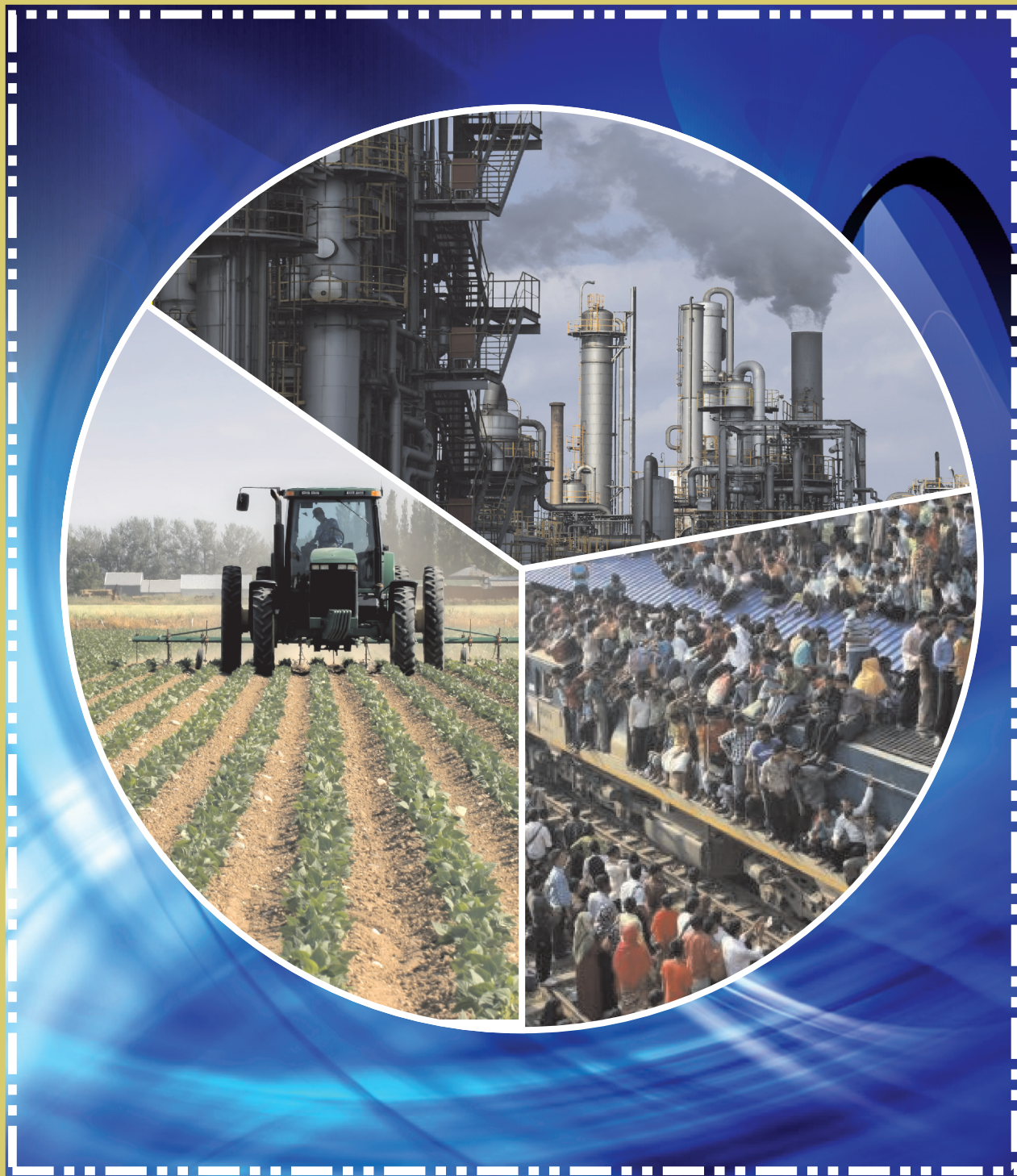




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2

SECTORAL ISSUES IN DEVELOPMENT

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BLOCK 2 SECTORAL ISSUES IN DEVELOPMENT

Block 2 on ‘**Sectoral Issues in Development**’ with four units deal with agriculture, industry, service and infrastructure issues in development.

Unit-1 on ‘**Agriculture**’ gives an account of the importance of agriculture in development and the major issues in agricultural development. It also discusses the concepts of sustainable agriculture and briefly reviews the various factors responsible for the global food crisis. It gives a brief account of the agricultural development in India.

Unit-2 on ‘**Industry**’ discusses the concept of industrialization and economic growth. It discussed the nexus between agriculture and industry. It gives a brief account of industrialization in the world and India’s experience pre and post independence. It discusses the Causes and Implications of standstill in industrial development in India.

Unit-3 on ‘**Service**’ describes the meaning of service sector and various components of service sector and the role of service sector in the economic growth and development. Moreover, this unit also explains the issues and challenges of services in global and Indian context.

Unit-4 on ‘**Infrastructure**’ deals with the problems and issues in different sub-sectors of infrastructure development, characteristics of infrastructure development and measurement of infrastructure development.

UNIT 1 AGRICULTURE

Structure

- 1.1 Introduction
- 1.2 Importance of Agriculture in Development
- 1.3 Performance of Agriculture
- 1.4 Major Issues in Agricultural Development
- 1.5 Sustainable Agriculture
- 1.6 Global Food Crisis
- 1.7 Agricultural Development in India
- 1.8 Let Us Sum Up
- 1.9 References and Selected Readings
- 1.10 Check Your Progress -Possible Answers

1.1 INTRODUCTION

Agriculture contributes a large share of national output and employs majority of labour force in most developing countries. It plays an important role in development. Productivity gains in agriculture have a positive impact on the overall development of an economy. This unit discusses the importance of agriculture in the development of an economy and the major issues in the development of agriculture. Green Revolution has played an important role in moving India from the status of dependency to self sufficiency and even surplus. This unit discusses the various aspects as well as the critics of Green Revolution. We will also be familiarized with the concept of sustainable agriculture.

After reading this unit, you will be able to

- explain the importance of agriculture in the development of an economy.
- discuss the major issues in the development of agriculture.
- narrate the process and problems of agricultural development in india
- explain the concepts of sustainable agriculture
- discuss the causes and remedies of the current food crisis at national and global level

1.2 IMPORTANCE OF AGRICULTURE IN DEVELOPMENT

Agriculture is vital to the development because of the fact that a large percentage of world's population live in rural areas and depend directly or indirectly on agriculture. Agriculture is an engine of growth, and productivity gains in agriculture would have a positive impact on overall development of the economy. The classical economists believe that agricultural progress contributes to greater productivity. Greater productivity and output further lead to economic development. Meier (1995) has noted four different ways of how agriculture can contribute to development. Those are as follows:

- By supplying foodstuffs and raw materials to other expanding sectors in the economy;
- By providing an “investable surplus” of savings and taxes to support investment in other expanding sectors;
- By selling a “marketable surplus” for cash, which will raise the demand of the rural population for products of other expanding sector; and
- By relaxing the foreign exchange constraints, by earning foreign exchange through exports or by saving foreign exchange through import substitution.

The old paradigm of development believes that an economy, to take-off, must have productivity gain in agriculture. First, the surplus in agriculture sector will not only raise farmer’s income and their demand for industrial product, but also free some labour from the agriculture sector to be employed in industrial sector and other activities. Second, increase in productivity in agriculture will also improve food security of a nation. Third, the rise in agricultural productivity will lead to the rise of industrial sector.

The problem arises in recent years, when many countries are experiencing an increasing productivity but a declining share of agriculture in GDP. In other words, the share of agriculture in GDP goes down in fast growing economies. China and India are the two illustrious examples. Therefore, the new paradigm sees agriculture not so much as a key sector of development. It considers that agriculture development is a necessary but not sufficient condition for development. Their view is much connected to globalization. For them old paradigm is more applicable to close economy rather than to open economy. For example, in Singapore, which is an open economy, agriculture has little to do with the successful development of Singapore. Thus globalization and free trade has affected the relationship between agriculture particularly in developing countries and growing economies. Yet, agriculture has a critical role to play from the point of view of food security, and still the food insecurity remains a key issue in many developing nations. The World Development Report 2008 on “Agriculture for Development” highlights that in much of the Sub-Saharan Africa, agriculture is a strong option for spurring growth, overcoming poverty and enhancing food security. In Asia, the focus of agriculture will be to generate rural jobs by diversifying into labour-intensive, high-value agriculture linked to a dynamic rural non-farm sector. The report considers that in the 21st century, agriculture continues to be a fundamental instrument for sustainable development and poverty reduction.

World Development Report-2008 addresses three main questions, which is critical from the standpoint of agriculture and development. Those are:

i) What can agriculture do for development?

Agriculture has served as a basis for growth and reduced poverty in many countries, but more countries could be benefited, if governments and donors were to reverse years of policy neglect and remedy their underinvestment and mis-investment in agriculture.

ii) What are effective instruments in using agriculture for development?

Top priorities are to increase the assets of poor households, make smallholders and agriculture in general- more productive and create opportunities in the rural non-farm economy that the rural poor can seize.

iii) How can agriculture-for-development agendas best be implemented?

