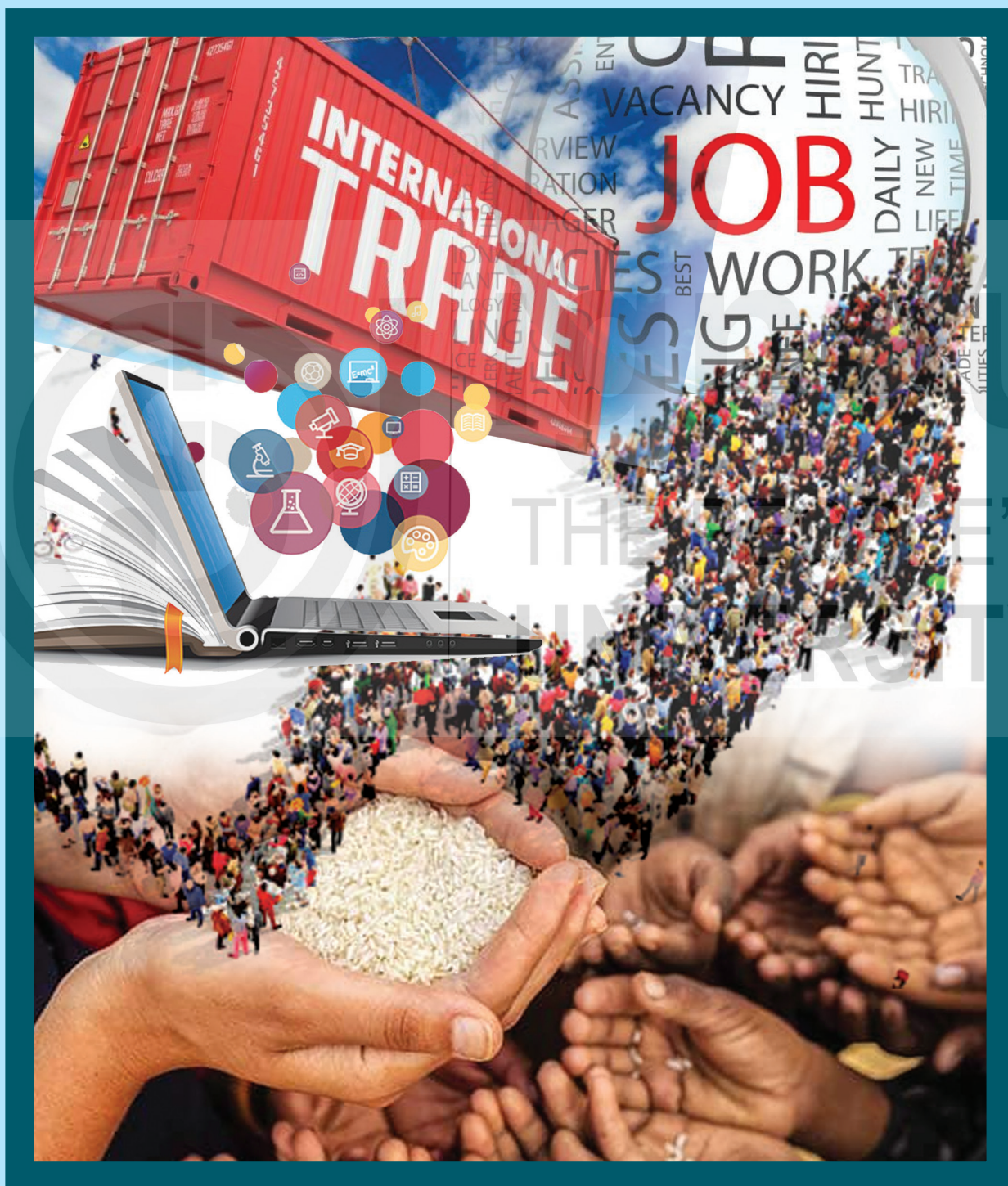


BECE-145 Indian Economy I





INDIAN ECONOMY - I

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Unit 3 Structural Changes Dr. Asim Karmakar, Jadavpur University; Prof. B. S. Prakash, SOSS, IGNOU.

Unit 4 Resources and Constraints Prof. Sebak Jana, Vidyasagar University.

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COURSE INTRODUCTION

The first block (**Block 1**) is on ‘Economic Development Since Independence’. It is important to begin by knowing the state of the economy that we inherited at the time of our independence. **Unit 1** gives an account of the ‘Economy at the Time of Independence’. You may be aware that there are different theories suggesting alternative approaches to development. To familiarise you with these, **Unit 2** deals with ‘Development Paradigms’. The base of the economy in terms of rural-urban distributions, proportion of workers engaged in primary/secondary/tertiary sectors of the economy, and contribution to GDP by the three sectors, have undergone significant shifts over the last seven decades (1950-2020). An account of this is given in **Unit 3** on ‘Structural Changes’. **Unit 4** apprises you on the resource base of the Indian economy in terms of ‘Resources and Constraints’.

During the period since Independence, the Indian economy has progressed in terms of its human development characteristics. To cover the strides made in this respect, **Block 2** deals with the theme of ‘Population and Human Development’. The block covers three major areas viz. Demographic Features (**Unit 5**), Education Sector (**Unit 6**) and Health and Nutrition (**Unit 7**). In spite of the concerted efforts at planned development, the benefits of growth would not evenly reach the different sections of society. Keeping this in view, **Block 3** focuses on the theme ‘Growth and Distribution’. It covers three important areas viz. Poverty (**Unit 8**), Inequality (**Unit 9**) and Employment and Unemployment (**Unit 10**).

It is important to know how our development trajectory compares with those of other economies both in the Asian region and outside. With this perspective in mind, **Block 4** focuses on ‘International Comparisons’. This is covered over four important areas viz. Growth and Structural Changes (**Unit 11**), Social and Economic Development (**Unit 12**), Trade and Balance of Payments (**Unit 13**) and Governance and Institutions (**Unit 14**).

Our endeavour has been to keep the content of the course centred around ‘concepts and methods’. This is done with a view to making the contents ‘time invariant’ as far as possible. Statistical data, wherever presented, are meant to give you an exposure to the ‘computational aspects of data analysis’. For instance, growth is an important dimension of development while ‘poverty and inequality’ reflects the distribution of the developmental outcome. Nature and extent of employment and unemployment are another important macro dimensions of development. Assessment of achievements and shortfalls on such dimensions need analytical indicators. Computation of such indicators require data. Data are published with differing periodicity and become available with a time lag. Further, data published for previous years often get revised. These factors make the computed indicators sensitive to the periods for which they are computed. In other words, with more recent data becoming available, variations in their values are to be expected.

Keeping the above in view, the course gives exposure to standard ‘data sources’. One such source is the Economic Survey. This is an annual publication (uploaded

online) released just before the presentation of the ‘union budget’. It draws on data published by different sources with variation in their time reference. For instance, population census has a decadal periodicity while the surveys of NSSO are in a 5-year periodicity. This means even in the Economic Survey of 2020, you would find data on certain aspects which pertain to a much earlier time point. The latest data that you can expect is on national income (i.e. output) that too for the past year 2019. Students should therefore remember that the data used in the units of this course are for illustrative purpose. They are advised to attempt fresh computations drawing from the data in Economic Surveys. This will help you to remain abreast with the latest trends in the ‘growth and distribution’ profiles of the Indian economy.

You should note that the more historical the data, greater are its nature of stability. The more recent is the data, greater are the chances of its being changed or revised. To put this in perspective, growth of economy over 1951-2000 is not likely to change even in 2050 but that of 2001-2020 would invariably be revised in the next few years. This underscores the caution that needs to be exercised on latest data.



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BLOCK 1
ECONOMIC DEVELOPMENT SINCE
INDEPENDENCE

BLOCK INTRODUCTION

Block 1: Economic Development Since Independence

Block 1 of this course is on 'Economic Development Since Independence'. It presents a picture of the Indian economy as we inherited it and the successive stage of development through which the economy has passed through over the decades. Various aspects of development are covered under '4 units' each devoted to a 'different theme' as follows.

Unit 1 is on '**Economy at the Time of Independence**'. It discusses the status of the economy at the time of independence in terms of three broad sectors viz. agriculture, industry and currency & finance. A second aspect on which the unit focuses is on the 'state of infrastructure'. Under this, the unit discusses the state of the economy at the time of independence in terms of social, economic and administrative infrastructural status.

Unit 2 is on '**Development Paradigms**'. It begins with an outline on the different 'approaches to development'. Distinction between approaches like market based approach, state led approach, inclusive growth approach and sustainable development approach are given. A differentiation between the broad two economic systems viz. capitalism and socialism, is also given. The two phases of development as prevailed during the first few decades of developmental planning i.e. the public sector dominant phase (phase I) and the phase with an increased role for markets (phase II) are discussed. Factors that have gone into the consideration of integrating the Indian economy with that of the global economy are explained.

Unit 3 is on '**Structural Changes**'. The unit discusses the changes over the decades in the growth of national Income, savings, investment, employment and urbanisation. Changes over time in 'regional disparities' and ICOR (incremental capital output ratio) are also discussed.

Unit 4 is on '**Resources and Constraints**'. The unit provides a distinction between natural resources and man-made resources. A differentiation between physical infrastructure and social infrastructure is also given. Issues like role of infrastructure in development, infrastructural development in India and significance of 'institutions and governance' are explained in the unit.

UNIT 1 ECONOMY AT THE TIME OF INDEPENDENCE*

Structure

- 1.0 Objectives
- 1.1 Introduction
- 1.2 Indian Economy at the Time of Independence
 - 1.2.1 Agriculture
 - 1.2.2 Industry
 - 1.2.3 Currency and Financial Sector
- 1.3 State of Infrastructure
 - 1.3.1 Social Infrastructure
 - 1.3.2 Economic Infrastructure
 - 1.3.3 Administrative Infrastructure
- 1.4 Macroeconomic Aggregates
- 1.5 Let Us Sum Up
- 1.6 Some Useful Books
- 1.7 Answers or Hints to Check Your Progress Exercises

1.0 OBJECTIVES

After reading this unit, you will be able to:

- describe the state of Indian agriculture at the time of independence;
- state the problems faced by the Indian agricultural sector at the time of independence;
- outline the state of Indian industry at the time of independence;
- indicate the state of 'currency and financial sector' at the time of independence;
- explain the state of 'infrastructure' in India at the time of independence; and
- provide an account of 'macro aggregates' at the time of independence.

1.1 INTRODUCTION

Before the British rule, India was an independent economy. It had large exports and accepted gold and precious/semi-precious stones in exchange. Its dependency on imports was minimal. The economy was largely rural but was independent and self sustained. Kings provided patronage to artists, sculptors and weavers. Modes of transportation were limited. Hence, trade too was limited but every region had its own specialisation.

* Ms. Vishakha Goyal, Asst. Professor, Delhi University.

During the British rule, there was a drain of wealth from India. Most of the present day problems of Indian economy have its roots to the policies of British rule. In this unit, we will examine the features of Indian Economy as it prevailed (or as it came to exist) at the time of its independence in 1947. Such a review will help us appreciate the magnitude of effort involved to eradicate most of our present day problems like poverty, unemployment, healthcare, etc.

1.2 ECONOMY AT THE TIME OF INDEPENDENCE

On the eve of independence, Indian economy was underdeveloped. Low per capita income and low national income were the reasons behind widespread poverty. The distribution of national income was not equitable and hence the gap between the wealthy and poor was high. A handful of rich persons, who were serving in the British government or owned some industry, were enjoying relatively larger share of the national income while the majority of the poor was getting the relatively smaller share of it. Inequalities of income distribution were observed both in the rural and urban sectors of the economy. Most of the population was dependent on agriculture for occupation. Very few industries, largely producing consumer goods, were there. Basic and key industries were very less in number. Even though during World Wars I and II, India supplied different warfare and consumer goods, due to lack of real technological development and shortage of capital, Indian industry did not develop much during the post World War years. Production of machinery in the country was negligible. The only capital industry was of steel which could produce about 9 lakh tones. The country possessed abundant stock of natural resources but these resources were either underutilised or unutilised. This resulted in widespread unemployment, poverty and hunger. Frequent famine and drought were common which caused shortage of food and starvation. The vicious circle of poverty continued year after year. About 40 percent of population was living below poverty line. Such rampant poverty led to low standard of living and low human development. The growth of the Indian economy was so low that it was considered as 'stagnant'. The biggest fight for common man was of hunger and widespread diseases. Health, education and other developmental parameters were all very low. Let us examine, sector-wise, the economic features of Indian economy in more detail.

1.2.1 Agriculture

Agriculture was the main sector of Indian economy. At the time of independence, about 85 percent of population was dependent on agriculture for their livelihood. But the contribution of agriculture to national income was about 50 percent. Net sown area, estimated at about 127 million hectares, formed about 43.6 percent of the total reported land area of the country. Food crops were cultivated on three-fourth of the total cultivated land while one-fourth was used for cultivation of cash crops. Important food crops produced were wheat, rice, millets. Sugarcane, cotton and jute were three important cash crops. India accounted for about 32 percent of world's total production of groundnuts, 41 percent of jute and 27 percent of rice. India was the largest producer of groundnuts and sugarcane. It was the third largest producer of cotton next to USA and China in the world. Still the output, if calculated per hectare of cultivation, it was among one of the lowest in the world. During the British rule, due to lack of support for different occupations like artisans and craftsmen, all had to depend on agriculture for their livelihood.

The British followed different practices of land revenue system in different states of India. Farmers were supposed to provide high land revenue but the government

did nothing to maintain or improve the fertility of land or to provide irrigation facilities to increase the yield. There were three different land revenue systems viz. the Zamindari system (which covered 58 percent of the total land), Ryotwari system (which covered 38 percent of land) and Mahalwari system (which was implemented in 4 percent area). In the latter two systems of land revenue, some development was undertaken to revive the fertility of agriculture but in the zamindari system, the zamindars were only concerned with the collection of land revenue. The zamindars used to extort as much rent as they could from the cultivators leaving no surplus with them. This resulted in no incentive for the cultivator for making fresh investment in their farms. Although a canal network had been laid down by the government, it was grossly inadequate with only 17 percent of the area under cultivation getting the benefit of irrigation. In few states like Punjab, canal irrigation system was initiated but in most of the other states/areas, there was no initiative in this direction. This neglect was one of the major reasons for the backwardness of Indian agriculture. As the contribution of agriculture sector was around 50 percent to GDP, sources of irrigation were an important infrastructure to have been focused upon. Extension of cultivation could also be promoted only with increased sources of irrigation. But the sources of irrigation were only limited to some states.

