, consequently space is decreasing to accommodate them);
- Low cost carriers have made the market extremely price sensitive, rigid regulations, i.e., ample regulations and laws still hold back the industry and do not provide room for improvement and profits.

Post reforms of 1991, aviation sector saw a major reform in its structural and operational context. The major reforms that redesigned the aviation sector were:

- 1) Liberalisation: Repealing of the monopolistic Air Corporation Act in 1994 was followed by heavy disinvestment in the two public sector airlines— Indian Airlines Corporation and Air India International, leading to the opening up of the domestic sector to private players, bringing in more competition and the resulting benefit of reduced fares.

PPP model: Amidst the constrained fiscal position, the government has given way to new financing models for the development of airports. Public Private Partnership (PPP) model i.e. Build Operate and Transfer (BOT), Build Own Operate and Transfer (BOOT) have been tried for development of Airports in India. For instance, in November 2018, the Government of India approved a proposal to manage six AAI airports under public private partnership (PPP) situated in Ahmedabad, Jaipur, Lucknow, Guwahati, Thiruvananthapuram and Mangaluru.

- 2) Open Sky Policy: The Open Sky Policy which allows foreign airlines of any country or ownership to land at any port on any number of occasions

and with unlimited seat capacity brought in a massive change in the aviation sector. That is, the Government opened the skies to private players.

- 3) **FDI Policy:** Government has put in place an investor friendly policy on FDI in the aviation sector, under which 100 per cent FDI (Automatic up to 49 per cent and Government route beyond 49 per cent) is permitted in scheduled Air Transport Service/Domestic Scheduled Passenger Airline, while for NRIs 100 per cent FDI is permitted under the automatic route. Also, foreign investment in M/s Air India Ltd is brought on a level playing field with other scheduled airline operators with the amended FDI policy which enables foreign investment by NRIs into M/s Air India Ltd. up to 100 per cent under automatic route. According to data released by the Department of Industrial Policy and Promotion (DIPP), FDI inflows in India's air transport sector (including air freight) reached US\$ 1,904.37 million between April 2000 and June 2019.
- 4) **Low Cost Carriers (LCC):** In 2003 Low Cost Carrier (LCC) entered the domestic aviation industry which led to substantial fall in the market share of Legacy carriers such as Air India, Indian Airlines and Jet Airways giving rise to fierce price wars between various airlines. The period following the introduction of the LCCs has been one of rapid growth for the Indian airline industry as they enhanced the affordability of air travel and hence the demand for air travel in India.
- 5) **Greenfield Airports:** A greenfield airport denotes a project that lacks constraints, imposed upon it by prior work or existing infrastructure. In 2007, the Indian government finalised the policy on greenfield airports. According to the new policy, state governments wanting to set up a greenfield airport could either do so themselves or through any designated entity or a joint venture company. For instance, the Government of Andhra Pradesh is to develop Greenfield airports in six cities under the PPP model.

5.3.2 Telecommunications

India is currently the world's second largest telecommunications market with a subscriber base of 1.19 billion and has registered strong growth in the past decade and half. The telecommunication industry in India is rapidly growing and witnessing many developments. The sector is becoming more competitive day-by-day, with the introduction of new players (which in turn has led to sharp and steady decline of average revenue per user) and has truly revolutionised the way we communicate and share information. The exponential growth is primarily driven by affordable tariffs, wider availability, roll out of Mobile Number Portability, expanding 3G and 4G coverage and the onset of 5G technologies, evolving consumption patterns of subscribers and a conducive regulatory environment. The industry has undergone a major process of transformation through several policy reforms and regulations. These include:

- 1) **Liberalisation:** With the announcement of the New Economic Policy in July 1991, the telecom sector was declared open to the private sector. This initiated the transformation of the once government owned monopolistic telecom market to a multi-operator open competitive market.
- 2) **National Telecom Policy of 1994:** In 1994, the government announced the National Telecom Policy which further stimulated the growth of the

industry by provision of world class services at reasonable rates, promotion of exports, stimulation both domestic and foreign direct investments.