By designing policies and decision processes most suited to each country's economic and social conditions, by mobilizing political support, and by improving the governance of agriculture.

The agriculture promotes development in the following ways:

i) Contribution of Agriculture to GDP and Employment

While agriculture accounts for around 2% of GDP and less than 4% of employment in developed countries, its share in the GDP of low-income countries is as high as 24%. Agriculture provides over 60% of total employment in South Asia and sub-Saharan Africa (Pal, 2006). Agriculture thus plays an extremely important role in developing countries, in providing livelihood and rural development. In most developing countries, agriculture is dominated by small and marginal farmers who are engaged in subsistence farming. Agriculture plays a major role in providing food security for the bottom level of the population. Developing countries consider domestic self-sufficiency in food grain as an important element of food security. For all these reasons, sustained growth in agriculture is considered essential for ensuring food security and alleviating poverty.

Table 1: Contribution of Agriculture to GDP and Employment in Agriculture of selected Countries, 2017

Countries	% of Male employed in agriculture	% of female employed in agriculture	% of GDP
Afghanistan	57	82	21.9
Australia	4	2	2.6
China	24	31	8.6
India	39	60	17.4
Ethiopia	78	62	37.2
Kenya	51	75	35.6
United Kingdom	2	1	0.6

Source: <https://data.worldbank.org/indicator/SL.AGR.EMPL.FE.ZS> (accessed on 5/2/2018)

Table 1 gives a clear picture that the roles of agriculture in the developed countries have declined and is very small as compared to its role in developing countries including India. In many Asian and African countries agriculture still play a vital role in terms of employment and its contribution to GDP. As far as employment

is concerned still in the underdeveloped economies of Asia and Africa more than 50 percent of population is engaged in agriculture. In the developing countries percentage of female employed in agriculture is higher than the male.

- i) **Important economic activity:** Agriculture is an important economic activity. The promotion of public private partnership in agriculture has promoted private investment in agriculture. Most of the private sector investors are investing in agriculture, and contract farming promoted through the private company is one of the illustrious examples of private investment in agriculture. According to the World Development Report-2008, agriculture based countries generate on an average 29 percent of gross domestic product (GDP), and employ 65 percent of the labour force. Still in many developing countries agriculture is the main source of livelihood.
- ii) **Food security and hunger:** Agriculture production is important for food security. It is a major source of income of the rural people. Agriculture is one of the important sector which has been fighting with the poverty and hunger in the developing countries. Agricultural income helps the rural population in overcoming poverty. Many agricultural labourers earn their livelihood in working with houses of large and medium scale farmers in the rural areas. In the green revolution belt it has helped in the removal of hunger death.
- iii) **Environmental services:** Agriculture is a good source of environmental promotion. The judicious use of water sources, water harvesting, and preserving bio-diversity would lead to environmental promotion. Therefore, managing the connections between agriculture, natural resource conservation, and environment must be an integral part of using agriculture for development.
- iv) **Agriculture can reduce poverty and unemployment:** Agriculture is playing an important role in reducing poverty in both developed and developing countries. In China, aggregate growth generating from agriculture is 3.5 times effective in reducing poverty than growth outside agriculture. In India agriculturally advanced states have lesser percentage of population living below the poverty line as compared to their counter parts. According to the World Development Report 2008, in Ghana, rural households accounted for a large share of a steep decline in poverty, partially induced by growth of agriculture.
- v) **Agricultural development promotes industrial development:** The agricultural sector plays an important role in providing market for the products of industrial sector. Thus the speed of industrial sector depends on how rapidly agricultural income are rising. The rising income in the agricultural sector will enable the rural people to buy not only agriculture related technology but also the lighter industrial products like radios, television, motorcycles, refrigerators, etc. Thus the development of agriculture and industry are interrelated.
- vi) **Agriculture and international trade:** In the developing countries agricultural products are important items of international trade. Therefore, from the point of view of balance of trade and payment, agriculture is vital to the developing countries. Moreover, in the developed countries also

agricultural products are being exported to other countries. In the USA more than 20% of farm and food products are exported.

- vii) Agriculture and social development:** Agriculture since centuries has provided great support to the social development such as education and health care in the developing countries. The income from agriculture has enabled the impoverished people to bear the expenses of education and health care in rural areas. Without the support of agriculture it is very difficult on the part of the countryside people bear the expenses pertaining to health care. Without the support of agriculture the infant and maternal mortality rate might have been high in rural areas. It has been observed that the large and medium scale farmers are only able to support the higher education of their children in the villages out of their income earn from agriculture and those who dropped out are the children of the landless families.

Dear learner, in this section we discussed about the importance of agriculture in development. Now try and answer the following question in *Check your progress-1*.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

- 1) Explain briefly how agriculture promotes development of any economy.

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- 2) Discuss the contribution of agriculture to the GDP of any economy.

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1.3 MAJOR ISSUES IN AGRICULTURAL DEVELOPMENT

Some of the major issues in agricultural development are discussed as under.

i) Land issues

Indian agriculture is dominated by small and marginal holders. Such small holdings are not only uneconomical but also the root cause of many difficulties in the way of agricultural development. Unregistered cultivators,

tenants and tribal cultivators who do not have land titles face difficulties in accessing institutional credit and other facilities. This calls for registration of actual cultivators, tenants and women cultivators on priority basis. There is also a need to free the lease market to ensure availability of land for cultivation to the marginal and small farmers. The land rights of tribals should also be protected. There is ample scope for further redistribution of land when waste and cultivable lands are taken into account. Considering the fact that about 42 percent of the agricultural workers are female, the future assignment of land should take women into consideration while making land redistribution. Two major considerations for any land reform are i) security of tenure for tenants for the period of contract and (ii) the right of the land owner to resume land after the period of contract is over.

ii) Subsidies and investment

Though subsidies are effective in pushing agricultural growth to a certain extent, it is important to make sure that they do not become a permanent feature of any economy. The availability of subsidized inputs during the Green Revolution period has led to indiscriminate use of inputs. This in turn has led to degradation of land, and water, adverse NPK ratio in soil, wasteful use of water, soil salinity, pollution, excessive use of electricity, etc. Moreover, the benefits of such subsidies have been reaped mainly by the farmers of irrigated area leading to large regional disparities. The present system of fertilizer subsidy is irrational, and has become counter-productive. Fertilizer is sold at almost the same controlled price throughout the country. However, because the nitrogenous fertilizers are subsidized more than the potassic and phosphatic fertilizers, the subsidy tends to benefit more the crops and regions which require higher use of nitrogenous fertilizer as compared to the crops and regions which require higher application of potassic and phosphatic fertilizers. The imbalance in the use of nitrogen–phosphorus–potassium (NPK) brought about by distortions in price ratio in favour of nitrogenous fertilizer is creating serious problem of soil degradation and adversely affecting productivity.

The public investment in agriculture has declined in the past two decades which in turn has slowed down the pace of technological change, adversely affecting productivity. Since the early 1980s public investment in agriculture has experienced a secular decline, while input subsidies (on fertilizers, power, and canal irrigation) have been rising. In the early years of economic reforms, an attempt was made to arrest and reverse these trends, but this effort could not be sustained. As a result the gap between investments and subsidies kept widening. Today input subsidies, together with food subsidies, amount to roughly five to six times the public investment in agriculture.

iii) Irrigation and water management

Water is the main input in agriculture. India is endowed with abundant water resources and the second largest irrigated area in the world, however, the contribution of water towards productivity in agriculture is very low. To cite a single example, cotton farmers in Tamil Nadu consume approximately seven times as much water and generate about 1/5th the yield as their counterparts using extensive cultivation and furrow irrigation methods in California. That means that the productivity of each litre of water used for

cotton cultivation in California is 35 times higher than in Tamil Nadu.

In India around 40 percent of the country's cultivated area is irrigated. The irrigation potential of the country has not been exploited fully. Rain-fed areas constitute about 60 percent of the net sown area of the country. The decline in the public investment in irrigation is an important reason for not being able to use the irrigation potential to its full capacity. Capacity utilization of ground water resources also depends on the availability of electric power for pumping water. Rain-fed agriculture is characterized by low productivity due to low input use. A large majority of the rural poor in the developing countries live in the rain-fed areas.

Considering the importance of water in farming, conservation of surface and groundwater for appropriate recharging of groundwater has become imperative.

iv) Agricultural credit

Agricultural credit plays an important role in augmenting use of agricultural law for cultivation, adoption of technology in agriculture and also use of HYV seeds. Ironically, informal credit which is too costly to repay still occupies an important place than the institutional credit. One of the reasons for rural indebtedness and farmers' suicide is credit from money lenders.

The public policies for agricultural credit should aim to reduce the role of informal sector credit. Some of the hurdles created in expanding credit in rural areas include:

- i) Narrowing of branch network in rural areas.
- ii) Fall in credit deposit ratios in rural areas.
- iii) Disproportionate decline in agricultural credit to vulnerable groups specially small and marginal farmers.
- iv) Political interference like loan waivers leading to sickness of some of the formal credit institutions.

In spite of the vast network of rural financial institutions, one of the major impediments in the adoption of new technological practices, land improvements and building up of irrigation and marketing infrastructure has been the inadequacy of farm investment capital. Farmers in India seem to borrow short term credit to maintain the continuity in agricultural operations.