On the markets front, formal/orderly markets for agricultural produce did not exist. As a result, agricultural intermediaries took most of the benefits. The road connectivity from farm to markets was totally lacking. For credit requirements, in the absence of any organised credit system, small farmers depended upon indigenous bankers. The money lenders/indigenous bankers charged heavy interest rate. Often, farmers had to lose their land for non-payment of interest and principal. The system of joint families widely prevailed. Hence, whenever anyone got unemployed, they used to join the family agriculture. This used to create disguised unemployment. Hence, on the eve of independence, Indian agriculture was characterised by problems like:

- a) Low Output Per Hectare: Income of the farmers was less and land revenue was comparatively high. So, farmers were not in a position to make investment in their farms. Government did not take required measures to improve soil health, establish sources of irrigation and promote innovation in agricultural methods. Even age old techniques like slash and burn technique which were known to restore soil health were also out of practice. More land was required to increase farm income. But farmers could not lease any land even for some months.
- b) Primitive Techniques of Production: The use of iron tools in agriculture replaced the primitive wooden plough and other tools. But this was the only technological up-gradation in agriculture during the British rule. Agriculture was predominately dependent on monsoon for irrigation, though during early 1940s, expansion of wells and canals had started. Four regions (Punjab, Madras, Western U.P and Sind) could start using their wasteland into agriculture due to development of irrigation. At the time of independence, irrigation facilities were missing in most parts of the country. Canal irrigated areas of Punjab and Sindh had gone to Pakistan.
- c) Lack of Commercialisation of Agriculture: During the British period, the tradition to produce commercial crops like sugarcane, cotton, jute, opium, etc. had just begun. This trend in commercialisation of agriculture somewhat supported its related industries like jute and cotton textile. However, at the time of independence, due to partition, most fertile area for Jute cultivation went to Eastern Pakistan.

1.2.2 Industry

Before the British rule, there were only few industries concentrated in some areas. There was no uniformity in production. For instance, mining was there even before the British but it did not employ many workers. The major industry was cotton textiles but even this had high regional variation. Nevertheless, for the state of industry as the country inherited at the time of independence, a certain thrust to shape the Indian industry had been given. This was main visible in areas like tea, coffee plantation and sugar mills. Before the British rule, exports from India were in surplus. But during their rule, beginning with the second half of nineteenth century, though machines had been introduced to increase production, Indian goods faced strict competition with cheaper machine made imported goods. Though natural resources were present in abundance, mining under the British experienced low growth. Though railways required coal in high amount, in the initial years of railways, coal was imported from Britain. In the later years, extraction from domestic sources was begun.

Introduction of Railways (in 1853) gave new markets for expansion of Indian industries. By 1947, there were a total of 42 rail systems in India. Still, industrial development remained stagnant. Industries were confined to a limited range and concentrated in a few unevenly distributed areas. The beginning of World War I gave some impetus to Indian industry. The period upto 1905 had seen growth on modern cotton textile and jute industries. What are now Maharashtra and Gujarat had emerged as major centres for cotton textile industry in the country. Consumer goods industries like chemicals, cement, fertilisers, mineral acids, etc. also picked up during the early decades of 20th century. Later, the Second World War opened a new phase in India's industrial history. Industrial output of large scale industries expanded with some diversification. As a result, the general index of output of all large scale manufacturing rose from 100 to 161.6. Factory employment also increased from an index of 100 to 159. Yet, the process of industrialisation could not pick up due to lack of industrial base or capital industries. TISCO (Tata iron and steel company), which was established in the year 1905, was the only major capital industry of India till independence. The per-capita income of India was so low that the Indian economy did not have enough savings/investment to establish basic and capital industries. The technological backwardness of India also played its role in this. Even for the establishment of TISCO, engineers had to be called from Britain to lay down the foundation for the industry. A major setback to Indian industries resulted from partition. The cotton and jute textile industry suffered the most as they depended on agriculture for its raw material. Raw jute producing areas went to Pakistan but mills were located in India. Hence, after partition, these mills could not produce due to lack of raw material. At the time of partition, a total of 112 jute mills were operating in India. 85 percent of the total jute growing region went to eastern Pakistan (present day Bangladesh). A similar thing happened with cotton textile mills. Best cotton growing region became part of Pakistan (Sind and western Punjab). Therefore, on the eve of independence, the labour of these mills got unemployed which further increased poverty in newly independent India. In 1948-49, contribution of secondary sector was just 6.6 percent of the GDP. Employment in the industries was a mere 1.8 percent of total population (around 274 million in 1941 of which 60.2 percent were in the working age group of 15-59) of the country were working in the industry and that too consumer goods industries. This is the main reason for the high dependency of India on imports particularly for capital goods. Due to these factors, when India got freedom, its substantial trade deficit was one of the major challenges faced by the new government in India.

1.2.3 Currency and Financial sector

Before the British rule, different provinces of India had their own currencies. The concept of common currency was introduced by the British to facilitate trade and collection of land revenue. India was on a monometallic silver standard (i.e. only silver coins were in circulation) from 1835 to 1893. This means there was high demand for silver which increased the need for silver import and contributed to being one of the main reasons for India's high BOP (balance of payments) deficit. The extraordinary rise in the price of silver in February 1920 made it extremely difficult to maintain exchange stability. In the 19th century, the British introduced paper money in the subcontinent. The Paper Currency Act of 1861 gave the government the monopoly of note issued throughout the vast expanse of British India. At that time, the Indian rupee was linked to the British pound and its value was at par with the American dollar. This helped Indian domestic as well as foreign trade to develop.

The financial system consists of: (i) financial institution (non-banking and banking), (ii) financial markets (stock exchange), and (iii) instruments and services which help in mobilisation of savings and increase capital formation. Banking sector was visible with only few banks. As a result, banks were not easily accessible to the masses. Major source of lending were money lenders. Though the first bank in India was set up in 1786, the development of the sector was slow. Later on, three banks were established in three different presidencies (Bengal, Calcutta and Madras). The Companies Act (1913) contained a few sections relating to joint-stock banks but there was no special legislation for commercial banking. The amended Indian Companies Act of 1936 added many provisions relating to minimum capital, cash reserve requirements and other operating conditions. Still, there was no integrated statutory regulation of commercial banks in India till 1949. Reserve bank of India was established in the year 1935 as a private company. During World War II, the authority of the RBI (Reserve Bank of India) was extended to frame the monetary policy. But it was forced to pursue a government-initiated low interest rate policy to keep the cost of financing the war low and to expand money supply through accumulation of sterling (foreign exchange) balances. Between 1913 and 1948 there existed approximately 1100 small banks in India. For faster development of this sector, the government enacted the Banking Companies Act, 1949 which was later changed to Banking Regulation Act, 1949. Some cooperative banks were formed during early 20th century and later these too were regularised under the banking Act. Banking institutions were totally missing in the rural areas. To overcome this gap, NABARD (National Bank for Agricultural and Rural Development) was setup much later in 1982.

Stock exchanges are necessary to increase the capital formation in the country. In the pre-independence period, there were only three stock exchanges [Bombay Stock Exchange, 1877; Ahmadabad Stock Exchange, 1894; and Calcutta Stock Exchange, 1908] which were not regulated by the government. After independence, government of India took a number of measures to promote joint stock companies. There was an acute shortage of banks to serve common people. With such small banking system, mobilisation of savings was difficult which needed immediate attention for faster development of industrial sector.

Check Your Progress 1 [answer within the space given in about 50-100 words]

- 1) What were the main features of Indian economy at the time of independence?

- 2) At the time of independence, what was the extent of dependence on agriculture and what was its share of contribution to the economy?

- 3) In the production of which crops India was leading the world at the time of independence?

- 4) State the three areas in which the agricultural sector was suffering from at the time of India's independence.

- 5) Which events contributed for the industrialisation in India to pick up in the first half of the 20th century?

- 6) What was a major set back from which the Indian industry suffered around 1947?

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- 7) What was the extent of contribution of industry to the Indian economy at the time of independence? What was a consequence of this state on the Indian economy?

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- 8) What was a lacuna in the state of banking sector at the time of independence and which immediate measure was taken after independence to rectify this?

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1.3 STATE OF INFRASTRUCTURE

Though the British did develop some infrastructure, their motive was to facilitate foreign trade to England. Communication facilities were developed for better administrative reasons. During the first and second world wars, when India served Britain, air transport was developed.

The crucial basic infrastructure required for the development of domestic industries was missing. For instance, electricity is one of the basic infrastructures required for the development of any industry. But the power generation capacity in India was almost negligible. In the same way, road and port connectivity was developed but limited to the routes used for the movement of manufactured goods and raw materials from the source of their origin to the ports and from ports to major commercial centres. There were few other areas which were connected through railways for the quick movement of army. This encouraged export of raw materials and import of manufactured goods. The raw material could have been used for domestic production as well but infrastructure deficit was a major barrier for industrial development. In short, infrastructural deficit at the time of Independence became a major challenge for policy-makers in the post-independence era. Infrastructure can be divided into two groups: physical infrastructure and human infrastructure. Physical infrastructure includes roads, railways, airways, waterways, electricity generation, banking, insurance, modes of

communication, etc. It is also termed as economic infrastructure as it makes a direct contribution in income generation. Another category of infrastructure is Human infrastructure or social infrastructure. This includes training and skill development of people so that they can contribute in the process of production. Though the effect of the development of social infrastructure on GDP is visible in the long run but it is very important for economic development.

1.3.1 Social Infrastructure

Social Infrastructure includes assets that aid social/human development. It includes schools, universities, hospitals, housing and others. Social infrastructure is required for human development. During the British rule, human development was not given priority. State of healthcare sector was bad with hospitals limited to big cities. Ancient health care system was also on decline. As a result, infant mortality, maternal mortality and death rate were all high. Life expectancy was just 32 years. Education sector was a little better but it was not accessible to all. Though the British started formal schools, it was limited to few cities. English education became one of the sources to get job in British administration. For higher education, only sixteen universities were serving the entire population which was 274 million in 1941. This means that for 17+ million people, there was just one university. This shows that education which is an important medium for human development was not sufficiently accessible to all. As a result, at the time of independence, literacy rate was as low as 16 percent among males and 7 percent among females.

1.3.2 Economic Infrastructure

Economic infrastructure supports production process and has a direct impact on GDP growth. It is also known as demand-inducing service. Examples of economic infrastructure include roads, airports, railways, communication networks, water supply, irrigation systems and electric power.

Until the mid-nineteenth century, the most popular mode of long-distance transportation of cargo was through navigable rivers. For short-distance trade and travel, the common means of transportation were bullock carts and small river craft. Such systems of transport for long-distance trade used much labour and time. With the introduction of railways, the shorter time taken in long distance travel attracted people towards railways. Railway construction began on a large scale in the 1850s. It continued, almost exclusively by the private sector (entrepreneurs of England) until 1870. In 1870, when government found the construction of railways a profitable business, Calcutta, Bombay, Madras and Delhi were interconnected by the 'broad-gauge' system. By 1920s, all railways in India were brought under government management. By then, the Indian railway system was one of the largest networks in the world. Railway construction stimulated the engineering industry in India. It also stimulated financial and labour markets. People could migrate to faraway places for jobs. These effects were weak till the time of world war-I. Railways were used to develop industries during both the world wars. The government had built railway workshops in India for repair and production of parts but they were not intensively used. Coal mining was started in India to fulfil the need of railways. The role of the railways as a major source of demand for the basic metal industries in India was thus significant.

Roads are the basic infrastructure required for the movement of raw-material and finished goods. Without proper roads, it is difficult to mobilise anything. Roads were a low priority area of colonial government investment as horses were used

for army movement. Only such routes which were required for the movement of raw material to railways and ports were given importance. Road length grew at a much slower pace than the railways. By the year 1931, the length of 'metalled' roads per 1,000 persons was just 0.4 kms. This ratio was above 1.5 in other colonies of British (Ceylon and Malaya). The benefit to the government from road construction was relatively low. India has a long coast line which was used for trade and commerce during British rule. There was decline of traditional ports like Mauslipatnam and Cambay. The major ports that carried the bulk of foreign trade were new sites where railways and modern harbours converged (e.g. Bombay, Madras, Calcutta, Karachi and Rangoon). Each of these ports served as an export outlet for the products of a vast hinterland. At the time of independence, rapid industrial development was hindered due to lack of economic infrastructure.

Postal services were started during British rule in 1858 but it became a widely used utility only in the late nineteenth century. This expansion was demand driven because in the absence of banks, post offices worked as the agency for sending internal remittances. Post offices were present in almost all populated villages. This infrastructure of post offices was later useful for the first Indian government for mobilising savings in rural India.

The process of infrastructure development had inherent inequalities. Irrigation systems remained primitive and undeveloped in large parts. The railways deprioritised roads and electricity generation was limited to important cities. Communication and local transportation thus had high regional variation.

1.3.3 Administrative Infrastructure

Administrative infrastructure is required to run many other institutions and to deliver important services. It is a combination of physical and human infrastructure which helps in running a successful administration for any government. Before independence, each province of India had its own administrative set up. This became a compelling reason to develop administrative infrastructure to rule such a vast area. Land revenue department had been setup in each province. There were frequent revolts and rebellions from masses. Local police stations were, therefore, required to be setup to control any rebellions. Postal and telegraph departments were set up for faster movement of information. The process of elections too began during the British rule only and hence necessary infrastructure was setup to conduct elections. Though this infrastructure was not sufficient to serve entire population, even after independence, the same administrative infrastructure had to be used for different administrative function of the Indian government.

1.4 MACROECONOMIC AGGREGATES

Performance of any economy can be evaluated on the basis of the quantity of goods and services produced in a financial year. When we calculate this total production in monetary terms, it is termed as the Gross Domestic Product (GDP). Beside this aggregate, there are other macroeconomic indicators to measure the strength of an economy. For instance, capital needed to produce goods and services is measured through capital formation and savings. Likewise, for judging the performance of the economy from equity angle, the rate of growth of per-capita income (PCI) is considered. The PCI is arrived at by dividing the national income by the total population.

During 1900-1947, national income increased at a mere 0.4 percent per annum. Per capita income increased by just 0.1 percent per annum. There was thus very little increase in per-capita income during the roughly 50 year period from 1900-1947 (Table 1.1). Growth of national income and per capita income was thus very low. The growth rate in real income across different states in India was unequal. The maximum share of National Income was from agriculture (Table 1.2). Despite this, the growth of the agriculture sector was lowest among all three contributing sectors to the national income.