- 3) The Telecom Regulatory Authority of India Act, 1997: Established Telecom Regulatory Authority of India (TRAI) which was necessary to regulate the private players in the telecom sector.
- 4) New Telecom Policy of 1999: Laid down a clear road map for future reforms by opening by all the sectors in telecommunications to private players.
- 5) National Telecom Policy 2012: Launched to provide secure, reliable, affordable and high quality converged telecommunication services anytime, anywhere for an accelerated inclusive socio-economic development.
- 6) National Digital Communications Policy 2018: Launched to ensure digital sovereignty. For instance, under it the government aims to provide universal broadband connectivity at 50 Mbps to every citizen.
- 7) Technological Innovations: The growth of telecom industry has also been fuelled by the launch of newer telecom technologies like 3G, and Broadband Wireless Access (BWA), and emergence of cloud technologies. Efforts are continuously made to develop affordable technology for masses and reinvigorate the maturing urban markets and help in bringing balanced growth of economy.
- 8) FDI Policy: FDI cap in the telecom sector has been increased to 100 per cent from 74 per cent; out of 100 per cent, 49 per cent will be done through automatic route and the rest will be done through the approval route. FDI of up to 100 per cent is permitted for infrastructure providers offering dark fibre, electronic mail and voice mail. FDI inflows into the telecom sector during April 2000 – March 2019 totaled to US\$ 32.82 billion, according to Department for Promotion of Industry and Internal Trade (DPIIT).

5.3.3 Power

Power is one of the most critical components of infrastructure crucial for the economic growth and welfare of people. India's power sector is one of the most diversified in the world. Sources of power generation range from conventional sources such as coal, lignite, natural gas, oil, hydro and nuclear power to viable non-conventional sources such as wind, solar, small hydro and biomass. The country's achievements in the power sector in the recent years have been outstanding. Electricity generation (both from conventional and non-conventional sources) increased from 808.5 billion units (BU) (in 2009-10) to 1389.1 BU (in 2019-20), a growth of around 72 per cent. As of January 2021 the national electric grid in India has an installed capacity of 377.261 Giga Watts (GW).

The Government is implementing reforms towards a secure, affordable and sustainable energy system to power a robust economic growth. Some of the key policy reforms in the power sector include:

Liberalisation: India's generation capacity has increased considerably. This increase is attributed to the delicensing of power generation in 2003, which enabled unrestricted participation of private sector companies. India now has

the institutional framework it needs to attract more investment for its growing energy needs. Between April 2000 and June 2019, the industry attracted US\$ 14.54 billion in Foreign Direct Investment (FDI), accounting for 3 per cent of total FDI inflows in India. Also, Government allows private-sector investment in coal mining, and has opened up the country's oil and gas retail markets.

Pricing Reforms: The country is taking advantage of the important energy pricing reforms in the coal, oil, gas, and electricity sectors which are fundamental to further opening the energy market and improving its financial health.

Energy Security: India's electricity security has improved markedly through the creation of a single national power system and major investments in thermal and renewable capacity. It is taking significant steps to enhance its energy security by fostering domestic production through the most significant upstream reform of India's Hydrocarbon Exploration and Licensing Policy (HELP) and building up dedicated oil emergency stocks in the form of a strategic petroleum reserve.

Around 750 million people in India gained access to electricity between 2000 and 2019, reflecting strong and effective policy implementation. As of April 28, 2018, 100 per cent village electrification achieved under Deen Dayal Upadhyaya Gram Jyoti Yojana (DDUGJY). The country's energy deficit reduced to 0.7 per cent in Financial Year (FY) 18 from 4.2 per cent in FY14. Also, the country's rank jumped to 24 in 2018 from 137 in 2014 on World Bank's Ease of doing business - "Getting Electricity" ranking.

Renewable Energy: India's power system is currently experiencing a major shift to higher shares of variable renewable energy. With solar and wind power becoming cheaper, cleaner sources of energy have also become affordable. As of November 2020, the country's renewable power capacity is the 4th largest in the world generating 136 GW, which is about 36 per cent of our total capacity.

The government is pursuing a very ambitious deployment of renewable energy, notably solar, and has boosted energy efficiency through innovative programmes such as replacing incandescent light bulbs with LEDs (under the Ujala scheme). And it is addressing the serious health problems caused by air pollution for its major cities, providing 80 million households with liquefied petroleum gas connection (under the Pradhan Mantri Ujjwala Yojana scheme), thereby reducing the exposure from biomass cooking stoves, a major cause of respiratory diseases.