The flow of investment credit to agriculture is constrained by host of factors such as high transaction costs, structural deficiencies in the rural credit delivery system, issues relating to credit worthiness, lack of collaterals in view of low asset base of farmers, low volume of loans with associated higher risks, high manpower requirements etc.,

Another cause of concern is the growing disparity in the credit disbursement among marginal, small and large farmers. This may be mainly because the bankers have a risk aversion tendency towards small and marginal farmers as compared to large farmers, who are better placed in offering collaterals.

v) Risk and insurance in agriculture

Farmers are generally exposed to two types of risk – yield risk and price risk. The yield risk is mainly attributed to the vagaries of nature and price risk is owing to price volatility. In order to shield the farmers from either or both the risks, agricultural insurance assumes significant importance. The importance of Agricultural insurance is widely accepted all over the globe. In most economies governments assume significant role towards protection of the farmers against all type of risks. The private companies also have an important role in public private partnership mode. As a business proposition, agricultural risk insurance is associated with high loss ratios and hence subsidization plays a crucial role. It is difficult, if not impossible, to ensure 100 percent coverage, either in terms of farmers or area. In the case of Spain, for instance, subsidization is to the extent of 45% of the programme and private insurance companies are made to work as a group under a state-sponsored lead agency, so that the state can control pricing of the product. Generally speaking, this is true even in the case of USA, where formulation of risk insurance policy is essentially a responsibility of the individual states.

The issue of introduction of crop insurance in India was taken up in 1947 and homogenous area approach was favoured as a basis for implementation. In 1965, crop insurance bill was introduced and a model scheme was circulated which was not favoured by any of the states due to huge financial obligations. Later in August 1971, the Expert Committee headed by Dharam Narain concluded that it would not be advisable to introduce crop insurance in near future even on pilot basis.

An all risk Comprehensive Crop Insurance Scheme (CCIS) for major crops was introduced in April 1985 and was linked to short term credit and implemented on homogenous area approach. The AIC introduced Rainfall Insurance Scheme in 27 districts of four states from Rabi 2004 season. The scheme was introduced as a pilot programme in 20 rain gauge stations spread over Andhra Pradesh, Karnataka, Rajasthan and Uttar Pradesh. The three options provided under this scheme include Seasonal Rainfall Insurance, Rainfall Distribution Index and Sowing Failure. This scheme anticipated shortfall in yield on account of deficit rainfall.

Beginning 2003-04, we also see further development with the entry of some private insurance companies. Yet they are to make any visible impact on the overall agricultural insurance. ICICI–Lombard General Insurance Company had introduced rainfall insurance, a move which was followed by IFFCO-Tokio General Insurance Company with its “Baarish Bima”. For the private sector insurance companies, with their primary business being in various general insurance foray into agriculture risk insurance is experimental first time business, and it is too early to comment on the effectiveness of their operations.

There are more schemes on the float that go beyond crop insurance .The Farm Income Insurance Scheme (FIIS) was started during 2003-04 to provide income protection to the farmers by integrating the mechanism of insuring yield and market risk. Under this, the farmer’s income is intended to be insured by providing minimum guaranteed income. Similarly, livestock insurance is provided by public sector insurance companies for almost all livestock animals.

vi) Research and extension

There is a large gap between the yields in the research station and the farmers' field. The yields of most of the crops have almost stagnated showing no or very little increase over the years. This shows that the Indian agriculture has reached a technology fatigue. There has not been any major breakthrough in yield improvement especially because of the low allocation of funds to the Indian agricultural research system. There is a need to reorganize the priorities in the Indian agricultural research system by emphasizing on the needs of rainfed areas which cover nearly 60 percent of cultivated area. Adequate priority should also be given to emerging challenges particularly post harvest, marketing and environmental conservation. Since private sector participation in agricultural research is limited to profitable crops and enterprises taken up by resource rich farmers, the public sector research has to increasingly address the problems facing the resource poor farmers in the less-endowed regions. There is also a need to have biotechnological research suited to different locations of the country.

vii) Diversification and food security

There has been diversification of Indian diets wherein, the hi-value products have caught the fancy of the rapidly increasing middle-class population of the country. Increase in per capita income, increasing urbanization, increasing number of working women in urban India are largely responsible for diet diversification in India. There has been an increase in the per capita consumption of fruits and vegetables and edible oils. Diversification does not mean just diversification in agriculture related activities. Adequate importance should also be given to allied activities like animal husbandry and fisheries. Not only does the livestock sector contribute to more than 5 percent of the GDP but also engages many of the rural women in major livestock related activities. Specifically in Indian context where the ownership of livestock is more evenly distributed with landless labourers and marginal farmers, the development of this sector is important for the balanced development of the rural economy.

Recent trends that have raised concern regarding food security, farmers' income, and poverty are:

- Slowdown in growth.
- Widening economic disparities between irrigated and rain-fed areas.
- Increased vulnerability to world commodity price volatility following trade liberalization. This had an adverse effect on agricultural economies of regions growing crops such as cotton and oilseeds.
- Uneven and slow development of technology.
- Inefficient use of available technology and inputs.
- Lack of adequate incentives and appropriate institutions.

viii) Marketing

Since many farmers in most of the developing countries are small and marginal farmers, the produce of individual farmers is in such small quantities that it becomes difficult for them to market such small amounts. They also

face problems in getting inputs, credit and marketing. In such economies where small scale agriculture is widespread, contract farming arrangements are particularly useful. In India, contract farming is going on in several agricultural crops, however; it is not backed by an efficient legal system. There is a need to strengthen contract farming arrangements to strengthen small farmers. To avoid any kind of exploitation of the farmers, an effective legal mechanism needs to be in place. The real challenge is to organize the small and marginal farmers for marketing and linking them to more profitable high-value agriculture.

ix) Soil Health Card

Testing of the soil is one of the important aspects to raise productivity of various types of agricultural products. Because of lack of soil testing productivity of many areas are low in certain category crops. Certain soil varieties are suitable to specific category of agricultural product. Therefore from the time to time soil testing is required for raising agricultural productivity and farmers' income. The soil health card issued by government of India is a laudable one.

x) Effect of Globalization on Agriculture

With the opening up of the economy, the domestic agriculture is subjected to competition from products of other countries specially those of developed countries where agriculture is highly subsidized. There have been many instances in the recent past when the domestic prices of many commodities have gone higher than the international prices. To compete in the international market, there is a need to adopt both yield increasing and cost cutting technologies.

The ongoing negotiations on Agreement on Agriculture in the WTO provide the developing countries with the opportunity to rectify some of the inadequacies in the agreement. The developing countries are likely to benefit if the developed countries reduce agricultural subsidies. The overall trade distorting subsidies given by the developed countries need to be reduced to provide a level playing ground to all the countries.

xi) Agribusiness

Agriculture in the basic sense of produce of the field is hardly remunerative to the farmer. In other words, agricultural operations must now mark a shift in approach from being merely a field harvesting of crops to local *mandi* disposal operations to demand driven activity with an increased focus on processing and value addition. Value addition is to be created through diversification of use of produce and emphasis on quality production. Bold measures now need to be taken to encourage agri-business and industries based on agricultural produce so that producer gains significantly in returns. Any activity related to or associated with agriculture operations, before, during and after crop production is agri-business and includes-

- a) The input sector:** Input suppliers play a major role in the production of food and fiber, and the sector is currently recognized as a major phase of agribusiness. Agricultural input provides production agriculturalists with the feed, seed, fertilizer, credit, machinery, fuel, chemicals, and various other things that they need to operate.

- b) The output sector:** The output sector includes all agribusinesses and individuals that handle agricultural products from the farm to the final consumer. This includes agribusinesses involved in buying, transporting, storing, warehousing, grading, sorting, processing, assembling, packing, selling, merchandising, insuring, regulating, inspecting, communicating, advertising, and financing.
- c) The agri-service sector:** The agri-service sector of the agriculture industry is concerned with researching new and better ways to produce and market food and to protect food producers and consumers, and with providing special, customized services to all the other phases of agriculture. Public agencies have played a dominant role in the agri-services area, but private agencies are rapidly increasing their offerings of farm services.

Agribusiness is responding to the strong consumer demand for high-value commodities, processed products and pre-prepared foods. There is in fact expansion of demand for farm products. It provides new opportunities to farmers for value addition, while agro-processing firms provide them with crucial inputs and services and also cover a part of their risk. If properly used and understood, it should turn out to be bonanza for the farmers. Investment is flowing thick in agribusiness, and agribusiness and super market retail boom is a new mantra. Many companies have already invested billions either directly or through local partnerships. There is likelihood of agribusiness firms with all their managerial abilities, finding new ways to use the demand opportunities. However, fears are being expressed that, by virtue of their capital and scale operations, these firms may space out small traders, processors and retailers. In this context, two most important issues today relate to (a) expansion of organized retail segment, and (b) entry of global players in the retail sector.

xii) Agriculture and Climate Change

The unimpeded growth of greenhouse gas emissions is raising the earth's temperature. The consequences include melting glaciers, more precipitation, more and more extreme weather events, and shifting seasons. The accelerating pace of climate change, combined with global population and income growth, threatens food security everywhere. Agriculture is extremely vulnerable to climate change. Higher temperatures eventually reduce yields of desirable crops while encouraging weed and pest proliferation. Changes in precipitation patterns increase the likelihood of short-run crop failures and long-run production declines. Although there will be gains in some crops in some regions of the world, the overall impacts of climate change on agriculture are expected to be negative, threatening global food security. Populations in the developing world, which are already vulnerable and food insecure, are likely to be the most seriously affected. The results of an analysis by IFPRI, 2009 suggest that agriculture and human well-being will be negatively affected by climate change:

- In developing countries, climate change will cause yield declines for the most important crops. South Asia will be particularly hard hit.
- Climate change will have varying effects on irrigated yields across regions, but irrigated yields for all crops in South Asia will experience large declines.