Table 1.1: National Income and PCI (1900-1947) (in 1948 Prices)

Year	National Income (in Billions)	Per Capita Income (PCI) (in Rupees)
1900	43.4	228
1947	51.5	239

Source: Tirthankar Roy, The Economic History of India: 1857-1947, Oxford University Press; 3 Edition.

Note: Growth rate in NI over the 47 year period is 0.36 percent and that in PCI 0.1 percent. The growth rates can be verified in Excel by using the formula: $=(rate, -43.4, 51.5) * 100$. It can be verified for PCI in similar manner.

Table 1.2: Sectoral Share (%) in National Income

Year	Primary	Secondary	Tertiary	Net income from Abroad
1900-1904	66	12	23.5	-1.5
1942-1946	53.3	14.5	32.3	-0.2
Growth Rate Per Annum	0.4	1.4	1.7	

Source: Tapan Raychaudhuri, et.al., Economic History of India: Volume 2, Cambridge University Press

Secondary sector consisted of mining, large scale industries and small scale industries. Large scale industry grew at a rate of over 4 percent per annum. But the much larger segment viz. the small scale industries grew at less than 1 percent per annum. Within the tertiary sector the contribution of government undertaking grew at 2 percent per annum while transport and real estate grew at 1.5 percent per annum. As stated above, the overall average rate of growth of Indian economy was 0.4 percent per annum over the period 1900 to 1947. An estimate by Cambridge University historian Angus Maddison reveals that India's share of the world income fell from 22.6 percent in the year 1700 (comparable to Europe's share of 23.3 percent) to a low of 3.8 percent in 1952. This gradual decrease in India's share of world income explains the reasons for poverty in India at the time of its independence.

Check Your Progress 2 [answer within the space given in about 50-100 words]

- 1) Is the view that the British did not pay adequate attention to developing India's infrastructure justified despite the fact that India had the largest railway network and in some products like Jute it was also one of the leading producers of the world?

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- 2) Which social indicators speak of the gross neglect by British policy in terms of the level of social infrastructure that existed around 1947?

- 3) Do you agree with the proposition that inadequate attention to developing infrastructure by the British contributed to economic inequalities in India?

- 4) At what rates did India's National Income and the Per Capita Income grow over the 47 year period of 1900-1947? How would you characterise the performance of Indian economy in the light of these growth rates?

1.5 LET US SUM UP

Indian economy was a stagnant and dependent economy at the time of its independence. Per-capita income was low. Foreign trade was motivated to fulfil the needs of industries of England. Agriculture was over burdened with low per hectare productivity. The sector contributed more than 65 percent to GDP but its growth rate was lowest at 0.4 percent among all the three leading sectors of the economy viz. the primary, the secondary and the tertiary sectors. There was thus high dependency of people on agriculture and much disguised unemployment. Literacy rate was low, there was high birth rate and high death rate, health parameters were severally low and epidemics were frequent. As a result, there was hunger and starvation in the economy and unemployment in India was widespread.

1.6 SOME USEFUL BOOKS

- 1) Tirthankar Roy, The Economic History of India: 1857-1947, Oxford University Press; 3 Edition.
- 2) Tapan Raychaudhuri, Dharma Kumar, Meghnad Desai and Irfan Habib, The Cambridge Economic History of India: Volume 2, C.1751-c.1970: Cambridge University Press.
- 3) Dharma Kumar (ed.) (1982). Cambridge Economic History of India Vol. 11, Orient Longmans, Hyderabad.
- 4) Kapila, Uma (ed.), (2006-07). Indian Economy Since Independence, 18th Edition, Academic Foundation, Delhi.

1.7 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) (i) Widespread unemployment, poverty and hunger; (ii) frequent famines and droughts; (iii) inequitable distribution of national income; (iv) high dependency on agriculture; (v) low level of industrialisation; (vi) low health, education and other developmental parameters etc.
- 2) 85 percent of population and 50 percent respectively.
- 3) India was the largest producer of ground nuts (32 percent of world production), 41 percent of Jute and 27 percent of rice. It was the third largest producer of cotton next only to US and China in the world.
- 4) Low per hectare yield, primitive techniques of production and lack of commercialisation of agriculture.
- 5) The two World Wars contributed to development of industries like cotton, jute, textiles, chemicals, cement, fertilizers, etc.
- 6) Partition resulted in a major set back for cotton and jute industries, particularly jute industry, as many jute growing region went to East Pakistan.
- 7) 1.8 percent of population was employed by industry with a contribution of 6.6 percent to GDP. On account of this, India had to cope with a high trade deficit at the time of its independence.
- 8) Banking services were grossly inadequate in rural areas. To rectify this, NABARD was formed.

Check Your Progress 2

- 1) Yes it is justified. The rationale for developing railways and roads on a selective basis to facilitate movement of goods with their own interest in view. Crucial infrastructure development like power, roads to facilitate domestic production, etc. was grossly left deficient. Further, development of social infrastructure or human development, crucially required for economic development, was not given priority.

- 2) Male literacy was low at 16 percent and female literacy at 7 percent. With infant mortality, maternal mortality and overall death rate being high, life expectancy was as low as 32 years.
- 3) Yes, because focus on railways de-prioritised roads and electricity generation was limited to important cities. Communication and local transportation thus had high regional variation. Irrigation systems too remained primitive and undeveloped in large parts.
- 4) 0.4 percent and 0.1 percent (compound annual growth rates) respectively. The growth rates indicate that the Indian economy was nearly stagnant during the first half of 20th century.



UNIT 2 DEVELOPMENT PARADIGMS*

Structure

- 2.0 Objectives
- 2.1 Introduction
- 2.2 Approaches to Development
 - 2.2.1 Market Based Approach
 - 2.2.2 State Led Approach
 - 2.2.3 Inclusive Growth Approach
 - 2.2.4 Sustainable Development Approach
- 2.3 Economic Systems: Capitalism and Socialism
- 2.4 Two Phases of Development: Mixed Economy
 - 2.4.1 Public Sector at Commanding Height (Phase I)
 - 2.4.2 Increasing Role of Market (Phase II)
- 2.5 Integration with the Global Economy
 - 2.5.1 Trade GDP Ratio
 - 2.5.2 Mean Tariff Rate
 - 2.5.3 Diversification of Exports
 - 2.5.4 Product Composition of Exports
 - 2.5.5 Direction of Exports
 - 2.5.6 Financial Integration
- 2.6 Let Us Sum Up
- 2.7 Some Useful Books
- 2.8 Answers or Hints to Check Your Progress Exercises

2.0 OBJECTIVES

After reading this unit, you will be able to:

- distinguish between the terms ‘growth’ and ‘development’;
- discuss the different approaches to development;
- distinguish between the two economic systems of capitalism and socialism;
- define the concept of ‘mixed economy’;
- analyse the two major phases of development paths pursued in India; and
- explain the trends in integration of the Indian economy with the global economy.

2.1 INTRODUCTION

Economic growth and economic development are fundamentally different. Economic growth generally refers to rise in the national income or per capita

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income. In addition to growth, economic development involves improvements in health, education and other aspects of human welfare and also major structural changes like industrialisation and urbanisation. Specific indicators (like HDI) or goals (MDG) are used for measuring development. Human Development Index (HDI) is a composite measure reflecting the goals of leading a long life, acquiring knowledge and material well-being. The millennium development goals (MDGs) rely on a multiplicity of goals and targets for advancing human well-being within a specified time.

2.2 APPROACHES TO DEVELOPMENT

Historically, there has been a number of schools/thoughts on the economic analysis of development [e.g. Adam Smith and Classical Political Economy (1776), Marxist Economics of Marx and Engels (1848), Neoclassical Economics of Jevons, Menger and Marshall (1890s), Keynesian macroeconomics (1930s), Neoclassical growth theory by Solow (1950s), Dependency theories (1960s), etc.]. The classical and neoclassical economists believed that the major cause of underdevelopment is shortage of factors of production like capital and labour and the lack of technological progress. Keynesian school recommended that the problems of underdevelopment can be solved by extension of government activities. Marx explained the problems of underdevelopment in terms of Asiatic mode of production and lack of class struggle. Neo-Marxists writers like Paul Baran and Andre Frank explained the problems of underdevelopment in terms of external factors like global capitalism and exploitation.

For achieving the goals of economic development, there are several approaches. They require specific institutional framework within which economic activities are carried out. Broadly, market and state are two such broad institutions which are expected to facilitate the economic activities.

2.2.1 Market Based Approach

This approach assumes that, under conditions of well developed perfectly competitive markets, resources are used optimally by minimising the costs and maximising profits. Price signals, including the profits, serve as incentive to investment for achieving faster growth. Ideally, therefore, perfectly functioning markets without any intervention are seen as a strategy for faster accumulation and growth. However, in the post-World War II era, when most of the former colonies became independent and embarked upon the process of development, these countries faced serious gaps in markets as these were underdeveloped in many of the economies. The absence of markets was particularly noticeable in the 'subsistence segments'. These segments were related to several areas of development of public goods for which there was no market but there was an immense public need. Many of these underdeveloped markets had to be developed by the state as an essential requirement for giving a push to the development process.

2.2.2 State Led Approach

In underdeveloped countries with the existence of: (i) subsistence agriculture, (ii) weak industrialisation, (iii) vast underemployment, low income, savings and investment, (iv) poor infrastructure, etc. there was a need for a big push in investment. The supporters for state intervention viewed that desired economic change in key sectors could be achieved through planned mobilisation and allocation of resources to the public sector. However, in many economies which

initially favoured this approach, public sector led growth strategy has since fallen out of policy favour on the grounds of generating red-tapism, corruption (rent seeking), inefficiency and losses. Based on these arguments, there has been a tendency towards reducing the role of the state to specific sectors of social importance and establishing the infrastructural base in the economy. There are still those who argue that state's role should not be minimal particularly in the areas of health, education and infrastructure thereby providing the right environment for entrepreneurial activity to thrive.

2.2.3 Inclusive Growth Approach

This approach views growth and equity as complements. In India, the term 'inclusive growth' appeared as an official development strategy in the Eleventh Five Year Plan (2007-12). However, the concept of 'growth with justice' or 'growth with equity' has been part of the planning strategy right from the beginning of the First Plan in India. The basic premise for 'growth with justice' (i.e. distributional justice) has been that in an economy with gross disparities in wealth and assets, growth of national income without intervention would result in perpetuation of inequalities. In other words, besides growth, as reduction in inequalities is one of the objectives of development, it is considered necessary that the growth strategy should involve appropriate institutional arrangements to ensure equitable distribution of the gains of growth. An institutional framework for growth with equitable distribution envisages a substantial role for state as much in the productive sectors as in the regulation of its distribution.

2.2.4 Sustainable Development Approach

The sustainable development argues that global focus on growth should be replaced by the goal of sustainable development to avoid the 'tragedy of commons', a situation in which common resources are overexploited since the individual actors lack the motivation to use them sustainably. Brundtland Commission Report (1987) stated that: *SD is that development which meets the needs of the present without compromising the ability of future generations to meet their own needs*. It, therefore, underlined the two key essentials as: (i) the need to protect the interests of the world's poor; and (ii) the limitations of technology and social organisations in preventing the exploitation of environmental resources (so as not to affect the needs of future generations) adversely should be duly accounted for. The Commission emphasised the overriding priority of attending to the needs of the poor within any society in particular and the world as a whole in general. The rationale for SD is, therefore, to raise the standard of living, especially the standard of living of the most disadvantaged segments in society, taking due care to avoid or minimise 'uncompensated' future costs. The Sustainable Development Goals (SDGs) cover 17 goals: (i) no poverty, (ii) zero hunger, (iii) good health and well-being, (iv) quality education, (v) gender equality, (vi) clean water and sanitation, (vii) affordable and clean energy, (viii) decent work and economic growth, (ix) industry, innovation and infrastructure, (x) reduced inequality, (xi) sustainable cities and communities, (xii) responsible consumption and production, (xiii) climate action, (xiv) life below water, (xv) life on land, (xvi) peace, justice and strong institutions and (xvii) partnerships to achieve the goals.

2.3 ECONOMIC SYSTEMS: CAPITALISM AND SOCIALISM

Capitalism is a societal structure in which the capitalist class thrive by virtue of their ownership and control of the society's means of production. It is thus an economic system based on private ownership of property and means of production in which free market that allows competition for exchanging goods and services operates. Thus, in principle, it is the individuals who decide on 'how, what and for whom to produce'. Under capitalism, individuals are thus encouraged to follow their own self interest while market forces of demand and supply are relied upon to coordinate the economic activity. Different countries have been endowed with different forms of capitalism (found in modern times) such as state-guided capitalism, big-firm capitalism and entrepreneurial capitalism. Socialism, on the other hand, is a system that emphasises the collective ownership of the means of production. It ascribes a large role to the State in the running of the economy with widespread public ownership of key industries. Although socialism allows limited scope to market forces, Marx regarded socialism as a transitional stage between 'end of a private enterprise system and the beginnings of communism'. In the process of its historical evolution, we find different forms of socialism: (i) socialism with the entire economy associated with a centrally planned economic system (as in earlier Soviet-type economies); (ii) market socialism i.e. economies with a modified type of central planning with a role for market mechanisms (e.g. Hungary and Yugoslavia) a kind of planned economy which attempts to improve allocation using markets; etc.

In theory, therefore, unlike capitalism, socialism is a system based on individual's goodwill to others rather than their own self-interest. However, in practice, socialism has become an economic system based on government ownership of the means of production with centralised planning. Since socialism is based on a system which originated in the former-Soviet union, it has often come to be referred as 'soviet-style socialism'. In the 1980s, a number of countries had Soviet-style socialism but in the late 1980s and early 1990s, many of these economies/countries were in turmoil and ultimately veered towards market oriented systems. The example of China shows another form of centralistic socialism, which accords priority to markets ensuring high growth rates but not social freedom. We can, therefore, conclude that within the two broad systems of capitalism and socialism, the paths to development pursued in terms of ISI or ELG varies depending on the domestic socio and economic compulsions of a country. As you must be aware by now, India was forced to adopt policies of economic reforms due to conditions of economic distress faced on account of critical BoP crisis in 1991. Nevertheless, we can say that the Indian stand, taken as early as in 1950s, to adopt the mixed economy path with social freedoms enshrined in the constitution of the country reflected wisdom in which the choice between ISI strategy made in the beginning and the shift to ELG strategy made later stands out as a model of balanced perspectives.