Financial Health: The government is working to improve the financial viability of the power sector which is dealing with surplus capacity, lower utilisation of coal and natural gas plants, and increasing shares of variable renewable energy. For instance, Ujwal Discoms Assurance Yojana (UDAY) was launched by the Government of India to encourage operational and financial turnaround of State-owned Power Distribution Companies (DISCOMS).

The power generation situation in the country has improved in the last few years. In June 2017, the Minister of Power announced that India has become a power surplus country, with no shortage of electricity or coal. Despite this, the sector continues to face several issues. Access to power and the quality of power supplied to consumers is still poor. India also continues to face both energy deficit (0.7%) and peak deficit (2%). The deficit situation is worse in certain states such as Jammu and Kashmir, and the north-eastern states. Despite all villages being

electrified, continuous supply of electricity continues to remain a challenge. Another key issue is the poor financial health of the electricity distribution companies, which is affecting their ability to buy power and improve the supply network. While their debt to banks was addressed to a certain extent by UDAY, the debt they owe to power plants remains a concern.

5.3.4 Banking

The Indian banking system consists of 18 public sector banks, 22 private sector banks, 46 foreign banks, 53 regional rural banks, 1,542 urban cooperative banks and 94,384 rural cooperative banks as of September 2019. The banking industry infrastructure has been undergoing revolution wherein the information technology and electronic funds transfer system have emerged as the twin pillars of modern banking development. Online infrastructure and internet connectivity allow digital and direct transfer of Government services and subsidy benefits to the citizens' bank accounts. The industry has undergone structural transformation through the years as directed by the following policies and reforms:

- i) First Phase of Banking Sector Reforms based on the Narasimham committee report 1991 included the following measures— lowering Statutory and Liquidity Ratio (SLR) and Cash Reserve Ratio (CRR), Prudential norms, Capital Adequacy Norms, Deregulation of Interest Rates, Recovery of Debts by setting up Special Recovery Tribunals, enhanced competition from new Private sector banks (which were allowed to raise capital contribution from foreign institutional investors up to 20 per cent and from NRIs up to 40 per cent).
- ii) Second Phase of Banking Sector Reforms based on Narasimham committee report 1998 included the following measures— Opening up of New Areas (Insurance, credit cards, asset management, leasing, gold banking, etc.) and New Instruments (Interest rate swaps, cross currency forward contracts, etc.), Risk Management and Strengthening Technology (with electronic funds transfer, centralised fund management system, etc.), increase in FDI limit, adoption of Global Standards and Information Technology (by introduction of e-banking, telephone banking, etc.), management of NPA, guidelines for Anti-Money laundering, Base Rate System of interest rates, etc.
- iii) Financial Inclusion: Financial Inclusion is a national priority as it is an enabler for inclusive growth by providing an avenue to the poor for bringing their savings into the formal financial system, an avenue to remit money to their families in villages besides taking them out of the clutches of the usurious money lenders. A key initiative towards this commitment is the Pradhan Mantri Jan Dhan Yojna (PMJDY), which involves ensuring access to financial services, namely, Banking/Savings & Deposit Accounts, Remittance, Credit, Insurance, Pension in an affordable manner.

One of the leading issues concerning the banking sector is that of mounting stressed assets which have plagued the banking sector, especially the public sector banks since long. Several initiatives have been undertaken and are also underway to strengthen the regulatory and supervisory frameworks aimed at increasing the resilience of the banking system. These include:

Recapitalisation of Public Sector Banks: Government announced Indradhanush plan for revamping Public Sector Banks (PSBs) in August 2015 by infusing capital

of Rs. 70,000 crore over a period of four financial years. Capital infusion is aimed at supplementing the achievement of regulatory capital norms by PSBs through their own efforts and, in addition, based on performance and potential, augmenting their growth capital.

Merger of Public Sector Banks: Since 2016, effective action has been undertaken to consolidate Public Sector banks by way of amalgamation. The merger of banks is expected to facilitate the creation of strong and competitive banks in the Public Sector space to meet the credit needs of a growing economy, absorb shocks and have the capacity to raise resources without depending unduly on the State exchequer.

In 2014, the Committee to Review Governance of Boards of Banks in India (P.J. Nayak Committee) was also constituted. Its key recommendations focused on enhancing the governance and management of public sector banks which continued to have a large presence in India's banking sector.

Resolution of Stressed Assets: The resolution mechanism is instituted through Insolvency and Bankruptcy Code (IBC), 2016 which provides a market mechanism for time-bound insolvency resolution enabling maximisation of value.