- Climate change will result in additional price increases for the most important agricultural crops—rice, wheat, maize, and soybeans. Higher feed prices will result in higher meat prices. As a result, climate change will reduce the growth in meat consumption slightly and cause a more substantial fall in cereals consumption.
- Calorie availability in 2050 will not only be lower than in the no-climate-change scenario—it will actually decline relative to 2000 levels throughout the developing world.
- By 2050, the decline in calorie availability will increase child malnutrition by 20 percent relative to a world with no climate change. Climate change will eliminate much of the improvement in child malnourishment levels that would occur with no climate change.
- Thus, aggressive agricultural productivity investments of US\$7.1–7.3 billion are needed to raise calorie consumption enough to offset the negative impacts of climate change on the health and well-being of children.

In this section we discussed about the major issues in agricultural development. Now, try and answer the following questions in *Check Your Progress 2*.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

- 1) What is the role of subsidies and investment in the agricultural growth of any country?

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- 2) What are the types of risks faced by farmers? How can the farmers avert these risks?

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1.4 SUSTAINABLE AGRICULTURE

1.4.1 Meaning Sustainable Agriculture

Several definitions have been formulated to describe sustainable agriculture. However, these are often tailored to fit specified circumstances. Some of the definitions are as follows:

- i) Sustainable agriculture is a way of farming that can be carried out for generations to come. This long term approach to agriculture combines efficient production with the wise stewardship of the earth's resources.
- ii) A sustainable agriculture is one that, over the long term, enhances environmental quality and the resource base on which agriculture depends; provides for basic human food and fiber needs; is economically viable; and enhances the quality of life for farmers and society as a whole.

After reading these two definitions, it is important to know various characteristics of sustainable agriculture.

1.4.2 Characteristics of Sustainable Agriculture

By the definitions of sustainable agriculture, a farm that emphasizes short run profit but sacrifices environmental quality would not be sustainable in the long run. From the other perspective, pursuing environmental quality without ensuring viability of short-run returns also would be unsustainable.

- Meet human needs with a safe, high-quality, and affordable supply of food and fiber;
- Provide access for everyone to nutritious, healthful and affordable food, while ensuring a safe and secure supply of food;
- Produce quality food while preserving open space, abundant wildlife, and other forms of biodiversity;
- Protect the natural resource base and prevent the degradation of air, soil and water quality, while using natural biological cycles and controls;

1.4.3 Components of Sustainable Agriculture

- Use of resistant cultivars.
- Management of soil to maximize biological activity.
- Establishment of conditions to attract natural pest control agents, such as the use of certain flowering plants to attract parasitic and predatory wasps.
- Use of insect traps for monitoring and even controlling pests.
- Management of the ground cover and field borders to promote the predators and parasites of pests.
- Release of specific biological control agents.
- Use of low-toxic biodegradable/ botanical pesticides.

1.4.4 Sustainable Agriculture vs. Organic Agriculture

Sustainable agriculture should not be confused with organic farming as both are very different from each other. Sustainable agriculture means not only the withdrawal of synthetic chemicals, hybrid-genetically modified seeds and heavy agricultural implements; it also tries to simulate the conditions found in nature. Sustainable agriculture involves intercropping, use of farmyard manure and remnants, mulching and application of integrated pest management. If this is followed then there is no reason why agriculture cannot be an economically viable activity in addition to being environmentally sustainable.

1.4.5 Inclusive Agriculture

Inclusive agriculture means promotion of agriculture in those areas among those farmers who have been grossly excluded from the agricultural incentives, subsidies and similar other benefits. The focus of inclusive agriculture would largely be on:

- Promotion of agriculture in dry land and hilly and sub-mountainous and desert zones.
- Small, marginal and landless agricultural labourers who really take care of agriculture but hardly enjoy the benefit.
- Role of women in agriculture as a cultivator, entrepreneur, extension agent and farm labourers.
- Incentives to all kind of agriculture both food crops and cash crops; livestock sector, fruits and vegetables and horticulture activities.
- Access to credit from the organized institutions and marketing facilities for the farmers in disadvantaged conditions and areas.

Government of India (2007) has also emphasized that the growth to be all inclusive, the agricultural strategy must focus on the 85 percent of farmers who are marginal, increasingly female and who find it difficult to access inputs, credits and extension or to market their output.

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What do you understand by organic agriculture?

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1.5 GLOBAL FOOD CRISIS

Long time neglect of agricultural sector has led to the current food crisis which has affected both the rich and the poor alike. Food shortages have affected billions of people all over the world especially the poor in the developing countries. Some call it to be the result of the market oriented and liberalising policies adopted by choice or compulsion by most of the countries. These policies have either neglected agriculture for over a decade or led to shift in global prices which in turn have led to a major shift in the cropping pattern in most of the countries. Agriculture in developed countries is highly subsidised. Due to opening up of markets, the cultivators of the developing countries have to compete with the cheap imports from the developed countries.

IMF data shows more than 40 percent rise in global food prices since 2007. The increase has been mainly in essential food grains. In 2007, the global prices of wheat increased by 77 percent and rice prices increased by 20 percent. In 2008, wheat prices have been highly volatile, whereas rice prices soared up by nearly 150 percent in the first quarter of 2008. The price of corn which is a staple food in Latin America more than doubled in the past 2 years. The prices of other food items like vegetable, meat and edible oils have also gone very high.

The impact of rising food prices has been more pronounced in the developing and less developed countries where a major share of family budget is spent on food items. There have even been food riots in many countries. World Bank estimates that such high food prices could lead to more than 100 million people in low income countries to slip to deeper poverty.

Let us now look at the reasons which have led to such sudden rise in prices of essential food items. Though the rise in prices may look sudden, but it has been a result of long term and continuous neglect of agriculture sector world over. The explanation endorsed by the then Bush Administration is that the spurt in food prices is essentially demand driven due to several years of rapid economic growth, rising income and therefore growing demand for food in India and China. However five major factors which have played a crucial role in rise in world food prices are as follows:

- i) Energy is an important input in agriculture especially in cultivation and transportation of food. The rising prices of oils have hence affected the agricultural costs both directly and indirectly.
- ii) Due to high dependence on OECD countries for oil and other petroleum products and because of the rising oil prices, the governments in many countries have promoted bio-fuels as an alternative to petroleum. This has led to shift in cropping pattern of many countries in favour of bio-fuels. In 2006, US diverted its 20 percent area under maize production, Brazil used half of its sugarcane production and EU used a large part of its vegetable oilseed production to make bio-fuel. According to IMF, ethanol production using corn in US has been the major reason for at least half of the increase in corn output since 2006.
- iii) Policy neglect of agriculture over the past two decades, the world over has also been one of the major reasons for food shortages and rising prices.

There has been a lack of public investment in agriculture and agricultural research. There has also been a shift from traditionally grown food crops to cash crops. Besides, increasing urbanization also leaves less land for agriculture.

- iv) Climate change in almost all parts of the world has also caused poor harvest due to increased draughts, floods, cyclones, tsunamis etc.
- v) Changes in market structures wherein a small number of agribusiness companies increasingly control all aspects of cultivation and distribution result in producers not getting the benefits of price increase. Public holdings of stocks have also generally reduced. This has reduced the capacity of public intervention to prevent speculative activities.

1.6 AGRICULTURAL DEVELOPMENT IN INDIA

The post independence marked a turning point for agriculture in India. The agricultural growth rate, which was less than 0.5 percent per annum during the period 1904-05 to 1944-45, recorded an annual growth rate of 2.7 percent during 1949-50 to 1983-84. The land reform and the green revolution are the two main strategies that helped to augment agricultural development in India. The agricultural scholars have divided agricultural development phases into periods ie. 1950-51 and 1966-67 and that between 1967-68 and 1983-84 and have characterised these as the land reform strategies adopted during the mid fifties and the green revolution strategy adopted since the mid-sixties. These two strategies of agricultural development are discussed below:

1.6.1 Land Reforms

During British colonization, land ownership and land use patterns were changed to make it easier for the British to buy land at low prices for mines, plantations etc. The British did not introduce this system to India, but they popularised it. With the introduction of the land tax under the Permanent Settlement Act 1793, the British popularized the 'zamindari' system (where landowners collect tax from the peasants) at the cost of the 'jajmani' system (where everybody shares the land).