2.4 TWO PHASES OF DEVELOPMENT: MIXED ECONOMY

Mixed-economy combines the state and the market, in a mutually reinforcing framework, in its approach to development. It involves the co-existence of private sector enterprises alongside the public enterprise. It combines the salient features of capitalism and socialism. This means the capitalist enterprises with self-interest

and profit motive operate in a number of activities alongside many public sector production units. The latter operate both in production as well as social sectors but more in the sectors like primary education and primary healthcare with a larger societal interest. India is regarded as a good example of mixed economy which followed this model right from the time of its independence. While both the public and private sectors coexisted, a central role was assigned to the state's planning machinery for resource allocation across sectors. The stated primary objectives of the planning process were economic growth with social justice and self-reliance. The early Five-Year Plans of India provided the basic framework for the economic development with a mixed economy strategy. The apparent logic behind this policy was to place the commanding heights of the economy in the hands of the State, through state ownership of basic heavy industries and infrastructure sectors and to allow the private sector to operate where scale economies were not important. The basic idea behind the approach was that through a judicious mixture of plan stimulus and market efficiency, the objectives of both growth and equity could be promoted. In the agricultural sector, production decisions were by and large taken by private producers with government's role limited to infrastructure development by way of irrigation facilities, extension services and trade in some major commodities. In the manufacturing and service sectors, state played a commanding role by owning and operating many industries and by regulating private investment through the instrument of licensing.

Since the introduction of economic reforms in 1991, there has been a substantial expansion of economic space of private sector with its corresponding contraction for the public sector. Thus, the mixed-economy approach in India can be said to have moved from the state of commanding heights to the public sector in the initial four decades of its planning to a state where the majority space was accorded to the private sector and the market. Let us now take a somewhat detailed look at these two phases of the Indian economy in its transition.

2.4.1 Public Sector at Commanding Height (Phase I)

In any economic system state can play at least three major roles viz. (i) as a producer of goods and services, (ii) as a regulator of the overall system, and (iii) as a supplier of 'public goods' or 'social goods' like primary education and health. The first role as a producer of goods and services finds expression in the system of planning with public enterprises engaged in major productive activities, at least in the critical areas of the economy (e.g. power generation and distribution). The second role of 'regulator' conveys the authority wielded by the state in setting the rules of the game. In fact, the quality of the economic performance of markets depends critically on the quality of public intervention through regulation by way of a complementary role. The third role of state is that of a 'welfare provider' i.e. this role prompts the state to support private initiatives through the provision of required infrastructure and by efforts directed at human development so as to enhance the capability of the masses. This can therefore be regarded as the role of a 'facilitator' where the state intervenes in areas where the markets cannot perform effectively.

In the initial years of planning, as India was capital constrained, and given that the markets were not well formed, the system devised was a combination of involvement of the state in production in some industries and regulate the private sector in others. The role of regulation was carried out by the grant of licenses required for investment, production and imports. In particular, availability of foreign exchange, credit allocation and in some cases even prices (e.g. price of the essential commodities, agricultural commodities) were controlled by the

government. Also, the government reserved the right to enter even those industries which were not explicitly reserved for the public sector. Public sector was thus seen as an active agent of resource mobilisation for undertaking large, coordinated investments (considered the 'Big Push' necessary to jumpstart the economy). As a result, between 1950 and 1965, public sector capital formation, as a percentage of GDP, more than doubled from 3.1 to 7.5. However, in the later years, not only did planning lose its bite, but also the public sector's capacity for resource mobilisation severely declined. Declining public investment from the mid-1960s was instrumental in a growth slowdown that lasted till the late-1970s. Thus, from a position occupying the commanding heights of the economy, the public sector degenerated into an employment-granting welfarist role agency.

2.4.2 Increasing Role of Market (Phase II)

India has since come a long way in terms of shredding traces of its short term vision by accepting the principle of the primacy of market for its economic management. This can be seen by comparing the key features of reforms adopted initially in the 1980s and pursued vigorously during the 1990s.

The key features of reforms initiated in the 1980s are : (i) liberalisation of imports (especially of capital goods and intermediate inputs); (ii) extension of export incentives through the tax system and liberal access to credit and foreign exchange; (iii) significant relaxation of industrial licensing requirements through direct 'de-licensing' of some industries and through 'broad banding' (i.e. permitting firms in some industries to switch production between similar product lines); and (iv) decontrol of administered prices for key intermediate inputs. In light of these important changes, the reforms of the 1980s, came to be characterised as 'pro-market' in orientation.

The reforms of the 1990s, which are distinguished from the reforms of the 1980s, include: (i) abolition of industrial licensing and narrowing the scope of public sector monopolies to a much smaller number of industries; (ii) liberalisation of inward foreign direct and foreign portfolio investment; (iii) sweeping liberalisation of trade with the elimination of import licensing and progressive reduction of non-tariff barriers; (iv) financial sector liberalisation including the removal of controls on capital issues (e.g. allowing foreign private banks to operate in the economy, opening up of insurance sector); (v) liberalisation of investment policies in import of services such as telecommunications; etc.

Countries in general are moving away from the role of state as a producer of goods and services. A major reason for the emergence of skepticism regarding the benefits of state intervention has been the growing perception that government failures on account of political interference and bureaucratisation may, in many cases, exceed market failures. Given the importance of incentive reward system in achieving consistent improvement in efficiency, on balance, it is well acknowledged that markets provide a better incentive for many economic activities to be run on a corporate style by the private sector. Closely related to these institutional factors is also the belief that a competitive environment creates a better climate conducive to enhancing efficiency.

The decreasing role of state as a producer of goods and services and the increasing primacy accorded to market forces enhances the role of state from being a 'regulator' to that of a 'facilitator'. As a general rule, markets must be allowed to function freely wherever price signals clearly work in achieving efficiency. State investment becomes necessary only in areas where markets do not exist or where they cannot perform efficiently.

Check Your Progress 1 [answer within the space given in about 50-100 words]

- 1) How is development distinct from growth?
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- 2) What is the basic assumption requiring to be met for the success of market based approach to development?
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- 3) What is the rationale behind the state led development strategy?
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- 4) What is meant by 'inclusive growth' strategy?
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- 5) What is the essence of the 'sustainable development' (SD) approach?
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- 6) Define the term 'mixed economy'.
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- 7) What empirical indicator can you cite to demonstrate the leading role assumed by the public sector in the initial years of planning in India? What trend did this indicate in the later years?
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- 8) What are the major reforms introduced in the 1990s to characterise the change in developmental approach as one of 'pro-market'?

2.5 INTEGRATION WITH THE GLOBAL ECONOMY

To what extent has India integrated itself with the rest of world? Has the pace of integration quickened since the beginning of economic reforms in the early 1990s? Integration can be measured by quantifiable variables such as trade to GDP ratio, mean tariff rate, diversification of exports, FDI inflow as percentage of GDP, etc. We take a brief look at the trends in these variables below.

2.5.1 Trade GDP Ratio

Countries that are highly integrated in the world economy tend to exhibit a high trade to GDP ratio. An indicator of extent of integration is provided by the two 'trade orientation ratios' (TOR) viz. (i) share of exports in total GDP; and (ii) combined share of exports and imports to GDP. Economic reforms over the years have made India a much more open economy. The share of Indian exports of goods and services in its total GDP has increased from 6.5 percent in 1991-92 to 19.1 percent in 2013-14. The combined share of exports and imports of goods as a percentage of GDP at market prices has increased from 13.6 percent in 1991-92 to about 46.5 percent in 2013-14. Despite these significant increases, India's share in global merchandise exports has increased slightly from around 0.6 percent in 1993 to 1.7 percent in 2014. Likewise, India's share in global imports has also modestly increased from around 0.6 percent in 1993 to 2.4 percent in 2014 (Table 2.1).

Table 2.1: Exports and Imports (%) by Countries/Regions in Merchandise

Country	Export Share		Import Share	
	1993	2014	1993	2014
Asia	26	32	23.5	31.5
China	2.5	12.7	2.7	10.5
Japan	9.8	3.7	6.4	4.4
India	0.6	1.7	0.6	2.5
Six East Asian traders	9.6	9.6	10.2	9.4

Source: WTO, International Trade Statistics, 2015

2.5.2 Mean Tariff Rate

Another indicator for measuring a country's integration with the rest of the world is through estimation of a country's mean tariff rate. The mean tariff rate for all products in India has declined from 80 percent in 1990 to 6.3 percent in 2012.

2.5.3 Diversification of Exports

Countries that are more integrated into the world economy experience not only rapid export growth but also export diversification. During the initial years of liberalisation, India's exports were less diversified with top 20 countries accounting for more than 80 percent of India's total exports. Today (2017), the corresponding percentage with the top 20 export destinations account for 67 percent of total exports reflecting greater diversification.

2.5.4 Product Composition of Exports

Another indicator of integration is how much a country is moving away in its exports from traditional and primary products into high-value-added exports. This is reflected in the share of technologically-advanced goods in manufactured exports. There is a major shift in India's exports, away from primary products like textiles towards more value added items like engineering goods, refinery products, pharmaceuticals, etc. Thus, India's export basket is now more diversified with non-traditional items which include: engineering goods accounting for 23 percent in India's total exports in 2014-15.

2.5.5 Direction of Exports

A significant change in India's exports during post-liberalisation era has been the increasing share of developing countries compared to the share of developed economies. Between 1990-91 and 2014-15, the share of Asia has increased from 34 to 49 percent and that of Africa from 3 percent to 11 percent. On the other hand, share of Europe has come down from 41 percent to 19 percent during this period.

2.5.6 Financial Integration

The level and pace at which the inflow of FDI increases serve as an important indicator of financial integration. The net inflow of FDI as a percentage of GDP has increased from 0.03 percent in 1991 to 1.96 percent in 2016.

Check Your Progress 2 [answer within the space given in about 50-100 words]

- 1) In terms of two TORs (trade orientation ratios), how does the integration of Indian economy with the rest of the economy figure?

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- 2) In terms of what other specific respects, can the integration of Indian economy with the rest of the world be specified?

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- 3) How is financial integration of an economy measured? What has been the position in this respect for India?

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2.6 LET US SUM UP

The approach to development has steadily shifted from state led approach to market based approach. In the initial stages of development, due to poor infrastructural base and high degree of concentration in the production of primary products, a developing economy will be required the assistance of state for its investment. In other words, the development of markets would be inadequate to rely on the price signals for achieving the developmental goals. This feature has commonly influenced all major economies to pursue in their initial stages of development a policy of state led growth. India too embarked on this approach experimenting with the same for close to four decades from 1950 to 1990. However, the ability of public sector to mobilise resources required for expansion of economy declined sharply right after the late 1960s. Concerns of sustainable development also became critical in policy planning in India as was the goal for aiming 'inclusive development'. The result was a change in approach to development from a controlled public sector led regime to a market based approach in the 1990s. The policies implemented in the last two decades have seen an appreciable increase in the ratio of 'exports plus imports to GDP' from 14 percent in 1992 to 47 percent in 2014. Despite this steep increase, in terms of overall share of total global exports, India's share has marginally moved up to reach 1.7 percent in 2014 (from 0.6 percent in early 1990s). Thus, in spite of improvements in geographic and product composition diversification, lowering of 'mean tariff rate', etc., in terms of financial integration measured by 'percentage inflow of FDI to GDP' India's level is low at below 2 percent in 2016.

2.7 SOME USEFUL BOOKS

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2.9 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) Growth relates to increase in only income like NI or per capita income. Development takes into account the distributional dimension of growth in income relating the spread to how far the benefits of growth have reached the marginalised sections in terms of their education and health needs. It also includes aspects like industrialisation and urbanisation.
- 2) The approach assumes conditions of well developed competitive markets with signals of price and profits to be available for their efficient functioning i.e. optimum production with minimum resource inputs leading to faster growth.
- 3) The rationale is one of 'big push' required under conditions of underdevelopment like subsistence agriculture, weak industrialisation, etc. In such situations, state led heavy investment in key sectors of economy through planned mobilisation and allocation of resources to public sector institutions/enterprises was held as the key.
- 4) The inclusive growth strategy implies that the benefits of growth realised in terms of increase in national income should percolate downwards to the lowest rungs of society reaching or in a way as to 'not exclude' the marginalised sections of society. This requires institutional arrangements to ensure the equitable distribution of the gains of growth which needs to be ensured only by the state.
- 5) The SD approach underlines two essentials of: (i) protecting the interest of the world's poor from the exploitation of natural resources which impinges on the livelihood statuses of the poorer sections to be duly accounted and compensated; and (ii) limitations of technology and social organisations in abetting the exploitation of natural resources to be duly accounted for.
- 6) The term refers to the coexistence of both the public and the private sectors combining the state with the market in a mutually reinforcing manner.
- 7) The public sector investment as a percentage of GDP rose from 3.1 percent to 7.5 percent over the years 1950-65. In the later years, the ability of the public sector to mobilise resources declined so sharply that its role came to be described as 'employment granting and welfarist'.
- 8) The measures are: (i) abolition of industrial licensing; (ii) liberalisation in the inward flow of foreign direct and portfolio investment; (iii) trade liberalisation with elimination of import license and progressive reduction of non-tariff barriers; (iv) financial sector liberalisation like allowing the opening of foreign private sector banks and the insurance sector; and (v) liberalisation of investment policies in import of services like telecom.

Check Your Progress 2

- 1) In terms of only total exports to total GDP, the percentage ratio has increased from 6.5 percent in 1991-92 to 19.1 percent in 2013-14 (i.e. an increase of close to 3 times). In terms of combined share of 'exports plus imports' to total GDP, it has increased from 14 percent to 47 percent over the corresponding period (i.e. an increase of 3.4 times). Despite this increase, India's share in global exports has increased from 0.6 percent to 1.7 percent only (i.e. although the increase is once again close to 3 times, the ratio is still very meagre).
- 2) In terms of mean tariff rate, there is a drastic decrease from 80 percent in 1990 to 6.3 percent in 2012. In terms of product diversification defined as the percentage of exports to top 20 countries, the ratio has fallen from 80 percent to 67 percent. The share of engineering exports, in the total exports has risen to 23 percent in 2014-15.
- 3) Financial integration is measured in terms of the percentage increase in FDI inflow to GDP. For India, this has increased from 0.03 percent in 1991 to 1.96 percent in 2016.