5.3.5 Housing and Urban Infrastructure

Usually, urban infrastructure builds up gradually in sync with the progress of industrialisation, as has been experienced by the western world. In contrast to this, in India, urbanisation and the attached pressure to build the urban infrastructure have not been gradual in sync with the industrial growth. This is because of the rapid pace with which the urban population has been growing. This increase is because of two reasons— first is the natural increase of urban population and second is the migration from rural to urban areas. This migration has been more so surging post 1990 reforms when Indian economy and especially the urban areas started to experience rapid economic growth. According to Census 2011, 377.1 million Indians comprising 31.14 per cent of the country's population lived in urban areas. As per the estimates by the UN, urban India accounted for close to 34 per cent of its total population in 2018 and the number is forecasted to exceed 50 per cent by 2046. (Refer Table 5.4). This necessitates investments in housing, road network, urban transport, water supply, power-related infrastructures, smart cities, and other forms of urban management.

Table 5.4: Urbanisation in India

	Persons in Million Numbers		Decadal Growth in Population %	
	2001	2011	1991-2001	2001-2011
Total	1029	1210	21.5	17.6
Rural	743	833	18.1	12.2
Urban	286	377	31.5	31.8

Urbanisation is a major driving force behind Indian economic growth and contributes close to 60 per cent of its Gross Domestic Product. While urbanisation process resulted into economic growth in the country, but equally it is true that, there exist number of problems associated with the urbanisation. Some of them

include: urban air and water pollution resulting in global warming and climate change; exorbitant levels of urban solid waste, inadequate urban transport.

Policy Initiatives

The urbanisation in India is inevitable thus, the need for solving the various problems associated with it requires a combination of actions, starting with increased investment; strengthening the framework for governance, and most importantly capacity building for the people and the institutions engage in urban affairs.

Recognising the vast impact that Urbanisation has on the environment, the Indian government committed its Intended Nationally Determined Contribution (INDC) to United Nation Framework Convention on Climate Change (UNFCCC) in 2015. The INDC centres around India's policies and programmes on promotion of clean energy, resilient urban centres, promotion of waste to wealth, safe, smart and sustainable green transportation network, abatement of pollution and efforts to fight the build-up of carbon by enhancing the carbon sink through creation of forest and tree cover.

The government of India has launched various programmes to address urban governance issues and gaps in infrastructure. Some of the key programmes include the Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Heritage City Development and Augmentation Yojana (HRIDAY), Smart Cities Mission, Clean India Mission and R-Urban Mission.

The Real Estate (Regulation and Development) Act, 2016 (RERA): The RERA is one of the significant reforms implemented in the real estate sector with an objective to ensure regulation and promote real estate sector in an efficient and transparent manner and to protect the interest of home buyers.

The Pradhan Mantri Awas Yojana- Urban (PMAY-U)– which envisions 'Housing for All-Urban', was launched in June, 2015 to provide pucca house with basic amenities to all eligible urban poor by 2022.

The country is participating in the United Nations' "New Urban Agenda", which aims to make cities more networked, closer to their citizens and more sustainable in the future. In the "Housing for all" project, the government aims to provide affordable housing even for the poorest – a total of 20 million houses in more than 2,500 cities. And with the "Smart Cities Mission", more than 100 urban spaces are to be transformed into digitally networked conurbations.

5.4 SOCIAL INFRASTRUCTURE: GROWTH AND POLICY ISSUES

5.4.1 Education

India holds an important place in the global education industry. By 2030, India is set to have the largest working age population in the world. Not only do they need literacy but they need both job and life skills. This provides a great opportunity for the education sector. India's educational system broadly comprises school education (elementary, secondary and higher secondary), higher education (general and professional) and vocational education. The Ministry of Human

Resource Development (MHRD) is the nodal ministry for the sector. Expenditure in education sector as percentage of GDP increased from 2.8 per cent in 2014-15 to 3.1 per cent in 2019-20. As per the data released by Department for Promotion of Industry and Internal Trade (DPIIT), the total amount of Foreign Direct Investment (FDI) inflow into the education sector in India stood at US\$ 2.47 billion from April 2000 to March 2019.