At independence, ownership and control of land was highly concentrated in a few landlords whose main intention was to get maximum rent from their tenants. Under this arrangement, the tenant farmer had little economic motivation to develop farmland for increased production (because they would not make any money out of it). At the same time, the landlord wasn't particularly concerned about improving the economic condition of the farmers (because the landowner would lose money). As a result, agricultural productivity suffered and the tenants' situation deteriorated.

In the years immediately following India's independence, land ownership was recognised as crucially important. India was extremely poor, and in order to try and abolish poverty, progress was needed on two fronts: high productivity and sharing equally. The most important event in the agricultural history of India is the land reforms enacted and implemented during the mid-fifties. The objectives of land reform are:

- i) Reordering agrarian relations to achieve social equity.
- ii) Curtailing exploitation and enlargement of land base of the rural poor; and
- iii) Increase agricultural productivity.

Major issues covered in land reforms are

- i) Abolition of intermediaries
- ii) Settlement and regulation of tenancy
- iii) Regulation of size of holdings.

A historical background of land reforms in India is given as under:

At the time of independence, there existed three types of proprietary land tenures in the country. The term land tenure is used to refer to the terms and conditions on which land is held and used.

i) **Abolition of Intermediaries**

- a) **The Zamindari or Landlord Tenure:** Under this system, the land was held by a person who was responsible for the payment of land revenue. Landlords never cultivated the land they owned and rented them out to the cultivators. In this system between the actual state and the tiller there grew an intermediary who was interested in the land only to the extent of extraction of exorbitant rent.
- b) **Ryotwari System:** Under this system, the responsibility of paying land revenue to the Government was of the cultivator himself and there was no intermediary between him and the state. The ryot had full right regarding sale, transfer and leasing of land and could not be evicted from the land as long as he pays the land revenue. But the settlement of land revenue under ryotwari system was done on a temporary basis and were periodic, after 20, 30 or 40 years.
- c) **The Mahalwari or The Joint Village Tenure:** Under this system, the village communities held the village lands commonly and it was joint responsibility of these communities to make payments of the land revenue.

Thus the overall system of collection of revenue was based on exploitation. The British government snatched away whatever surplus above the minimum subsistence the cultivator produced. The latter were forced to lead a wretched life of slavery and deprivation. Under the above-mentioned systems the practice of cultivation by tenants became widely prevalent. These tenants were also exploited in a number of ways. It was basically to stop the exploitation of the actual tillers of the soil and pass on the ownership of the land to them that land reforms introduced in the post-independence period in India.

ii) **Settlement and Regulation of Tenancy**

These are of four types:

- a) **Measures of Tenancy Reforms:** The legislation for abolition of intermediaries was aimed at providing land to the tiller but it did not put an end to the problem of tenancy. Measures taken to minimize the

evils of tenancy cultivation and to safeguard the interest of the tenants are as follows

- b) **Regulation of rents:** during the pre-independence period, rents were fixed either by the custom or were the result of the market forces of demand and supply. Supply of land being fixed, the demand of land rowing with an increasing population, there has been a continuous tendency for rents to rise. It was, therefore, imperative that rents should be fixed by enacting legislation. The rates of rent prevalent were one half of the produce or more. Considering the return on investment in other sectors of economy, these rents were excessive by any standard of social justice.

Consequently, the First and the Second five-year plan recommended that rents should not exceed one fourth or one fifth of the gross produce. Various states have passed necessary legislation regulating rents, but there were large variations in the rents fixed in different states. In Gujarat, Maharashtra, and Rajasthan, one-sixth of gross produce was fixed as maximum rent. In Assam, Karnataka, Manipur and Tripura, maximum rents varied between one-fourth to one-fifth of the gross produce. In Punjab, one-third of produce was considered as fair rent, while in Tamil Nadu it was between 33.3 and 40 percent of the gross produce. In Andhra Pradesh one-fourth of the gross produce for irrigated land and one-fifth in other cases had been fixed as rent.

- c) **Security of Tenure:** the security of tenure was aimed to provide some incentives to tenants to make certain improvements of permanent nature on the land they cultivate. Many states, therefore, enacted legislation providing for the security of tenure so long as they continue paying the rent.
- d) **Right of Ownership of Tenants:** A very important feature of the land reform is the provision of the right of ownership of tenants. The Second plan considered it very desirable to bring tenants in non-resumable area in direct contact with the state. Earlier the right to purchase was optional to the tenants but this did not prove to be effective. Thus, the third plan suggested the optional clause to be removed and peasants be required to purchase land. Legislation for this purpose was enacted in various states. For instance, in West Bengal the tenants and sub-tenants were brought into direct relationship with the state by the conferment of full ownership rights. In Punjab, the right to purchase was optional. Legislation had been enacted in Gujarat, Kerala, Madhya Pradesh, Maharashtra, Karnataka, Orissa, Rajasthan, Uttar Pradesh, West Bengal and the Union Territories. Whereas in Assam, Jammu and Kashmir and Tamil Nadu, no provisions existed even for an optional right of purchase. While the state can facilitate the transfer of ownership rights from the landlords to the tenants, no financial burden is imposed on the state.

iii) Regulation of Size of Holdings

- a) **Consolidation of Holdings:** Consolidation of fragmented agricultural land holdings forms an integral part of the Land Reform Policy.

Successive Five Year Plans have accordingly been laying stress on consolidation of fragmented land holdings for planned development of villages and increased agricultural output. Consequently, many States enacted legislations and had taken up the work relating to consolidation of land holdings. The States of Uttar Pradesh, Haryana and Punjab have achieved commendable success. In Uttar Pradesh, even now, consolidation of land holdings is in operation in about 9000-10,000 villages. In other States, work was continued for some years but lost momentum thereafter.

Consolidation of holdings was also advocated to group together the numerous tiny and scattered holdings of poor cultivators in order to form bigger tracts, susceptible to more efficient management. Cooperative farming on these would increase productivity and employment through economies of scale. The large, economical units of consolidated land, it was opined, would mitigate the problem of poor yield and enhance productivity through economies of scale and also increase employment.

Other important reforms include:

- i) Distribution of ceiling surplus land
- ii) Distribution of Government wasteland and Bhoodan land
- iii) Prevention of alienation and restoration of alienated tribal land
- iv) Central Sector Scheme for Computerization of Land Records
- v) Centrally Sponsored Scheme for Strengthening of Revenue Administration and Updating of Land Records.

1.6.2 Green Revolution

The Green Revolution is a good example of a planned development initiative that brings out all the essential features of the development process. The Green Revolution is usually described as the introduction of hybrid varieties of wheat and rice, but the adoption of hybrids alone is not sufficient to explain the phenomenal achievements of the Green Revolution. Success was made possible by a comprehensive and well-coordinated program involving multiple changes in the way society managed the production of food.

The Green Revolution led to sizable increases in returns to land, and hence raised farmers' incomes. Moreover, with greater income to spend, new needs for farm inputs, and milling and marketing services, farm families led a general increase in demand for goods and services. This stimulated the rural non-farm economy, which in turn grew and generated significant new income and employment of its own. In India, the percentage of the rural population living below the poverty line fluctuated between 50 and 65 percent before the mid-1960s but then declined steadily to about one-third of the rural population by 1993. Research studies show that much of this steady decline in poverty is attributable to agricultural growth and associated declines in food prices. Big increases occurred in per capita consumption of vegetable oils, fruits, vegetables, and livestock products in Asia.

Major Factors behind the Success of Green Revolution

- a) **Mechanization of Farming:** Intensive agriculture demands the use of diverse machinery that saves the farmer time and labour. Farm mechanization means use of various types of machines and other agricultural implements during the production, transportation and processing of agricultural products. Farmers in the countries adopted farm mechanization for fast growth of agriculture, leading to increased production. This has helped to increase cropping intensity, diversification of agriculture, better usage of available irrigation facilities, timely sowing and harvesting and transportation of inputs to the fields. This has helped the farmers to get better prices for their products as they can easily access the nearest market outlets.
- b) **Adoption of High Yielding varieties:** The adoption of HYVs occurred quickly. By 1970, about 20 percent of the wheat area and 30 percent of the rice area in developing countries were planted to HYVs, and by 1990, the share had increased to about 70 percent for both crops. Yields of rice and wheat virtually doubled. Higher yields and profitability also led farmers to increase the area of rice and wheat they grew at the expense of other crops. And with faster-growing varieties and irrigation, they grew more crops on their land each year. These changes more than doubled cereal production in Asia between 1970 and 1995, while population increased by 60 percent. Instead of widespread famine, cereal and calorie availability per person increased by nearly 30 percent, and wheat and rice became cheaper.