UNIT 3 STRUCTURAL CHANGES*

Structure

- 3.0 Objectives
- 3.1 Introduction
- 3.2 Growth in National Income of India
 - 3.2.1 The Period of 1951-1980
 - 3.2.2 The Period of 1980s Onwards
- 3.3 Sectoral Growth/Changes
 - 3.3.1 Savings
 - 3.3.2 Investment
 - 3.3.3 Employment
 - 3.3.4 Urbanisation
- 3.4 Regional Disparities in India
 - 3.4.1 Magnitude and Causes of Regional Disparities
- 3.5 Incremental Capital Output Ratio (ICOR)
- 3.6 Let Us Sum Up
- 3.7 Some Useful Books
- 3.8 Answers or Hints to Check Your Progress Exercises

3.0 OBJECTIVES

After reading this unit, you will be able to:

- define the term ‘structural change’;
- analyse the growth in the National Income of India;
- discuss the trends in the structural composition of GDP among the three principal sectors of the economy;
- indicate the changing trends in savings and investment;
- describe the trends in the sectoral distribution of employment;
- state the extent of urbanisation as a result of structural changes in India;
- explain the magnitude and causes of Regional disparities in India; and
- outline the concept of ‘incremental capital output ratio’.

3.1 INTRODUCTION

Economic development has historically been associated with ‘structural changes’ in the national economies. The structural change has often been defined as a process by which transfer of economic benefits is evidenced in terms of major changes in the relative sectoral distributions of income and employment in the economy. The most common structural change that is

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observed historically is in terms of income and employment shares in the three principal sectors of the economy viz. the agriculture, industry and the services sectors. In the light of this, an economy which is characterised by a predominant share of agriculture in income and employment is characterised as 'under-developed'. However, exceptions to this can be found when an economy diversifies its primary sector activities from agriculture to 'allied agriculture' (which includes rearing of animal husbandry) where upon such economies have been able to attain a developed status (e.g. New Zealand, Argentina, etc.). Their share of agriculture in GDP has, however, shrunk over time to indicate their operations are modernised to become industries. The important feature therefore is industrialisation i.e. an organised way of carrying out activities, moving away from traditional farming to modern farming practices in agriculture, and diversifying further to non-farm industries (beginning first with agro-based industries and then on to non-agro industries). With such development (i.e. when the transition from the traditional agricultural base to the modern industrial base sets-in), over time, the share of industry in these economies has increased and that of agriculture has declined. After reaching a further reasonably high level of development, the services sector attains a point of eminence in the economy. With such a transition, a resultant economic structural change is one in which the earlier rural to urban ratio gets transformed to a larger urban to rural economic landscape – a phenomenon referred to as 'urbanisation'. This pattern is generally observed to hold across many countries with differing levels of development. In general, structural shifts with changing sectoral shares are found both in the national product (i.e. GDP or income) and the work-force (i.e. employment). A resulting outcome is an increased formalisation of the economy from a large informal base to that of a formal base.

In India, since the initiation of economic reforms and acceleration in the rate of growth since the 1990s, the economy has followed a somewhat different growth pattern in which the share of industry in itself has not increased much but that of services has expanded vastly. This, on the face of it, appears to be different from the one observed in the development process of both the earlier and the more recently developed countries. Such a growth pattern needs to be analysed carefully.

3.2 GROWTH IN NATIONAL INCOME OF INDIA

In India, after independence, the very first report on National Income estimates was published in 1951. The report was prepared by a committee of national income (NI) under the Chairmanship of Prof. P.C. Mahalanobis with Prof. D.R. Gadgil and Dr. V.K.R.V. Rao as its two members. The estimated total national income for the year 1948-49 was placed at Rs. 8,830 crore. Subsequent to this, estimates of NI have been compiled and published annually. It is important to note that the NI estimates are first compiled in 'current prices' but when temporal comparisons need to be made, it is necessary to convert them to a 'constant base'. Such a conversion procedure is required to eliminate the effect of change in price levels during the period of comparison. The estimates of NI are nowadays presented both in current and constant price series in the annual publication called the National Accounts Statistics. The base year used for presenting the NI estimates under the constant price series is frequently updated i.e. shifted to a base year of a later year so as to be in tune with the recent changes in composition of production basket and prices. Growth rate in NI calculated to a constant base

makes an assessment of the performance of the economy both possible and realistic.

3.2.1 The Period of 1951-1980

It has been a practice under the planned development programmes followed in India to set a target of achievement and then assess the actual achievement against the target set. The results on this score are presented in Table 3.1. During the three decade period of 1951 to 1979, only in two plan periods (viz. in the first and the fifth plan periods) we could meet the target set. This period can therefore be described as one in which India achieved a modest growth rate. Two main reasons for the lack of achievement against the target set are: (i) the three wars with neighbouring countries fought in the years 1962, 1965 and 1971; and (ii) the three **major** droughts during the years 1966, 1972 and 1979. Of these three, the first two affected an estimated 50 million population while the third affected an estimated 200 million. Such catastrophic events which have caused a major dent in the economic performance of the country have rendered the long term average growth in India's NI to hover around 3.5 percent which has been described as the Hindu rate of growth in some economic literature. In the light of this, breaking this barrier to touch the 5 percent annual growth rate in the fifth plan period is indeed a milestone in India's economic performance which is despite the fact that the year 1979-80 registered a negative growth. In fact, in addition to the three years identified as major droughts, the years of 1969 and 1970 are also recorded as drought years with an estimated 15+ million persons affected in each.

Table 3.1: Growth (%) in India's NI over the different Plan Periods

Plan	Period	Target	Achievement
First Plan	1951-56	2.1	4.6
Second Plan	1956-61	4.5	4.1
Third Plan	1961-66	5.6	3.3
Fourth Plan	1969-74	5.7	3.0
Fifth Plan	1974-79	4.4	5.0
Sixth Plan	1980-85	5.2	5.3
Seventh Plan	1985-90	5.0	5.8
Eighth Plan	1992-97	5.6	6.5
Ninth Plan	1997-2002	6.5	5.4
Tenth Plan	2002-07	8.0	7.6
Eleventh Plan	2007-12	9.0	7.5
Twelfth Plan	2012-17	-	6.7*

Source: Planning Commission and Economic Survey, 2015-16. The growth rates (GRs) are calculated to 2004-05 (i.e. base year) prices. * Figures for 12th Plan are at 2011-12 prices.

3.2.2 The Period of 1980s Onwards

In the decade of 1980s, India witnessed acceleration of national income growth as compared to the low growth rate during the 1960s and 1970s. During both the sixth and the seventh plan periods of 1980s, as also in the subsequent Eighth plan period, the growth rates in NI achieved was higher than the targeted growth rates. However, during the successive three plan periods viz. Ninth, Tenth and Eleventh plan periods, there was once again a decline in the growth rates of NI registered with reference to the targeted growth rates. Two major reasons are identified for this performance decline viz. (i) a global slow down following the East Asian crisis of 1997; and (ii) poor monsoon and the lack of thrust in the pace of reforms initiated. However, while it is not absolutely clear how far the integration of Indian economy with the global world was responsible for India's slowdown (since India had opened up its economy only in 1991 and was following a policy of moderated opening up), one cannot ignore pointing out the domestic factors contributing to policy instability. In so far as a stable government is necessary to provide the right policy signals required for a favourable investment climate, the years of late 1990s witnessed a succession of coalition governments many remaining in power for short drifts of no more than a few months. It is only towards the end of 1999, that a somewhat stable government came to power and during its tenure (1999-2004) succeeded in instilling a renewed rigour to continued reforms. As some of its results started becoming visible with the known time lag for policy decisions to show, a second spell of instability in political atmosphere came to prevail (over 2009-2014) after a 5-year period of relative stability during 2004-09. The latter period i.e. 2009-14 was marked for many scams pointing out to significant amounts of money going into unproductive channels. It is thus fair to say periods of political instability or uncertainty also contributed to the lack of achievement in the growth of NI during the later years of 1990s stretching through the years of 2000s in no insignificant measure.

Data from 2011-12 onwards are available from the new series with base year 2011-12. Taking the Twelfth Plan figures also into account, the average long term growth rates in India's NI, split into three major phases, is notable as follows: Phase I, 1951-1979, 4 percent; Phase II, 1980-1997, 6 percent; and 1997-2017, 7 percent. This has rendered India to be regarded as one of the fastest growing emerging market economies of the world although this trend was in evidence even by the end of 1990s.

Check Your Progress 1 [answer within the space given in about 50-100 words]

- 1) What would you identify as the necessary components of 'structural change'?

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- 2) Do you agree that an economy that is predominantly agricultural is necessarily an under-developed economy? Give reasons for your answer.

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- 3) Why is it necessary to convert the estimates of NI measured in current prices to that in constant prices?

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- 4) Why did India largely fail to achieve the targeted growth rates in NI during the period 1951-80?

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- 5) What are the two major factors identified for the decline and the less than the targeted growth rates in the NI of India during the later years of 1990s?

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- 6) Do you agree that the period of economic slowdown during the late 1990s was entirely due to the two factors identified in 5 above?

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- 7) Do you agree that India has managed to emerge as a fast growing emerging economy? Justify your answer.

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3.3 SECTORAL GROWTH/CHANGES

Simon Kuznets (1966) first demonstrated that the real effects of growth are evidenced by changes in sectoral compositions i.e. over the agriculture, industry and the services sectors for reasons of both demand and supply. Fisher (1939) and Clerk (1940) had advanced the same line of thought. The changing inter-sectoral profile of NI/GDP for India is presented below (Table 3.2). Important trends that flow from the data are as follows.

Table 3.2: Inter-Sectoral Composition of GDP (%)

Year	Agriculture	Industry	Services
1950-51	53.1	16.6	30.3
1960-61	48.7	20.5	30.8
1970-71	42.3	24.0	33.8
1980-81	36.1	25.9	38.0
1990-91	29.6	27.7	42.7
2000-01	22.3	27.3	50.4
2010-11	14.5	27.8	57.7
2011-12	13.9	27.0	59.0

Source: Economic Survey (base 2004-05)

Share of Agriculture in GDP: The share of agriculture in GDP has declined from 53 percent in 1950-51 to only 14 percent in 2012. The net decline over the 60+ year time period is thus to a tune of 39 percent. The declining share of agricultural sector is consistent with the development trajectory of a growing economy. However, in view of the continued dominance of relatively high employment share in agriculture and allied activities (48.9 percent in 2011-12), agricultural growth by itself continues to remain vital for jobs, income and food security. Moreover, for all agro-food industries, agricultural sector remains the main source of raw material supply.

Share of Industry in GDP: The share of industry in GDP has increased from 17 percent in 1950-51 to 27 percent in 2012. The increased share of industry is thus only by 10 percent over the 60+ year period. This means that the gain by industry, on account of the decline in agricultural share in NI, is less than one-third (since $10 \times 3 = 30$ which is much less than the total agricultural sector's decline i.e. 39 percent)

Pre-eminence of Services Sector: The most striking feature of the structural change in the Indian economy over the six decade period has been the pre-eminence of services sector (from 30 percent of its share in GDP in 1951 to 59 percent in 2012). This pace of expansion is mainly due to the growth of services sector constituents like communications, banking and insurance. The factors responsible for the rapid growth of the services sector are further identified as: (i) with the economic growth and industrial development, demand for services like transport, communication, electricity, storage, finance, etc. has increased tremendously leading to the expansion of the services or the tertiary sector; (ii) rapid development of Information Technology services has proved to be a great source of expansion for the communications sector; (iii) defence, civil administration, economic and social services like health and education have also made a huge contribution for the growth of service sector; and (iv) due to increase in the disposable income of the large middle class section, demand for services like hotels and restaurants, tourism and transport, communication, etc. has increased.

Thus, manufacturing which has been observed historically to be the main contributor of growth, at least in the initial period of economic development, has played only a minor role in India. The share of industries in GDP has remained stagnant at around 27 percent (in 2004-05 prices) since 1991. In other words, unlike other developed countries, India has become a post-industrial 'service economy', bypassing industrial development. Two reasons indicated for such a trend are: (i) development of communication technologies which has generated demand for skilled jobs causing the movement of people across countries; and (ii) demonstration effect by developed countries leading to change in demand pattern for services in India. More recently, in 2018-19, the share of industry in GDP has slightly increased to around 30 percent [29.6%: Table 3.2(a)].

Table 3.2 (a): Sectoral Share (%) of GDP: 2013-19 (base 2011-12)

Year	Agriculture	Industry	Services
2013-14	20.7	28.3	51.1
2016-17	18.2	28.4	53.3
2018-19	16.1	29.6	54.3

Source: Economic Survey: 2019-20, Vol. 2, Table 1.3 B, A7, p-33

3.3.1 Savings

Generation of employment depends on investment – both public and private. For this savings is important. The Ministry of Statistics and Programme Implementation (MSPI), through its Central Statistics Office (CSO), publishes data on savings by three principal sectors of the economy viz. household sector, private corporate sector and public sector. Trends in savings over the recent years, indicate a steady decline in 'gross domestic savings' (Table 3.3).

Table 3.3: Domestic savings as percentage of GDP (2011-12 Series)

Sector	2011-12	2014-15	2017-18
Household	23.6	19.6	17.2
Private Corporate	9.5	11.7	11.6
Public Sector	1.5	1.0	1.7
Total	34.6	32.2	30.5

Source: Economic Survey 2019-20, Vol. 2, Statistical Appendix, A 26, Table 1.9, p-30.

3.3.2 Investment

There are three institutional sectors that save and invest. These are: households, private corporate sector and public sector. The public sector consists of the government and the public corporations. The combined rate of investment (i.e. investment to GDP ratio) was an average 24.5 percent over the period 1991-2004. This touched 30 percent in 2004-05 and over the next eight years i.e. 2005-2013, it averaged 35.4 percent. The difference between the domestic savings and the total investment is bridged from other sources like FDI, foreign remittances, etc. Since the trend in domestic savings is one of decline and that in investment is increasing, it follows that in more recent years the inflow of capital from outside is on the increase. Between the three constituents of domestic savings, there has been a steady decline in the public sector savings. For instance, the share of public sector savings was around 4-5 percent in the early 1980s but it had dropped to just above 1 percent in 2015. The bulk of the savings and investment has therefore been from the household and the private corporate sectors in which the foreign remittances and the FDI part has come to occupy an important place. Leaving aside this part, between the three constituents, with some variations over the years, the household sector accounts for about 45 percent and the corporate sector around 35 percent. The balance of 20 percent is from the government/public sector.