India has seen a rapid expansion in the higher education sector since 2001. There has been a dramatic rise in the number of higher education institutions (HEIs) and enrolment has increased fourfold. The Indian higher education system is now one of the largest in the world, with 993 Universities, 39931 Colleges and 10725 Stand Alone Institutions. Despite the increased access to higher education in India, challenges remain. Low employability of graduates, poor quality of teaching, weak governance, insufficient funding, and complex regulatory norms continue to plague the sector. India's gross enrolment ratio (GER) in 2018-19 was 26.3 per cent but still far from meeting the MHRD's target of achieving 50 per cent GER by 2035.

Government Initiatives

Indian educational policy and reforms emphasised on overcoming challenges to improve low enrolment ratio in higher education, low quality of teaching and learning, constraints on research capacity and innovation, uneven growth and access to learning opportunities, etc. Some of the major initiatives taken by the Government of India are:

- SWAYAM (Study Webs of Active learning for Young Aspiring Minds)– a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality.
- The National Digital library of India (NDLI)– a project initiated under the National Mission on Education through Information and Communication Technology (NMEICT) to develop a virtual repository of learning resources with a single-window search facility.
- The Mission of Unnat Bharat Abhiyan to leverage the intellectual capital of higher educational institutions for the upliftment of rural India.
- The Pandit Madan Mohan Malaviya National Mission on Teachers and Teaching (PMMNMTT) to address issues related to teachers and teaching.
- Prime Minister Research Fellows (PMRF) scheme to support 1000 bright undergraduate students every year, for direct admission in the research programmes in the reputed institutions like IISc, IITs.
- The National Institutional Ranking Framework (NIRF) adopted by the MHRD to rank institutions of higher education in India.
- Sarva Shiksha Abhiyan – a Centrally Sponsored Scheme in partnership with State Governments for universalising elementary education across the country.
- National Education Policy 2020: The National Education Policy (NEP), 2020 – approved by the Union Cabinet on 29th July 2020 to make way for large scale, transformational reforms in both school and higher education sectors – is built on the foundational pillars of Access, Equity, Quality,

Affordability and Accountability. Key highlights of the policy include:

- Ensuring Universal Access at all levels of school education;
 - Early Childhood Care and Education with new Curricular and Pedagogical Structure;
 - Reforms in school curricula and pedagogy;
 - Emphasis on promoting multilingualism and Indian languages;
 - Assessment reforms;
 - Equitable and inclusive education;
 - Robust and transparent processes for recruitment of teachers and merit-based performance;
 - Exposure of vocational education in school and higher education system;
 - Increasing GER in higher education to 50 per cent by 2035;
 - Holistic Multidisciplinary Education with multiple entry/exit options;
 - Expansion of open and distance learning to increase GER.
 - The Centre and the States to work together to increase the public investment in Education sector to reach 6 per cent of GDP at the earliest.
- In pursuance with the Prime Minister's vision for 'Transforming India', Ministry of Human Resource Development took a leap forward in transforming education sector with the motto of "Education for All, Quality Education". MHRD has launched—
 - (i) Pradhan Mantri Innovative Learning Program– DHRUV; (ii) NISHTHA– National Initiative for School Heads' and Teachers' Holistic Advancement; (iii) Integrated Online junction for School Education 'Shagun'; (iv) a five-year vision plan named Education Quality Upgradation and Inclusion Programme (EQUIP); (v) Several new schemes in Higher Education Department to boost research and Innovation culture in the country.
 - Degree level full-fledged online education programme started to provide quality education to students of deprived sections of the society as well as those who do not have access to higher education. Through this initiative Gross Enrolment Ratio will be increased.

Looking ahead

In 2030, it is estimated that India's higher education will adopt transformative and innovative approaches and will emerge as a single largest provider of global talent, with one in four graduates in the world being a product of the Indian higher education system.

5.4.2 Health

Depending on the level of care required, healthcare in India is broadly classified into three types. This classification includes primary care (provided at primary health centres), secondary care (provided at district hospitals), and tertiary care institutions (provided at specialised hospitals like AIIMS). Primary health care infrastructure provides the first level of contact between health professionals and the population. Broadly, based on the population served and the type of

services provided, primary health infrastructure in rural areas consists of a three-tier system. This includes Sub-Centres (SCs), Primary Health Centres (PHCs), and Community Health Centres (CHCs). A similar set up is maintained in urban areas.