Achievements of Green Revolution in the Indian Economy

- Crop areas under high-yield varieties needed more water, more fertilizer, more pesticides, fungicides and certain other chemicals. This spurred the growth of the local manufacturing sector. Such industrial growth created new jobs and contributed to the country's GDP.
- The increase in irrigation created need for new dams to harness monsoon water. The water stored was used to create hydro-electric power. This in turn boosted industrial growth, created jobs and improved the quality of life of the people in villages.
- India paid back all loans it had taken from the World Bank and its affiliates for the purpose of the Green Revolution. This improved India's creditworthiness in the eyes of the lending agencies.
- Some developed countries, especially Canada, which were facing a shortage in agricultural labour, were so impressed by the results of India's Green Revolution that they asked the Indian government to supply them with farmers experienced in the methods of the Green Revolution. Many farmers from Punjab and Haryana states in northern India were thus sent to Canada where they settled (That's why Canada today has many Punjabi-speaking citizens of Indian origin). These people remitted part of their incomes to their relatives in India.
- Prior to the launch of the Green Revolution, Indian agriculture was largely based on subsistence-level farming which did not generate sufficient production to meet the country's food requirements. In the past this had led to periodic food shortages and famines which were managed by huge imports

from abroad. Green Revolution was an attempt to break out of this condition and increase food production to make the country self-sufficient.

1.6.3 Rainbow Revolution

Technology led development in agriculture have made India self sufficient in foodgrains and a leading producer of several commodities in the world. The Green revolution in crops, Yellow revolution in oilseeds, white revolution in milk production, blue revolution in fish production and golden revolution in horticulture improved the status of Indian agriculture. Rainbow revolution encompassing an all round growth in production of foodgrains, edible oil, fruits, vegetables and animal and fish products and evergreen revolution in agriculture through diversified agriculture, precision farming, resource conservation and value addition to provide in real sense the required food, nutrition and environmental security are the hopes of future.

In this section you read about the agricultural development in India. Now answer the following question in *Check your Progress 4*.

Check Your Progress 4

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

- 1) What are the major factors that led to the success of Green Revolution?

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- 2) Write short note on Rainbow Revolution.

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1.7 LET US SUM UP

Agriculture plays an important role in providing food and livelihood security to majority of the population in the developing countries. Agriculture was seen as a low productivity, traditional sector that only passively contributed to development by providing food and employment. The importance of agriculture is expected to decline as development advances. In India there has been a continuous decline in the contribution of agriculture to the GDP but there has not been a commensurate decline in the share of workforce which has been a cause of concern. Some of the problems typical to Indian agriculture include small

holdings, low yield, high regional disparities and rise in food prices. Although Green Revolution led to a sizeable increase in the returns to land, the ill effects of the revolution have faced up in the form of excessive use of inputs leading to soil degradation, depletion of groundwater table and increasing regional disparities. Continuous policy neglect of agriculture has led to rising food prices, increasing indebtedness of farmers and other such effects. This calls for a policy shift in favour of the agricultural sector which is still a major contributor of livelihood security of majority of the population in India.

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1.9 CHECK YOUR PROGRESS - POSSIBLE ANSWERS

Check Your Progress 1

- 1) Agriculture promotes development of an economy by
 - By supplying foodstuffs and raw materials to other expanding sectors in the economy;
 - By providing an “investable surplus” of savings and taxes to support investment in another expanding sectors;
 - By selling for cash a “marketable surplus’ that will raise the demand of the rural population for products of other expanding sector;
 - By relaxing the foreign exchange constraints, by earning foreign exchange through exports or by saving foreign exchange through import substitution.
- 2) While agriculture accounts for around 2% of GDP, and less than 4% of employment in developed countries, its share in the GDP of low-income countries is as high as 24%. Agriculture provides over 60% of total

employment in South Asia and sub-Saharan Africa. Agriculture thus plays an extremely important role in developing countries, in providing livelihood and rural development. In most developing countries, agriculture is dominated by small and marginal farmers who are engaged in subsistence farming. Agriculture plays a major role in providing food security for the bottom level of the population. Developing countries consider domestic self-sufficiency in food grain as an important element of food security. For all these reasons, sustained growth in agriculture is considered essential for ensuring food security and alleviating poverty.

Check Your Progress 2

- 1) Though subsidies are effective in pushing agricultural growth to a certain extent, it is important to make sure that they do not become a permanent feature of any economy. The availability of subsidized inputs during the Green Revolution period has led to indiscriminate use of inputs. The public investment in agriculture has declined in the past two decades which in turn has slowed down the pace of technological change, adversely affecting productivity. Since the early 1980s public investment in agriculture has experienced a secular decline, while input subsidies (on fertilizers, power, and canal irrigation) have been rising.
- 2) Farmers are generally exposed to two types of risk – yield risk and price risk. The yield risk is mainly attributed to the vagaries of nature and price risk is owing to price volatility. In order to shield the farmers from either or both the risks, agricultural insurance assumes significant importance. The importance of Agricultural insurance is widely accepted all over the globe. In most economies governments assume significant role towards protection of the farmers against all type of risks.

Check Your Progress 3

- 1) Organic agriculture is a production system that sustains the health of soils, ecosystems and people. It relies on ecological processes, biodiversity and cycles adapted to local conditions rather than use of inputs with adverse effects. Organic agriculture combines tradition, innovation and science to benefit the shared environment and promote fair relationship and a good quality of life for all involved.

Check Your Progress 4

- 1) Mechanization of farming and adoption of high yielding varieties are the major factors that have led to the success of Green Revolution in India. For details refer section 2.6
- 2) Rainbow revolution encompasses an all round growth in production of food grains, edible oil, fruits, vegetables and animal and fish products.

UNIT 2 INDUSTRY

Structure

- 2.1 Introduction
- 2.2 Industry: Concept and Significance
- 2.3 Industrialization in Europe and America
- 2.4 Industrialization in Asian Countries
- 2.5 Issues and Challenges of Industrialization
- 2.6 Measures to Promote Industrialization
- 2.7 Let Us Sum Up
- 2.8 References and Suggested Readings
- 2.9 Check Your Progress-Possible Answers

2.1 INTRODUCTION

Primary, Secondary and Tertiary sectors are the three important sectors of an economy. The economic growth and development of an economy depend on the contributions of these three sectors towards the economy. The secondary sector which constitute, industry and manufacturing is considered as one of the important sectors of economic development. Industrialization has been suggested as one of the instruments of structural changes approach to economic growth and development of the developing economies. It is believed that industrialization will enable a nation to effectively utilize its human and natural resources and smartly deal with poverty and unemployment in an economy. According to UN Committee Report (1963) industrialization is a process of economic development in which growing part of the national resources is mobilized to develop technically up-to-date, diversified, domestic economic structure characterized by dynamic manufacturing sector having the producing means of production and consumer goods and capable of assuring high rate of growth for the economy as a whole and of achieving economic and social progress. This unit on “Industry” will give you a holistic perspective on role of secondary sector in development of developed as well as developing countries. After reading this unit, you will be able to:

- Define the concept and significance of sector to economic development;
- Explain the industrialization process in Europe and America;
- Discuss the industrialization process in Asian countries with specific focus on India; and
- Narrate the issues and challenges of industrialization and measures to promote industrialization.

2.2 INDUSTRY: CONCEPT AND SIGNIFICANCE

2.2.1 The Concept

The term ‘industrialization’ is largely being used to highlight the growth of manufacturing industries in an economy. The Business Dictionary defines

‘industry’ as the manufacturing or technically productive enterprises in a particular field, country, region or economy viewed collectively or one of these individually. As H.B. Chenery has remarked “industrialization is the main hope of most poor countries trying to increase their levels of income”. Kaur (1997) considered industrialization as the hub of economic development because it has the employment potential for raising workforce, is typically associated with the creation of external and internal economies and with the rise of factor productivity, and hence with rising per capita income and living standard. The industrialization process in developed as well as developing countries started through “industrial revolution”. The modern historians have described industrial revolution into two types: the initial industrialization which started in 1700 in Great Britain and continued up till 1870 is called as the period of “First Industrial Revolution” characterized by developments in textiles, iron and steam led by Great Britain. The “Second Industrial Revolution” triggered off from 1950s onwards, characterized by steel, electrics and automobiles led by the USA and Germany. The “Third Industrial Revolution” covered the Asian Tigers i.e. Hong Kong, Singapore, Taiwan and South Korea and it also spread through in the countries like Argentina, Mexico, Brazil, China and India, Malaysia. According to Sutcliffe (1977) a country may be regarded as industrialized if at least 25 per cent of GDP arises in industries of which 60 per cent should be in the manufacturing and which had at least 10 per cent of its population employed in industry.

2.2.2 The Significance of Industry and Industrialization

The industry and industrialization both directly and indirectly help in socio-economic development by fulfilling various socio-economic objectives such as employment creation, poverty eradication, gender equality, improved labour standard and improved access to education, health and basic amenities. Industrialization plays an important role in the economic development of the underdeveloped countries. The Industrial Development Report 2009 of UNIDO envisaged that “industrialization is integral to economic development. Scarcely any countries have developed without industrializing and rapidly growing economies tend to have rapidly growing manufacturing sectors”. While United Nations Department of Economic and Social Affairs (2007) noted that “the past several decades have witnessed a major restructuring of the global economy, one in which more and more industrial output and employment is now located in emerging developing countries, while the developed countries have become even more service oriented economies. Some of them are discussed below:

- i) **Increases National Income/ Growth Rate:** Industrialization is required for the developing countries in order to enhance their economic growth rate. The European nations and the USA have achieved higher economic growth rate and development in their initial phases because of industrialization. The developmentalists widely believed that the development of the underdeveloped countries can be possible through structural changes that are movement from an agriculture dominated economy towards industrialization. In China, industrialization has significantly increased per capita income of the people belonging to the eastern coastal region of the country. In India also, per capita income of the more industrialized states like Maharashtra and Gujarat is higher as compared

to the least industrialized states i.e. Bihar and Chhattisgarh. Besides, the industrialization has enabled the countries to enhance their growth rate. The experience of rapid economic growth in Taiwan, South Korea, Hong Kong and Singapore during the past two or three decades was because of industrialization, which depicts contribution of industrial sector to economic growth of these nations.