3.3.3 Employment

As stated in the beginning, structural change refers to a major shift in the relative shares of employment and income, transferring the benefits of growth to the people in the lower rungs of society. It also refers to occupational shift from agriculture to industry. Such a shift would result over long term time horizons for which we should ideally take the longest available time series. Notwithstanding this, for the purpose of current section, it is illustrative to first take a look at the post-1991 employment scenario and then contrast it with that in the period before (i.e. 1951-2000). This would not only give us the post-reform scenario but also aggregate for the various efforts made in the pre-liberalisation decades stretching over the nearly eight plan periods.

Table 3.4: Share of major sectors in total employment (percent)

Sector	1999-2000	2004-05	2011-12	Shift (2000-12)	2018-19
Agriculture & allied	59.9	58.5	48.9	- 11	43.2
Industry	16.4	18.2	24.3	+ 8	24.9
Services	23.7	23.3	26.9	+ 3	31.9

Source: Rangarajan, et. al. 2014

Table 3.5: Composition of Rural Employment (percent)

Sector	1993-94	1999-2000	2004-05	2009-10	Shift (1994-2010)
Agriculture & allied	78.4	76.2	72.6	67.9	- 10.5
Non-agriculture	21.6	23.8	27.4	32.1	+ 10.5

Source: Papola & Sahu, 2012.

The changing composition of agricultural employment in general and that of rural non-farm employment in particular, shows a significant 11 percent shift over the years 2000-2012 (Table 3.4). The distribution of this shift between the industrial and services sector is 8 percent and 3 percent respectively. This shows that contrary to the expectation, the absorption of labour by the industry has been higher than in the services sector in the post-2000 years. Note that we are taking here an all India picture (i.e. a mixture of skilled and unskilled workforce) whereas were we to take a look at the specific picture of 'educated workforce only' the picture could have been different. Given that in 1951, out of a total of 143 million workers, 100 million were engaged in agriculture, and therefore the percentage of people employed in agriculture was close to 70 percent, over the 5-decade period of 1951-2000, it is significant to note that the percentage of workers engaged in agriculture had decreased by a mere 10 percent over this 50 year period. Thus, the 11 percent decline in this respect, during the 12 post-2000 years supports the conclusion that there has been a strident pace picked up in the extent of this structural shift in the non-agricultural sector in the post-2000 years. Likewise, the corresponding shift towards non-farm employment in rural areas has also evidenced a similar shift of 10.5 percent decline over 1993-2010 (Table 3.5). However, we should note two important points here: (i) the 10 percent decline in agricultural employment achieved during 1951-2000 was through much more difficult times than that during 2000-12; and (ii) the denominator to the percentages in Tables 3.4 and 3.5 are different (i.e. in 3.4 it is the rural + urban workforce whereas in 3.5 it is only the rural workforce). Notwithstanding these differences, taken together, the structural change in the shift of workforce over the combined period of 1951-2012, from 70 percent to 49 percent (i.e. a 21 percent decline) is significant. The share of workforce in agriculture has further declined to around 43 percent in 2019. The percentage decline in the agricultural workforce during the post-2000 years is close to 17 (- 16.7 percent).

3.3.4 Urbanisation

In the introduction to the unit, we made a reference to the expected change in the rural to urban share of the economy by the process of accelerated urbanisation expected to result over time. As a result of the transformation over the decades, the distribution of rural to urban population has changed by 13 percentage points over the 5 decade period of 1961-2011 (Table 3.6). The percentage of rural population has decreased from 82 to 69 percent i.e. by 13 percentage points. The increase of 13 percentage points in the corresponding urban population is distributed between the pre-reforms (1961-1991) and the post-reforms (1991-2011) periods by 7.5 and 5.7 percentage points. The ratio of 7.5 : 5.7 indicates a per-decade-average of 2.5 for the three pre-reform decades of 1961-91 and 2.85 for the two post-reform decades of 1991-2011. This suggests that the pace of urbanisation has been faster in the post-reform years. In other words, the pace of reforms has accelerated during the post-liberalisation period supporting the hypothesis that structural transformation of the economy will become more fast-tracked once the process establishes itself in the economy.

Table 3.6 : Change in Rural-Urban distribution of population (percent)

Year	Rural	Urban
1961	82.0	18.0
1971	80.1	19.9
1981	76.9	23.1
1991	74.5	25.5
2001	72.2	27.8
2011	68.8	31.2

Source: Decadal Census, 2011.

3.4 REGIONAL DISPARITIES IN INDIA

Since its inception Indian planning has been concerned with the idea of balanced growth. But despite this, unbalanced growth and regional disparities have remained, since many factors like the initiatives of the state governments in initiating progressive policies, the social context in which the people in a state are not able to take advantage of policies and schemes, etc. operated at the grassroots level. As a result, the gains of the rapid growth have not reached all parts of the country and all sections of the people in an equitable manner. While differences in Gross State Domestic Product (GSDP) growth rates and absolute level of per capita GSDP are only summary economic indicators of disparities, there are wide variations between the States of India on health, education and infrastructural indicators. In such a scenario, while high growth rates have led to a spiral of commercial and service sector activities in the already developed regions of the country, the backward areas have continued to lack even in basic amenities like education, health, housing, rural roads, drinking water and electricity. Livelihood options are also limited as agriculture does not give adequate returns and industry and services have been able to absorb limited

surplus labour from agriculture. As a result, people seeking employment in low skill, low paying jobs is a common manifestation of such constraints in many rural areas. Redressing regional imbalances and disparities has, therefore, not only been a goal in itself but is essential for maintaining the integrated social and economic fabric of the country.

3.4.1 Magnitude and Causes of Regional Disparities

The major factors on which particular attention for minimising the regional disparities is required are the following.

Population Below Poverty Line: The percentage of population living below the poverty line in different states needs to be taken into account for minimising the regional disparities. For instance, in 2011-12, only three states (viz. Bihar, UP, and MP) together accounted for 44 percent of the total population in the country. The percentage of population below poverty line was also much above the all India level (27.5 percent) in this regard [e.g. Bihar 41.9 percent, Chhattisgarh 40.9 percent, Jharkhand 40.3 percent, Uttarakhand 39.6 percent, MP 38.3 percent]. This implies that there is extreme concentration of poverty in the economically backward states and more efforts to improve their condition are needed to be focussed in these states.

Disparities in Human Development: In terms of human development indicators, there are considerable variations across states in India. For instance, Kerala is the best performer (with a literacy rate of 93.9 percent, female literacy rate of 92 percent and infant mortality rate of 12), but at the other end of the position are the worst performers like Bihar, Rajasthan, Haryana, MP and Assam.

Inter-State Disparities in Agricultural Development: Another important indicator of regional disparity is the differences in the levels of development of agriculture among the different states of the country. States like Punjab, Haryana and part of Uttar Pradesh have a high rate of agricultural productivity. This is to say the adoption of High Yielding Varieties (HYVs) of seeds in agriculture has aggravated regional disparities.

Disparities in Industrial Development: There has been substantial regional concentration of industries in the four industrially advanced states of Maharashtra, Gujarat, Karnataka and Tamil Nadu. The uneven pattern of distribution of industries needs to be bridged by special initiatives like resource transfer, specific area development programmes, concessional finance, etc.

Disparity in Growth Performance: The different states in India are classified into three groups viz. high income states, middle income states and low income states. The relative positions of the states are determined by averaging their per capita real SGDP over the period 1981-2008.

With the removal of controls and the opening up of the economy, the pressure of market forces has exacerbated the inter- and intra-state disparities. The role of the centre in promoting equity among states and regions has, therefore, assumed added importance in the post-liberalisation period. The

policies of the government have been reoriented with the aim of achieving faster and more inclusive growth. Towards this end, endeavours to channelise funds into sectors and areas which need special attention under different programmes and schemes are being made.

3.5 INCREMENTAL CAPITAL OUTPUT RATIO (ICOR)

Allocation of resources is one of the central problems faced by all economies. Establishing efficient criteria for investment of a nation's resources is crucially important in this regard. One of the most traditional investment criteria is the use of the capital-output ratio. A variant of this is the incremental capital-output ratio (ICOR). ICOR indicates the additional unit of capital or investment required to produce an additional unit of output. The rate of savings is taken as the investment made to work out ICOR. Thus, $ICOR = (\text{investment share in GDP}) \div (\text{rate of growth of GDP})$. That is: $ICOR = S / G$, where S is the savings rate and G is the growth rate.

The Harrod-Domar model focuses on ICOR as one of the two central parameters in determining the rate of economic growth. More specifically, $G = S/ICOR$. The lower the ICOR, higher is G . Conversely, the higher the ICOR, lower is the rate of growth or the lower is the productivity of capital. *Savings (S) is taken as equal to Investment (I).*

In the Indian case, analysis of data for the period beyond 2012-13 reveals two trends. First, there has been a decline in investment rate. Second, the decline in growth rate is greater than the decline in investment rate indicating a rise in the incremental capital-output ratio (ICOR). The rise in ICOR can be attributed to the delay in completion of projects or the lack of complementary investments. In some cases, it can also be due to non-availability of critical inputs. The delay in completion of projects can be due to internal reasons as well as policy constraints.

Check Your Progress 2 [answer within the space given in about 50-100 words]

- 1) To what extent the income (NI) from agriculture has declined over the period 1951-2011? What are the shares of gain by the industrial and services sectors out of this decline?

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- 2) What factors have contributed to the significant expansion of services sector during the period 1951-2011?

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- 3) To what reasons the stagnancy in the industrial expansion of India during the post-1991 years is attributed?

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- 4) What has been the trend in 'savings' in recent years in India? What has been the corresponding trend in 'investment'? Is there a significant gap between the two and if so how it possibly is bridged?

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- 5) What has been the rate of expansion in the industrial sector in the post-2000 years in respect of employment?

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- 6) Do you consider the structural shift in the decline of agricultural employment by 21 percent over the period 1951-2011 significant? Why?

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- 7) What is the increase in the proportion of urbanisation over the period 1961 to 2011? What is its distribution over the pre-reforms and the post-reforms decades?

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- 8) State two reasons as to why disparities between regional development have remained.

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- 9) What are the factors that merits to be focused upon while striving to reduce regional disparities in growth and development?

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- 10) How is ICOR defined? In what way it is important in economic developmental planning?

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- 11) If the savings-investment rate is given as 36 percent and the targeted economic growth rate is fixed at 6 percent, what is ICOR? Next, if the ICOR is lowered by 2 percent, then what would be the expected growth rate for the economy?

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3.6 LET US SUM UP

Structural change refers to major shifts in the relative shares of employment and income between sectors of an economy. Such structural changes are expected to result over a long term horizon. In particular, the share of agricultural sector, which will be high at low levels of development, is transferred to the other two sectors viz. the industrial and the tertiary or services sectors. However, the transformation can sometimes take place without the industrial sector expanding as much as the services sector. Although this has not happened in many of the developed economies, it had been pointed out to be the case for India. This perception is not really the case as noticed by the data for the post-2000 years in which out of a total of 11 percentage points yielded by the agricultural sector in respect of its employment share, a major part of 8 percentage is accounted for by the increased employment share in industries with the remaining 3 percent accounted for by the services. Significantly, in the entire 5 decade period before the year 2000 i.e. from 1951-2000 also there had been a shift in agricultural employment by the same 10 percent (i.e. from a high of 70 percent in 1951 to 60 percent in 2000). Also, notably, considering only the employment in the rural sector, there has been a corresponding 10.5 percent decline in the share of agriculture sector employment. The trend supports the hypothesis of labour transfer through non-agricultural or non-farm sector growth in rural areas. The change in income profile shows a drastic decrease in the contribution of agriculture to GDP (from 53 percent in 1951 to 14.5 percent in 2011). The corresponding increase for the industrial sector is from 17 to 28 percent (i.e. 11 percentage points) and for the services sector from 30 percent to 58 percent (i.e. 28 percentage points). A consequence of structural change is the increased share of urban population in relation to the rural population. This change is seen to be a modest 13.2 percent increase i.e. from 18 percent in 1961 to 31.2 percent in 2011.

3.7 SOME USEFUL BOOKS

- 1) Athukorala P & Sen K (2002). *Saving, Investment, and Growth in India*, Oxford University Press, New Delhi.
- 2) Bhattacharya, B. B. & Sakthivel S. (2004). 'Regional Growth and Disparity in India: Comparison of Pre and Post-Reform Decades', *Economic and Political Weekly* 29(10), 6 March.
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- 4) Joshi, Vijay and I.M.D. Little (2005). *India, Macro Economics and Political Economy 1964 to 1991*, Oxford University Press, New Delhi.
- 5) Papola & Sahu (2012). *Growth and Structure of Employment in India: Long Term and Post-Reform Performance and the Emerging Challenge*, ISID, New Delhi.
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3.8 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) Structural change refers to transfer of benefits of economic growth to the lower sections of the population in terms of increase in their income and employment levels. Changes in the relative shares of urban to rural (or increased urbanisation) is a consequence of structural change in the economy.
- 2) No. An economy can diversify its agricultural sector to 'agriculture and allied' activities inclusive of animal husbandry to attain a developed status.
- 3) For affording temporal comparison of growth profiles. In its absence, the changing levels of prices during the period remains unaccounted for.
- 4) The failures are attributed to the wars fought and droughts experienced.
- 5) The global slowdown and the poor monsoon coupled with slow pace of reforms.
- 6) No. The period was also marked for intermittent political instability in the country.
- 7) Yes. The long term growth rate in India's NI has steadily grown consistently from 4 percent during 1951-1979 to 6 percent during 1980-97 and to 7 percent during 1997-2017.

Check Your Progress 2

- 1) Decline in agricultural sector's share is to a tune of 39 percent. Corresponding share of industry has increased by 11 percent and 28 percent by the services sector.
- 2) Demand for many constituents of services sector, developments in IT sector, etc.
- 3) Migration of workers and change in demand patterns for services.
- 4) Domestic savings has declined in recent year to touch 19 percent in 2015. Investment, however, have appreciated to 35 percent average over 2008-13. FDI and foreign remittances have contributed to bridge the gap.
- 5) There has been a decline of 11 percent in agricultural employment in the 2000+ years. Out of this, 8 percent share is the increase in industries and 3 percent in services.
- 6) Yes. Although it was 10 percent only during the 50 year period up to 2000, the period was marked for turbulence in terms of initial planning period, wars, droughts, etc. The post-2000 years, was relatively a much better period.
- 7) 13 percentage points. 7.5 and 5.7 percents respectively.