Issues concerning the Healthcare sector in India include:

- A) Shortfall at different levels of the healthcare delivery system. As of 2018, there is a shortage of 2,188 CHCs, 6,430 PHCs and 32,900 SCs.
- B) Shortfall of doctors. As of 2018, there is a shortfall of 46 per cent of doctors, and 82 per cent of specialists including surgeons, obstetricians, gynaecologists, physicians, and paediatricians in Primary Health Centres across India. Certain reasons identified for the shortage of personnel in government facilities include: (i) poor working environment, (ii) poor remuneration making migration to foreign countries and to the private sector more attractive, and (iii) procedural delays in recruitment and poor forward planning for timely filling up of positions.
- C) Low public health spending in healthcare. The public health expenditure (sum of central and state spending) has remained between 1.2 per cent to 1.5 per cent GDP between 2008-09 and 2018-19, which is relatively low as compared to other countries. This has been resulting in high out of pocket healthcare expenditure. It is estimated that 65 per cent of the health expenditure is borne by consumers in India

Government Initiatives

Some of the major initiatives taken by the Government of India to promote Indian healthcare industry are as follows:

- Pradhan Mantri Swasthya Suraksha Yojana (PMSSY): a Central Sector Scheme, announced in August 2003 to address imbalances in availability of tertiary care hospitals and improve medical education in the country. It has two components— Setting up of new AIIMS, and up-gradation of existing State/Central Government Medical College/Institutions (GMC).
- Mission Indradhanush: launched in 2014 to strengthen and re-energise the programme and achieve full immunisation coverage for all children and pregnant women at a rapid pace.
- Ayushman Bharat Yojana: a national initiative launched as the part of National Health Policy 2017, in order to achieve the vision of Universal Health Coverage (UHC). The Ayushman Bharat comprises of two inter-related components, (i) Establishment of Health and Wellness Centres, and (ii) Pradhan Mantri Jan Arogya Yojana (PM-JAY)
- Pradhan Mantri Jan Arogya Yojana (PMJAY): Launched in September 2018 under the Ayushman Bharat programme, PMJAY aims to provide a cover of Rs. five lakh per family per year to 10.7 crore families (no cap on family size and age) belonging to poor and vulnerable population for secondary and Tertiary Healthcare.
- The National Medical Commission Act, 2019: A legislation passed by Parliament to provides for a medical education system which ensures: (i) availability of adequate and high quality medical professionals, (ii) adoption

of the latest medical research by medical professionals, (iii) periodic assessment of medical institutions, and (iv) an effective grievance redressal mechanism.

- The Government of India is planning to increase public health spending to 2.5 per cent of the country's GDP by 2025.

Looking Ahead

Healthcare has become an important cornerstone in India's development plan, with various initiatives including Ayushman Bharat- Health and Wellness Centers (HWCs) and Pradhan Mantri Jan Arogya Yojana (PM-JAY), Swachh Bharat, Digital India, Skill India, Start-up India, Make in India etc. In synergy, these initiatives will comprehensively address the healthcare challenges of India, such as reducing overall burden of diseases, lowering out-of pocket expenditure, augmenting healthcare infrastructure and promoting access to quality care. However, to provide assurance of healthcare for all, the government must recognise and address the rising concerns and sustainability of the private healthcare providers, which account for 70 per cent of bed capacity expansion over the past decade and cater to 60 per cent of inpatient care demands of the country. As healthcare services and coverage expand, successful implementation will require a parallel concerted push towards quality assurance, appropriate governance and regulation, improving referral pathways as well as leveraging appropriate technologies and innovations at all levels. This will be possible only with effective collaborations between all the stakeholders, including the private sector.

5.5 INFRASTRUCTURE: CHALLENGES AND WAY AHEAD

The Government of India has launched various critical infrastructure projects like Power for All, Smart Cities Mission, Swachh Bharat mission, and many more with an objective to build world class infrastructure in the country. However, as per Ministry of Statistics and Programme Implementation's (MoSPI) Flash report of January 2018, it is observed that around 20 per cent of the central sector projects are delayed beyond their scheduled date of completion. Managing these complex projects has always been a challenge, especially since these projects are long-term, involve multiple stakeholders, bring-in new technologies, and constrained resources. Most of the infrastructure projects are delayed primarily due to regulatory approvals, issues on land acquisition, shortage of skilled resources, ineffective dispute resolution mechanism, and geological challenges. Some of the major challenges faced in the infrastructure development in the country are:

Land Acquisition: Land acquisition has been the single largest roadblock for the development of infrastructure. Several projects have been stalled or delayed due to land acquisition issues. The causes behind delays in land acquisition includes resistance from farmers or local communities whose land is being acquired and lack of well-planned, efficient, and demonstrable rehabilitation packages for displaced persons.