Table 1: Contribution of Industry Sector to GDP of selected Countries, 2016

Countries	% of GDP
Afghanistan	22.7
Australia	24.3
China	39.8
India	28.8
Ethiopia	21.3
Kenya	19.0
United Kingdom	20.2

Source: <https://data.worldbank.org/indicator/SL.AGR.EMPL.FE.ZS> (accessed on 5/2/2018)

- ii) **Improvement in Balance of Payments:** Industrialization gives a solid base to national income. Development of industrial and manufacturing sector helps a nation to improve their balance of payment situation. Largely it is seen that the underdeveloped countries do not have a favorable balance of payment situation because they are primarily exporters of primary goods and agricultural products and importers of finished industrial good products from the developed countries. China is an illustrious example where the growth of manufacturing sector has enabled it to have strong balance of payment situation.
- iii) **Provides Higher Standard of Living:** Industrialization enhances productivity and per capita output per worker as a result the income of the workers increases. It is obvious that the workers employed in the manufacturing sectors get more wage and income compared to their counterpart in agriculture sector. Therefore Gunnar Myrdal (1956) emphasized on the indispensability of industrialization to achieve higher productivity, higher per capita income and standards of living. In his words “Manufacturing industry represents, in a sense, a high stage of production. In advanced countries, the development of manufacturing industry has been concomitant with these countries’ spectacular economic progress and rise in levels of living; many of its products are indeed almost symbolic of a high standard.” Chenery and Taylor (1980) found that a statistically significant relationship exists between per capita income and the degree of industrialization.

iv) Increased Employment Opportunity: Industrialization plays an important role in enhancing employment opportunities in an economy. The establishment of small scale and cottage industries in the rural areas of developing countries would enhance rural employment opportunities. The countries like China and South Korea which are emphasizing on industrial and manufacturing sector in their model of economic development are found to be employing more in manufacturing sector compared to India, Pakistan and Bangladesh. The only way to promote sustainable development through assured employment is to emphasize on industrial development. The Industrial Development Report 2009 of UNIDO envisaged that “industrialization is integral to economic development. Scarcely any countries have developed without industrializing, and rapidly growing economies tend to have rapidly growing manufacturing sectors.” While United Nations, Department of Economic and Social Affairs (2007) noted that “the past several decades have witnessed a major restructuring of the global economy, one in which more and more industrial output and employment is now located in emerging developing countries, while the developed countries have become ever more service oriented economies.” The employment trend shows that the developing countries have higher scope to enhance employment in the industrial sector as compared to the developed countries where the employment in industrial sector has started declining (Table-2).

Table 2: Employment in Industry (% of total employment) of selected Countries

Region	Year	
	1991	2017
Afghanistan	7	7
Australia	24	19
China	27	27
India	15	24
Japan	35	26
Pakistan	20	24
United Kingdom	31	18
United States	25	19

Source: <https://data.worldbank.org/indicator/SL.IND.EMPL.ZS> (accessed on 26/6/2018)

v) Enhances Scope for Technological Progress: Industrial development entices a nation to produce more number of skilled workers in the country. It enhances the scope for continuous technological development. The technological progress through industrial development also promotes technological progress in agriculture and allied sector. This enhances

productivity in the economy. Besides, the technological upgradation in industrial sector also enhances technological progress in services sector.

- vi) Increase Capital Formation:** Industry is an important source of capital formation. Industry ensures higher income to its employees and higher profits to the industrialists which can promote higher saving and investment leading to higher capital formation. Promotion of manufacturing in private sector will lead to more savings and investment. Private investment in any economy has the advantage of not been associated with corruption and wasteful spending but largely associated with efficient and effective resources use.

In this session you read about the concept and significance of industrialization and now answer the question given in Check Your Progress-1.

Check Your Progress 1

- Note:** a) Answer the following questions in about 50 words.
b) Check your answer with possible answers given at the end of the unit.

- 1) What are the different phases of industrialization in global context?

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- 2) Industrialization in key to capital formation-Discuss

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2.3 INDUSTRIALIZATION IN EUROPE AND AMERICA

2.3.1 Industrialization in Europe

The industrialization process in the Western countries was initiated in Great Britain during 1700. The revolution in agriculture sector in the 1700s created a favorable condition for industrial revolution in Great Britain. At the outset industrialization triggered off in the textile industry, where a series of innovations produced new machines and created demand for labourers. The new machines/tools produced in the process are spinning jenny, and water-powered loom. Great Britain took the lead in early industrialization because of its advantage of being having an adequate amount of iron ore and coal resources and a very good rail and road transport system. After the 1850s, the industrialization spread to other parts of the Europe such as Belgium, France and Germany.

One of the important benefits of industrialization in the Europe is the increase in job opportunities. The creation of power machines and factories provided many new job opportunities. The employment in factories and industries enabled them to earn higher wages and salaries and thus enhanced their quality of life. The GDP per capita of a few European Countries enhanced because of industrialization.

Another important angle of industrialization in Europe is that the Industrialization in Europe spread among different countries through international economic relationship. The import of cotton product by German from England enticed the Germanian to go for industrialization and development of export market in Europe. The similar changes took place in other countries of Europe such as Belgium, France and Switzerland although the industrial structures in each of these countries developed differently. Besides, the Intra-European trade between industrialized countries of the European “periphery” such as Greece, Portugal, Russia or Sweden further injected fresh industrial revolution in Europe. Thus industrialization process in Europe is an expansionist endeavor spearheaded by Great Britain. Industrialization enhanced the process of urbanization in European countries and ultimately raised the quality of life of European population.

2.3.2 Industrialization in USA

The Second Industrial Revolution in the world was started in America in the mid eighties. It is pertinent to mention here that when Great Britain initiated industrial revolution in the early seventies, America was deeply engaged in agriculture sector in 1790. However, in 1851 producers from many developed nations gathered at the Crystal Palace in London, to display the triumphs at the First World’s fair. In this fair, America’s work in the manufacturing sector attracted the attention of other countries. By the end of the century, United States became the World leader in manufacturing.

The critical advantage of effective industrialization in the USA was not only endowment of natural resources, but also availability of technical, skilled and knowledgeable manpower. The availability of tele-communication and surface transport facilities further strengthened the industrial and manufacturing sector.

The availability of abundant water supply resources helped to generate power for industry. However, the industrialization in the USA was concentrated mostly in Northern part of America. One of the unique features of America's industrialization is continuous-process manufacturing. This helped mechanization of continuous processing of yields with uniform quantity of production by the help of minimum human labour. Another positive feature of America's industrial development is the standardization of product, where by, industries used special purpose machines to produce large quantities of similar or even interchangeable parts for assembly into finished goods. The advancement in agricultural equipment through industrialization in India enhanced agricultural productivity and raised the farmer's incomes. In nutshell, American industries have emphasized division of labour, specialization of standardization of work, clear job demarcation, and use of the market mechanism, while minimizing coordination efforts.

2.4 INDUSTRIALIZATION IN ASIAN COUNTRIES

Industrialization process in Asian countries started in the 19th century except Japan where it was triggered off in the mid-eighties. The Asian Countries as far as industrialization is concerned can be categorized from the industrialization perspectives as follows: Japan is the only country which has achieved status of advanced industrialized countries; the countries such as South Korea, Singapore and Taiwan are in the second tier status in industrialization process; while China and India opened their door to industrialization during 19th century are categorized as third tier industrialized nation. Here in this section we will discuss the industrialization process of four countries: Japan, South Korea, China and India.

2.4.1 Industrialization in Japan

Japan's industrialization process started during mid eighties with the restoration of Meiji government. A ministry of industry was created in 1870 to establish overall economic policy and operate certain industries. As a result, modern factories were created to provide industrial experience and an expanded technical education system offered technical training. During the initial phase of industrialization, Japan chooses to dependent on export-oriented industries, and set up a model for other industries. According to Masayuki Tanimoto (2004) technology transfer from industrialized western countries such as the United Kingdom and France has played foremost role in directing Japan's early industrialization process. While Mark Mauson (1987) mentioned that in the early times, many foreign or multi-national firms set up in Japan and they provided the host country not only advanced technologies but also the way and approach of management, which be named as knowledge transfer. The speed of industrialization process in Japan started around 1945 and by the year 1970, Japan's situation changed and Japan technology and industrial organization caught worldwide attention.

Another important feature of Japan's industrialization process is trade-protection to infant industries. At the very beginning of Japan's industrialization, trade-protection played a prominent role in order to provide its fragile industry an opportunity to grow and prosper. According to G.C Allen (1981) the main industrial policy for Japan is protectionism, and carefully chose industries, in

order to present ruinous competition at the infancy stage, and nurse them up to a competition status and then expose them to outside competition.