- 8) Difference in adoption of progressive policies and capacity of state to take benefit from policies implemented.
- 9) Population below BPL, HD indicators, state of agricultural progress/development, disparities in industrial development and growth performance.
- 10) ICOR is defined as the ratio of 'investment to targeted growth rate'. It is important to adopt policies to achieve the targeted growth rates for which ICOR can be focused upon particularly for deciding the desired labour and capital mix.
- 11) $G = 36/6 = 6$. $G = 36/4 = 9$ percent.



UNIT 4 RESOURCES AND CONSTRAINTS*

Structure

- 4.0 Objectives
- 4.1 Introduction
- 4.2 Types of Resources
 - 4.2.1 Natural Resources
 - 4.2.2 Man-made resources
- 4.3 Infrastructure
 - 4.3.1 Physical Infrastructure
 - 4.3.2 Social Infrastructure
- 4.4 Role of Infrastructure in Development
- 4.5 Infrastructural Development in India
- 4.6 Institutions and Governance
- 4.7 Let Us Sum Up
- 4.8 Some Useful Books/References for Further Reading
- 4.9 Answers or Hints to Check Your Progress Exercises

4.0 OBJECTIVES

After reading this unit, you will be able to:

- distinguish between natural resources and manmade resources;
- explain how resources serve to build infrastructure critical for economic growth and development;
- categorise the various factors of production playing a crucial role in building a strong infrastructural base;
- differentiate between physical infrastructure and social infrastructure;
- discuss the role of infrastructure in economic development;
- describe the state of infrastructure development in India; and
- outline the challenges/constraints for infrastructure development in India in terms of 'institutions and governance'.

4.1 INTRODUCTION

Natural resources, include all those objects and products which, combined with human labour, capital and enterprise, are used to produce goods and services. Natural resources are not static but dynamic in their nature i.e. they keep on changing with economic development. Resources are important for infrastructure development which in turn determines the potential for all

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round development i.e. growth and development of all the three primary sectors of the economy. Transport, communications and energy are the most important constituents of economic infrastructure. The different modes of transport that have evolved with a premium on greater speed, point out to how the world is positioned on the fast changing time-space-speed vectors. Distances are measured on the basis of speed and not in spatial terms. In all these, consumption of energy is the single most important parameter that distinguishes a developed economy from that of a developing economy. In this unit, we shall discuss the constituents of resources and infrastructure in the context of Indian Economy. The constraints to development, by a lack of infrastructure owing to inefficiencies in ‘institutions and governance’, would also be focused upon in the unit.

4.2 TYPES OF RESOURCES

A resource is a source or supply from which a beneficial good is produced. Typically resources are materials, energy, services, labour, knowledge and other physical assets. These are used in a mix to produce a beneficial good. In that process, some of the resources (called non-renewable or exhaustive resources) may be so consumed that, over time, they may become unavailable for future use. Resource are thus basically of two types – natural and manmade. Let us begin by distinguishing between these two.

4.2.1 Natural Resources

Natural resources are derived from the environment. Some of the resources are essential for survival, while others satisfy societal wants. Every man-made product in an economy is composed of natural resources to some degree. Natural resources are material provided by the nature using which man makes many other complex products called manmade products. Some examples of natural resources and the way in which we use them are given in Table 4.1.

Table 4.1: Types of Natural Resources

Natural Resource	Examples of Products or Services
Air	Wind energy
Coal	Electricity
Minerals	Coins, wire, steel, aluminium cans, jewellery
Natural gas	Electricity, heating
Oil	Electricity, fuel for cars
Sunlight	Solar power, photosynthesis
Water	Hydroelectric energy, drinking, cleaning

Source: <http://study.com/academy/lesson/what-are-natural-resources-definition-lesson-quiz.html>

Water Resource: Water is the most critical limiting factor for many aspects of life like: (i) economic growth, (ii) environmental stability, (iii) biodiversity conservation, (iv) food security and (v) healthcare. Humans at present are

estimated to use about 54 percent of all accessible freshwater supplies in the world. By 2025, this share is expected to increase to 70 percent. This will have serious implications for all other forms of life including plants. The demand for fresh water is increasing to unprecedented levels because of: (i) population growth, (ii) increasing irrigation needs, (iii) rapid urbanisation, (iv) industrialisation and (v) increase in production and consumption. India is counted as one of the water hotspots in the world primarily because of the large population that has to be provided with food and drinking water. Per capita availability of water has gone down from 5000 M³ (cubic meters) in 1951 to 1588 M³ in 2010 in India.

Energy Resource: Energy resources are of two types: non-renewable and renewable. The most important non-renewable energy resources are fossil fuels such as coal, oil and natural gas. Energy is used in the industrial sector, transportation sector (which is the world's fastest growing form of energy use largely due to the rise in private cars) and residential and commercial sector (i.e. energy use in buildings, commerce, public services, agriculture and fishing). India is the fourth largest energy consumer in the world after China, US, and Russia. However, India's per capita energy consumption is 615 units compared as 6800 units in the US and 2030 units in China.

India is the third largest global consumer of coal and has the fifth largest coal reserves in the world. India does not have sufficient oil and hence imports 83 percent of her crude oil needs. India is the world's fourth largest oil importer after China, Japan, and the US. The government is forced to subsidise the price of energy products but of late it is trying to reduce such subsidies. About 25 percent of the population lack basic access to electricity while electrified areas suffer from intermittent electricity blackouts. The government is presently promoting renewable energy sources like wind farms, solar energy, hydropower and waste-to-energy projects.

Forest Resource: The economic benefits that mankind receives from forests are of two types: (i) direct use values like timber, fuel wood, edible plants, etc. and medicinal plants; and (ii) indirect use values such as the carbon absorption, provision of habitat to protect biodiversity, ecosystem protection services such as the ability to reduce soil erosion and the siltation of rivers. Some findings of the 'state of energy report' 2013 for India are: (i) forest and tree cover of the country is about 70 million ha or about 21 percent of the total geographical area; (ii) there is an increase of 5800 ha in the forest cover since the 2011 assessment; and (iii) the seven north-eastern states of India have nearly one-fourth of the country's forest cover.

Land: Though the global land area is less than a third of the earth's surface, it is vital for our existence because of its many resources and functions provided to mankind like: (i) biodiversity, (ii) water, (iii) carbon cycles, etc. The world's land surface is degrading continuously with increasing 'desertification' estimated at 23 percent of all usable land having become degraded. The main causes of degradation are: (i) deforestation, (ii) overgrazing, (iii) mismanaged agriculture, (iv) unplanned industrialisation and urbanisation, etc. The total land area in a country is set in its definite limits within which the process of economic development needs to be

organised. With increasing world population, there will be intense pressure on land. The pattern of land utilisation in India is indicated in Table 4.2. The available land, on the basis of its use, is classified into two types viz. (i) agricultural land and (ii) non-agricultural land.

Table 4.2: Land Utilisation in India

(in sq. kms.)

Items of Classification on Utilisation	1950-51	Percent	2014-15	Percent
Geographical Area	328726	-	328726	-
Reporting area for land utilisation statistics	284315	100	307818	100
Forest	40482	14	71794	23
Barren Land	47517	17	43880	14
Other uncultivated land excluding fallow land	49446	17	25832	8
Fallow Land (uncultivated land in-between cultivated land)	28124	10	26182	9
Net Area Sown	118746	42	140130	46

Agricultural land includes net sown area and current fallows. Agricultural land in India (in 2014-15) is thus about 55 percent of the total geographical area. Because of the large population of the country, the per capita arable land (i.e. land suitable for agriculture) is low at 0.16 hectares against the world average of 0.24 hectares. Non-agricultural land includes: (i) land under forests, (ii) land under non-agricultural use (e.g. towns, villages, roads, railway, etc.) and (iii) land classified as non-cultivable waste, barren land and uncultivated land in mountains and deserts.

4.2.2 Man-made Resources

Man-made resources are goods and services produced by using the resources gifted by nature. Sometimes, resources become useful to man only when their original form is changed. Such goods do not occur naturally but have to be produced for consumption by mankind (i.e. humanity). Some man-made resources like medicines are very essential to modern human life as without medicines like vaccines people would become sick and die. However, some manmade resources like pesticides could harm natural environment if not scientifically used.

Some man-made resources are like natural resources. For instance, lakes and ponds are man-made resources. While the water and fish in them are natural resources, the impoundment is by human effort. Such resources generate food, income and recreation opportunities for many people. Likewise, farms are also man-made resource using plants and soil available from nature. Some other man-made resources like paper are often combined to form other resources like books and plates. High-tech products like wires and semiconductors are other goods made for mankind's use. Examples of other

man-made resources, are hospitals, research centers, educational institutions, etc. These serve as resources for community development. Taken together, they become infrastructure which forms the backbone for economic growth and development.

4.3 INFRASTRUCTURE

Infrastructure covers those supporting services that help the growth of productive activities like agriculture and industry. Though the concept of infrastructure has been extensively used in the literature on economic development, a precise and generally acceptable definition of the term infrastructure is still elusive. The provision of quality and efficient infrastructure services is indispensable to realise the full potential of the growth impulses surging through the economy. Professor V.K.R.V Rao made an exhaustive categorisation of factors of production that constitute infrastructure, and the activities/sectors that are integral in their making, as follows.

Transport: roads, railways, shipping ports and harbours, airports, transport equipments.

- a) **Communications:** posts, telegraphs, telephones, radio, TV, cinema.
- b) **Energy:** coal, electricity (hydro, thermal, nuclear), wind, solar, oil, gas, biogas.
- c) **Intermediate Goods Output:** minerals, steel, basic chemicals, fertilisers and pesticides, machinery and machine tools.
- d) **Productivity of Natural Resources:** reclamation of lands, irrigation (major, medium, minor) drainage, contour bunding and land reshaping, consolidation of holdings, high yielding bovine varieties, fishing boats, fishing equipments and refrigeration, afforestation and development of commercial forests.
- e) **Science and Technology:** teaching, basic and applied research, national laboratories, liaison with production units.
- f) **Information System:** mass media, libraries and museums, fairs and exhibitions, books and journals.
- g) **Finance and Banking:** savings institutions (in public, private and cooperative sectors), credit and lending institutions (in public, private and co-operative sectors), capital market.
- h) **Human Resource Development:** drinking water, disease eradication, public hygiene, family planning, medical facilities; education – literacy, schools, colleges and universities, professional education, technical and industrial schools, development disciplines.

Economic development of a country depends very much upon the availability of its infrastructural facilities particularly the development of sectors such as agriculture, industry and services Sectors. An economy's infrastructure is broadly divided into two types – physical infrastructure and social

infrastructure. Infrastructure are also classified based on the purpose of uses viz. (i) 'hard' and 'soft' infrastructure, (ii) rural and urban infrastructure and (iii) institutional and non-institutional infrastructure. **Hard infrastructure** is defined as the physical infrastructure like roads, bridges etc. while the soft infrastructure refers to human capital and the institutions that are required to maintain the economic, cultural and social standards of a population.

4.3.1 Physical Infrastructure

Physical infrastructure is directly related with the production sectors like agriculture, industry and trade. It includes services like power, irrigation, transport and telecommunication. Performance of physical infrastructure in Indian economy has been mixed and uneven. Over the years, India's 'soft infrastructure' has grown faster. In contrast, the expansion and performance of the 'hard infrastructure' have been modest considering the country's population density.

4.3.2 Social Infrastructure

Social infrastructure comprise of education, health and medical care, nutrition, housing and water supply which are instrumental in contributing to improvements in human development, which in turn, accelerates economic development. Human Development is the process of widening people's choices and their level of well-being. The choices change over time and differ among societies according to their stage of development. The three essential choices for people are – to lead a long and healthy life, to acquire knowledge and to have access to the resources needed for a decent standard of living.

The term 'social infrastructure' is used to refer to the 'overhead facilities' (i.e. not linked to production) which contributes to improving the quality of labour productivity in production. It includes education, health, housing, etc. Social infrastructure is vital in human capital formation while physical infrastructure builds up the material capital. Given that human capital plays a very important role in the process of economic development, expenditure on social infrastructure is regarded as investment rather than consumption. Both the economic and social infrastructure are equally important for carrying out economic activities efficiently. The distinction is merely on the difference in their content and not on their role or importance.

Endogenous growth theory argues that both poor physical infrastructure and human capital constrains economic growth. For instance, Hall and Jones (1999) argue that international differences in levels of output per worker are determined by differences in human capital and in physical and social infrastructure. Wagstaff (2002) notes that up to 1.7 percent of annual economic growth in East Asia between 1965 and 1990 could be attributed to improved investment in social infrastructure i.e. public education and health.

Check Your Progress 1 [answer within the space given in about 50-100 words]

Resources and Constraints

- 1) State the different types of natural resources with illustration of each one to produce a manmade resource.

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- 2) State the five most important aspects of life which critically depend on water. To which factor is the continued increase in the use of available water on the planet attributed?

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- 3) How is the 'infrastructure' defined? Give examples of its constituents?

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- 4) State the nine constituents of infrastructure as categorised by Prof. V. K. R. V. Rao.

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- 5) Distinguish between physical and social infrastructures.

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- 6) What does the endogenous growth theory recognise as the basic constraints for economic development? What do the individual contributors say in this regard?

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4.4 ROLE OF INFRASTRUCTURE IN DEVELOPMENT

The primary objective of every nation is to strive for the fulfilment of the basic needs of its population. For this, it can raise the required resources only by achieving higher GDP growth rates. This will help the country to invest in its infrastructure development which in turn attracts other countries to invest by way of FDI. Infrastructure thus contributes greatly in fulfilling the basic objective of achieving higher growth. Physical infrastructure directly supports economic growth while social infrastructure does it indirectly by improving the quality of living standards of the community. More specifically, the role and contribution of infrastructure to development can be identified as follows.

- First, physical infrastructure not only contributes to enhance productivity but also assists in the realisation of the potential ability of human capital i.e. it creates situations in which the potential can fully unfold. It also directly and indirectly contributes towards improving the quality and safety of people's lives.
- Second, the nature and rate of growth of infrastructure determines the course of development of a country in terms of: (i) diversification of production and expansion of trade; (ii) control of population growth; (iii) alleviation of poverty; and (iv) protection as well as improvement of conditions of environment. It is estimated that a 1 percent increase in the stock of infrastructure is associated with a 1 percent increase in GDP of a country (WDR, 1994). An important ingredient in China's success with rural enterprise has been a package of transport, telecommunications and power at the village level. The elements of 'physical infrastructure' provide a series of externalities. For instance, use of electricity helps in the dynamic transformation of all types of production units, growth of transport and communications paves the way for commercialisation of agriculture and trading activities besides helping increase the mobility of labour across sectors within a country.
- Third, education and health – which are the main constituents of social infrastructure – contribute to economic development by human capital formation. Effective education of the masses (i.e. universal elementary

and middle level education) is crucial for reducing poverty and sustaining higher rates of economic growth over long periods of time by establishing a skilled labour force base.