Delay in regulatory and environmental clearance: There are various categories of approvals required across the project cycle at every stage, right from the pre-

tendering stage to post-construction causing delays in the process. Clearly, better governance will be a big help in mitigating long delays in infrastructure projects.

Funding Constraints: There is increasing reliance on the private sector for developing and maintaining infrastructure that need funds for projects that are often capital intensive and have a high gestation period. The private investment in infrastructure projects is typically in the form of debt raised by developers. India's long-term debt market is not deep enough. Equity markets are not favourable for financing projects either, because of uncertainties involved in execution and returns. These issues remain unresolved and continue to create problems in financing infrastructure projects.

Capacity of private players: Infrastructure projects in India are becoming larger in size and complexity, and such projects require financial patronage and additional project management skills, which most medium-to-small Indian companies currently lack.

Way ahead

Land acquisition: Earlier, the government had made cabinet approval mandatory for leasing, licensing, or transferring land. By relaxing transfer regulations for land it owns, the government has taken a positive that should resolve the delay of projects by procedural issues, and complement the guidelines to resolve land issues.

Fast-track policy and regulatory reforms for efficient implementation: Sponsoring agencies need to make a concerted effort to develop strong performance management systems to drive timely execution of projects including defining performance standards for nodal agencies and creating a transparent and accurate tracking mechanism as well as performance-linked incentives and penalties.

Dispute Resolution: To eliminate the issues of delays and litigations, a Performance Review Unit should be given powers to gather information from nodal agencies on clearances and incentivise or regulate this.

Facilitate Funding for Infrastructure Projects: In this direction, setting up of Infrastructure Debt Funds (IDFs) and reduction in 'withholding tax' on the interest paid on these bonds are some other positive measures that are expected to facilitate the flow of long-term debt into infrastructure projects. Furthermore, introducing PPP mode by allowing the private sector into some former fully government-owned infrastructure sectors, such as telecommunications and domestic civil aviation, has also produced exemplary results. A significant start has been made in involving the private sector in the provision of transport infrastructure.

Check Your Progress 2

- 1) Discuss the recent policy initiatives undertaken by Government of India towards transport infrastructure development in India.

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- 2) Review the importance and present position of the education sector in the Indian economy.

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- 3) What are the major challenges in front of Indian infrastructural development?

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5.6 LET US SUM UP

Infrastructure which can be categorised into physical and social infrastructure represents the support system that facilitate economic activities and hence the economic growth. Besides promoting productivity and growth, infrastructure contributes to domestic market development, it mobilises savings, generates employment opportunities, leads to social development and social change. Infrastructure development has remained a national priority, and has played a pivotal role in helping the country emerge as one of the fastest growing economies in the world. Several reforms (like Power for All, Smart Cities Mission, Sagarmala, UDAY, etc.) have already happened across various sub-sectors of infrastructure including, roads, airports, ports, power and urban utilities and progress have been however much remain to be achieved to sustain and enhance economic growth. Also, it is imperative that infrastructure development occurs in a sustainable manner.

5.7 KEY WORDS

Infrastructure	: The stock of fixed capital equipment in a country, which facilitates different economic activities and thereby help in economic development of the country.
Physical Infrastructure	: It is directly concerned with the needs of such production sectors as agriculture, industry, trade, etc.
Social Infrastructure	: It is concerned with the supply of such services as meet the basic needs of a society like health services, drinking water, sewerage, sanitation, electricity, education facilities etc.
Hard Infrastructure	: It refers to the large physical networks necessary for the functioning of a modern industrial nation.

5.8 REFERENCES

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- 7) IBEF Indian Infrastructure- Industry Analysis Reports 2019

5.9 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) See Sub-section 5.1.1
- 2) See Sub-section 5.1.3
- 3) See Sub-section 5.1.4
- 4) See Sub-section 5.1.7

Check Your Progress 2

- 1) See Sub-section 5.3.1
- 2) See Sub-section 5.4.1
- 3) See Section 5.5