- Fourth, the elements of ‘financial infrastructure’ consisting of money and capital markets supply short, medium and long term credit to different sectors of the economy. In particular, while the commercial banks mobilise savings and provide short term credit, the development banks do the same by providing long term credit to agriculture and industry.
- Fifth, infrastructure services that help the poor also contribute to environmental sustainability. For instance, clean water and sanitation, non-polluting sources of energy, safe disposal of solid waste, better management of traffic in urban areas, etc. provide environmental benefits for all sections of the people. The urban poor often directly benefit from good infrastructure services because they are concentrated in settlements with unsanitary conditions, hazardous emissions, and accident risks.
- Sixth, infrastructure is very much important in development of tourism. However, in areas which attract tourists for natural scenery (such as hilly areas, sea-costs, forests, etc.), development of physical infrastructure needs to be done in a way that environmental concerns are duly protected.

The technological revolution achieved in the fields of telecommunication and use of satellites has radically improved the system of information in all spheres of life. We should properly use it as an important element of infrastructure. Further, development of suitable institutional arrangements for the maintenance of infrastructure like the basic needs of civic life with proper systems of water supply, sewerage, roads, conservancy services, etc. also needs to be focused upon so as to duly benefit from infrastructure development.

4.5 INFRASTRUCTURAL DEVELOPMENT IN INDIA

The transport system is dependent on complementary supporting services. The different modes and services on which the broad transport system depends are: railways, roads, ports, inland water transport, coastal shipping, airports and airlines. Railways and roads are the dominant means of transport in India carrying more than 95 percent of total traffic. Although other modes such as coastal shipping and inland water transport also play a crucial role, railways and roads dominate the transport landscape in the country. It is important to foster the development of various transport modes so that they together lead to an efficient, sustainable, safe, and regionally balanced transportation system in an integrated manner. The liberalisation of the economy has instilled the urgency of recognising the necessity of an efficient transport system for increasing productivity and, in the process, enable the country to compete effectively in the world market. Adequate and reliable transport infrastructure (and services) are important in contributing to enhance the ability of the country to increase its international trade and attract foreign direct investment.

Road Network: India's road network consist of: (i) national highways (NH), (ii) state highways (SH), (iii) major district roads (MDRs), and (iv) rural roads (RR) including other district roads and village roads. The NHs (with a total length of about 66,600 km) comprise about 20 percent of the road network and carry 40 percent of the road traffic. SHs (with a length of about 1.37 lakh km) and MDRs (with a length of 3 lakh km) together constitute the secondary system of road transportation contributing significantly to the development of the rural economy and industrial growth of the country. The secondary system also carries about 40 percent of the total road traffic. Rural Roads (comprising the large residual of 28 lakh km length), hold the potential to provide the vitally needed rural connectivity for generating higher agricultural incomes and productive employment opportunities besides promoting access to economic and social services. In order to improve the road network, besides speedy implementation of projects like the Golden Quadrilateral (GQ) and the North-South and East-West (NS-EW) corridors, addressing the deterioration in large stretches of NHs, SHs, etc. needs to be accorded high priority.

Ports: Ports constitute the inter-modal interface between maritime and land (road and rail combined) transport. India has a coastline of around 7,500 km with 12 major ports and 187 non-major ports (i.e. notified minor/intermediate) along its coastline and sea islands. Almost 95 percent by volume and 70 percent by value of India's global merchandise trade is carried through the sea route. Overseas cargo accounts for about 77 percent of the total cargo handled at Indian ports.

Air Transport: India's relatively decent performance in roads and railways by international comparisons is partly because other countries (such as in East Asia, BRCS, and, especially, developed countries) make much greater use of air transportation. This is evident from the data on air transport in India where only 58 persons per 1,000 people travelled (in 2012) by air compared to 201 in China, 333 in BRCS countries, 490 in East Asia and a huge 1480 in the developed countries. In terms of air freight transportation, India's volume (in terms of 1,000 ton-km per 1,000 people) was only 1.4 (in 2012) compared to 13 for China, 18 for BRCS countries, 80 for East Asia and a huge 111 in developed countries.

Electricity: Electricity is a very important form of energy used in homes, offices and industry for enhancing production, efficiency and productivity. Lack of access to electricity seriously affects output and productivity. In India, only 75 percent of people have access to the electricity network. This compares to 86 percent for the East Asian countries, 94 percent for the BRCS countries and almost 100 percent for China and the developed countries. Compared to India's level, the per capita consumption of electricity is about 5 times higher in China, 6 times higher in East Asia, 7.5 times higher in BRCS countries and 15 times higher in the developed countries.

Banking System: The banking system comprise of different kinds of banks of which the scheduled commercial banks (SCBs) are the most important in terms of reach and scale of activities. The SCBs are further categorised as public-sector banks, foreign banks, private banks and regional rural banks.

Private banks like the ICICI Bank and HDFC Bank have private ownership and management. Foreign banks operate either through a fully-owned subsidiary or branches of the parent bank registered outside India. Their operations are generally restricted to tier-1 cities.

Information and Communication Technology (ICT): Access to ICT is crucial for productivity enhancement where the younger generation's exposure to ICT help them to prepare for more productive jobs. Access to ICT is measured in terms of number of telephone and internet subscribers per 1,000 persons, number of computers per 1,000 persons, and per capita expenditure on telephone, Internet, etc. Latest available data for comparison purposes (for 2012) shows that per 1,000 inhabitants, there were 690 cellular phones in India. This was 810 in China, 1,186 in East Asian economies, 1,312 in BRCS countries and 1,153 in developed countries.

Social Infrastructure: The two major components of social infrastructure are education and health. The different levels of education are primary, upper primary, secondary and higher education. Their parallel in the health infrastructure comprise of Community Health Centres (CHCs), Primary Health Centres (PHCs) and Sub centres (SCs) at the grass roots level.

In April 2010, the Right to Education (RTE) Act was passed in India. With this, the universalisation of primary education (standards one to eight) received a new impetus. The Act makes education a fundamental right of every child between the ages of 6 and 14 and specifies minimum norms in primary education. It requires all private schools to reserve 25 percent of seats for poor children and prohibits taking donation or capitation fees. The emphasis in recent times is on enhancing supply and increasing access to higher education. Consequently, the 'gross enrolment ratio' (GER) for higher education (both degree and diploma programmes) in India, expressed as a percentage of population in the eligible age cohort of 18-23 years, has increased from 13 percent in 2007-08 to 18 percent in 2011-12. Vocational education and training (VET) consists of practical courses through which one gains 'skills and experience' directly linked to a career and employment opportunities. These training courses are parallel to other conventional courses of study (like B.Sc., M.Sc., etc). However, considering the huge labour force entering the job market every year and the high unemployment rates, besides the low employability levels of graduates from different programs, VET (except in computer-related courses) is underdeveloped in India. Among the BRICS economies, the percentage of students in upper secondary education enrolled in vocational education in 2013 were: Russia: 60 percent, China: 48 percent, South Africa: 14 percent, Brazil: 8 percent and India: 2 percent.

Health: Since independence, India has built a huge health infrastructure in the form of primary, secondary and tertiary healthcare institutions. Under this, government hospitals include healthcare centres, district hospitals and general hospitals while private hospitals includes nursing homes and super-speciality hospitals in cities. In India, private healthcare expenditure accounts for nearly 74 percent of the country's total healthcare spending (IBEF, 2017). The share of private sector in hospitals and hospital beds is 74 percent and 40

percent respectively. There is a growing demand for healthcare due to: (i) rising incomes and affordability; (ii) growing elderly population; (iii) changing disease patterns; (iv) rise in medical tourism; (v) better awareness; and (vi) preventive and diagnostic care. However, the average (per 1000 persons) number of medical professionals is very low in India: 0.7 physicians, 1.5 nurses and number of hospitals is 1 whereas the world average for these are respectively 2.5, 2.5 and 2.9.

4.6 INSTITUTIONS AND GOVERNANCE

Good governance focuses on well regulated administration of efficient and effective co-existing public and private sector managed institutions. It encompasses the legal frameworks for competitive functioning, accountability of public officials, transparency in governance procedures, freedom of information, access to citizens, participatory governance by the public through a major role for civil society, etc. The relative role of the public and private sectors in providing infrastructure will therefore vary depending upon the state of development in each one of these constituents. In some sectors such as irrigation and water resources management, construction of rural roads, developmental investment in economically or situationally disadvantaged regions, etc. the bulk of the initiative for investment in infrastructure development have to be from the public sector. Available public sector resources must therefore be directed to such sectors of priority. Precisely for this reason, PPPs need to be seriously explored in other areas. Major Challenges to Infrastructure Development in India can be stated as follows.

Land Acquisition: There are multiple challenges to infrastructure development of which 'land acquisition' is the single largest roadblock for the development of infrastructure. Several projects have been stalled or delayed due to land acquisition issues. There are multiple reasons that lead to delays in land acquisition like statutory clearances, public agitations, disputes, etc., as it invariably requires an amendment to existing land usage provisions.

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. For instance, at the pre-tendering stage, there are substantial delays in inviting bids. Further, approval is required from multiple layers of the government at the central, state, and local levels, from a number of regulatory bodies like National Green Tribunals, Environmental Pollution Control Authorities etc.

Water Issues: Increased demand for water from all sectors and a lack of a rational water pricing policy has impacted the demand for water adversely. Widespread unscientific usage of groundwater resources and inefficient management of conflicts between states has adversely impacted the development of agricultural sector in particular.

Modernisation of Ports: Despite the immense potential for modernisation and growth of Indian ports, the government has not been able to modernise

even the major ports. Compared to the large international ports, India lags behind badly. Major contributors to this state of Indian ports are political pressure, (many a time based on traditional rights of fishing communities living in the coastal areas) lack of autonomy, absence of incentives, excessive bureaucratic and hierarchical rigidities.

Vocational Education: There is an urgent need to expand vocational training in India making it oriented to current labour market needs. As the Indian economy becomes increasingly knowledge based, new and revised courses that fulfil the requirement of modern industries become imperative. Thus, the private sector, which is more adaptable in this respect, should be allowed and supported to play a larger role. Public-private partnership can be a good option in this respect. In addition to the degree and diploma programmes in vocational courses, there is a need for shorter and informal training facilities.

Check Your Progress 2 [answer within the space given in about 50-100 words]

- 1) In what respects 'infrastructure' determines the course of development of a country?

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- 2) In what way 'infrastructure services' help the poor to contribute to environmental sustainability?

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- 3) What is the estimated share of private healthcare expenditure in India? What factors have contributed to such a huge share of private healthcare in India?

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- 4) What are the constituents of 'good governance'?

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- 5) What are the major constraints to 'infrastructure development' in terms of good governance and institutions in India? In particular, what factors are identified to come in the way of modernisation of ports/airports?

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4.7 LET US SUM UP

It is important to sustainably use the available natural resources from which many modern day needs of man-made resources are produced. This is imperative in the context of 'infrastructure development' which depends upon the availability of both the natural and the man-made resources. There is thus a close link between the availability of resources and the development of infrastructure in a country. There are two constituents of infrastructure namely the physical infrastructure and the social infrastructure. The former includes: roads, ports, air transport, energy, banking and financial services, ICT, etc. The latter covers the two major constituents of education and health. It is important that good institutional framework with an efficient governance system prevails in a country in order to support the infrastructural development of the economy. Governance and institutions is a broad term encompassing the legal framework for the rule of law (including the accountability of public officials and transparency in government procedures), right to information of citizens, participatory governance by the civil society, etc. In India, the development of infrastructure is hindered by many constraints. Some of these are: land acquisition, delay in regulatory and environmental clearance, water issues, development of ports and airports, vocational education, etc.

4.8 SOME USEFUL BOOKS/REFERENCES FOR FURTHER READING

- 1) Agrawal, P. (2015). *Infrastructure in India: Challenges and the Way Ahead*, Institute of Economic Growth, IEG Working Paper No. 350.
- 2) IBEF (2017). Health Care, <https://www.ibef.org/download/Healthcare-January-2017.pdf>
- 3) Rajagopalan, R. (2015). *Environmental Studies: from Crisis to Cure* (No. Ed. 3). Oxford University Press.

4.9 ANSWERS OR HINTS TO CHECK YOUR PROGRESS EXERCISES

Check Your Progress 1

- 1) Air, coal, minerals, natural gas, oil, sunlight and water. See Table 4.1 and answer.

- 2) Economic growth, environmental stability, biodiversity conservation, food security and healthcare. The factors are: population growth, increasing irrigation needs, rapid urbanisation, industrialisation and increase in production and consumption.
- 3) Those man-made resources which are important for community and economic development (e.g. paper, books, semiconductors, hospitals, roads & bridges, educational and research institutions) are compositely termed as 'infrastructure'.
- 4) Transportation, communication, energy, intermediate goods output, productive manmade natural resources, S & T, information systems, finance & banking and all HRD components.
- 5) Physical infrastructure comprise of power, irrigation, transportation and telecommunication. Social infrastructure comprise of education, health and medical care, nutrition, housing and water supply.
- 6) Poor physical infrastructure and human capital constraints (Sub-section 4.3.2).

Check Your Progress 2

- 1) In terms of: (i) diversification of production and expansion of trade; (ii) control of population growth; (iii) alleviation of poverty; and (iv) protection as well as improvement of conditions of environment.
- 2) Clean water and sanitation, non-polluting sources of energy, safe disposal of solid waste, better management of traffic in urban areas, etc. provide environmental benefits besides contributing to maintaining environmental quality.
- 3) This is estimated to be 74 percent of the total spending. Factors contributing to this are: rising incomes and affordability; growing elderly population; changing disease patterns; rise in medical tourism; better awareness; and preventive and diagnostic care.
- 4) Legal frameworks for competitive functioning, accountability of public officials, transparency in governance procedures, freedom for information access to citizens, participatory governance by the public through a major role for civil society, etc.
- 5) Land acquisition, delay in regulatory and environmental clearance, slow resolving of inter-state water issues, modernisation of sea ports and airports and vocational education. Factors of impediment are: political pressure, lack of autonomy, absence of incentives, excessive bureaucracy and hierarchical rigidities.