During the process of industrialization in Japan, FDI played a negligible role. According to OECD (2003), Japan's inward FDI is extremely low compared to outward FDI. Some other analyst of Japan's industrialization said that FDI did not play a major role in post-war Japan in terms of technology transfer. However, it played an important part to make the market more competitive and inspire the local development of technology.

One of the most important features of Japan's industrialization is role of R&D in industrial development. Japan invested a lot of resources in R&D in industry. According to OECD (2007), Japan owns the highest ratio of researchers to total employment. The R&D expenditure pushed up the rapid process of industrialization. According to peck and Tamura (1976) the expenditures of Japan on R&D focused on improving the quality and lessening the costs of product more successfully.

2.4.2 Industrialization in China

China's high economic growth rate was a product of rapid transfer from agriculture to manufacture and export-oriented industry. China initiated industrialization process far behind Japan. China's economic reforms and a shift from agriculture to industrialization process started in the late 1970s and early 1980s. China followed the industrialization model of other East Asian countries and the emphasis for promotion of growth through rapid industrialization, increased trade openness and exports and general liberalization of financial markets. To Dutta (2005) growth was import-export led; technology and know-how have been imported from abroad and adopted to the domestic resources, in particular to the abundant labour force. It is remarked that what China has achieved during the three decades, the same degree of industrialization took two centuries to occur in Europe (Summers, 2007).

Some of the important features of industrialization in China are: (i) in the planned economy of China, 'heavy industries' were concentrated in a few location and small and medium scale industries were developed through clustering approach or cluster based industrialization; (ii) the emphasis on rural industrialization is another important feature of China's industrialization process; (iii) the industrialization laid emphasis on R&D in China. According to OECD (2007), China has increased its expenditure on research and development rapidly; and (iv) one of the important features of China's industrial development is role of FDI in manufacturing sector and dominance of manufacturing sector in China's FDI inflow.

2.4.3 Industrialization and Industrial Policies in India

The industrialization process in India started much before the independence and even before the British. The textile industries were the first one to trigger up the process of industrialization in India. The industrialization process initiated laid emphasis on the modernization of textile industries with the use of spindles, looms, and spinning mills. Before independence, different types of industries established in India with private initiative were automobiles, and iron and steel.

Jamshedji Tata was the pioneer in the field of modern industry in India in automobile sector in the private sector. Tata Steel was started in the year 1907.

The government of India placed emphasis on the industrialization for acceleration of economic growth of the country since the Second Five Year Plan. During the Second Five Year Plan, the industrialization strategy articulated by Mahalanobis placed emphasis on the establishment of heavy industry under the public sector. Besides heavy industries, the government of India has also given adequate emphasis on the growth of cottage and small scale industries particularly in rural areas. The IPR of 1948 stated that “cottage and small scale industries have a very important role in the national economy. Offering as they do scope for individual, village or cooperative enterprise and means for the rehabilitation of displaced person. These industries particularly suits for the better utilization of local resources and for the achievement of the local self-sufficiency in respect of certain types of essential consumer goods like food, cloth and agricultural implements.” From time to time, government of India has come out with industrial policies in order to give a direction to the process of industrialization in the country. The objectives of the industrial policies launched during different period are to achieve: a high growth rate, national self-reliance, reduction of foreign dominance, building up of indigenous capacity, encouraging small scale industries, brining about balanced regional development, prevention of concentration of economic power, reduction of income inequalities and control of economy by the state. The key features of various industrial policies formulated at different point of time by the Government of India are given below:

i) Features of Industrial Policy 1948

The first industrial policy of government of India was formulated in the year 1948. The key features of the Industrial Policy of 1948 are:

- a) The industrial policy resolution of 1948 contemplated a mixed economy with role of both public and private sector.
- b) The industries were divided into four broad categories viz:
 - Defence industries and atomic energy. The ownership and management of industries belonging to these categories to be the exclusive monopoly of the Central Government.
 - Coal, iron and steel, ship building, telephone and telegraphs were to be owned by the state.
 - Basic industries-fertilizers, electro chemicals, non-ferrous metals, woolen textiles, minerals etc. would be subject to the regulation of central government.
 - Remaining industries other than the above mentioned were open to the private sector.

ii) Features of Industrial Policy 1956

Important features of Industrial Policy 1956 are:

- a) New classification of industries are categorized as:

Schedule A Industries: Exclusive responsibility of the state.

Schedule B Industries: State owned industries, but the private enterprises could supplement the effort of the state.

Schedule C Industries: All other remaining industries could be owned by private sector.

- b) Fair and non-discriminatory treatment of private sector
- c) Encouragement to village and small scale industries
- d) Removing regional disparities
- e) Provision of amenities for labour

iii) Features of Industrial Policy 1977

The important features of the Industrial Policy of 1977 are:

- a) Development of small scale sector. Small scale sector was classified into three categories i.e.:
 - Cottage and household industries
 - Tiny sector with less than one lakh investment
 - Small scale sectors with investment up to 10 lakh.
- b) District industrial centers were to be setup in each district to support small scale and cottage industries.
- c) Programmes for the enlargement of the areas of operation of *khadi and village* industries.
- d) Special arrangements to be made for the application of technology to improve the productivity of small and village industries.
- e) Large scale sectors should devise programme for small scale and village industries.
- f) Approach towards sick units should be selective and public funds should be pumped into sick units.
- g) Framing policies encouraging worker's participation in management.

iv) Features of Industrial Policy 1980

The objective of Industrial Policy 1980 was to strengthen the economic infrastructure for the industrialization. Some of the important features of Industrial Policy 1980 are as follows:

- a) Socio-economic objectives:

- Optimum utilization of installed capacity
 - Maximizing production
 - Higher productivity
 - Higher employment generation
 - Correction of regional imbalance
 - Preferential treatment to agro-based industries
 - Promoting economic federalism
- b) Revival of the economy
 - c) Effective operational management of the public sector
 - d) Integrating industrial development in the private sector by promoting the concept of economic federalism
 - e) Promotion of industries in rural areas
 - f) Removal of regional imbalances
 - g) Industrial sickness and state policy

This industrial policy stated that industrial units found guilty of mismanagement leading to sickness would be dealt firmly.

All the above industrial policies recognized the role and need for securing participation of foreign capital and foreign enterprises. But there was no encouragement for foreign ownership and control. These policies failed to meet the requirement of liberalized economy and foreign investments. Hence another new policy was framed in 1991.

v) Features of Industrial Policy 1991

Some of the important features of industrial policy of 1991 are narrated below:

- A) Structural Reforms: With the introduction of new industrial policy a substantial programme of deregulation has been undertaken. Industrial licensing has been abolished for all items except for a short list of six industries, viz.:
 - a) Distillation of alcoholic drink
 - b) Cigars and cigarette.
 - c) Aerospace and defense equipments.
 - d) Industrial explosives.
 - e) Hazardous chemicals

- f) Drugs and pharmaceuticals.

MRTTP Act has been amended in order to eliminate the need to seek prior government approval for expansion of the present industrial units and establishment of new industries.

A significant number of industries had been reserved for the public sector. Some areas reserved for the Public Sector are:

- a) Arms and ammunition
- b) Atomic energy
- c) Defense air craft
- d) Railway transport.

- B) Foreign Direct Investment: The government has been committed to promoting accelerated growth of the industrial sector. The role of foreign direct investment as a means to support domestic investment for achieving a higher level of economic development was encouraged. It was assumed that FDI would benefit domestic industry as well as the Indian consumers by providing opportunities for technological up gradation and access to global managerial skills and practices.

In order to reduce the delay in setting up the industries by the private entrepreneurs through the help of a simplified approval mechanism for FDI proposals have been put in place via:

- a) Automatic approval by RBI to specified industries.
- b) Other proposals which do not confirm to the guide lines for automatic approval are being considered by the Foreign Investment Promotion Board (FIPB). The FIPB makes recommendations to the government.

C) Major Initiatives:

The following major initiatives have been taken up:

- a) De-licensing of some industries such as:
 - Coal and Lignite
 - Petroleum and its distillation
 - Sugar industry
 - Bulk drugs.
- b) Foreign equity up to 100% in

- Power sector
- Electric generation
- c) Requirement of prior approval by RBI for bringing FDI / NRI / OCB investment.
- d) The RBI has delegated powers to regional office at the state level.
- e) The number of industries reserved for private sector has been reduced and entry level barriers have been removed.
- f) Foreign exchange rate policy has been changed. Restriction on current account transaction has been removed.
- g) Industrial policy has brought reforms in related areas such as export, import, etc. for the integration of the Indian economy with the world economy. Tariffs have been reduced on imports.

In these sessions you read about the industrialization process in Europe, America and a few Asian countries and now answer the question given in Check Your Progress-2.

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe the industrialization process of China

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2) Write a short note on the Industrial Policy of 1948 of India

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2.5 ISSUES AND CHALLENGES OF INDUSTRIALIZATION

In their attempts to accelerate the pace of industrialization, developing countries in particular are facing a lot of challenges which are as follows:

- i) The first and foremost challenges which the industrialists and particularly the SMEs (Small and Medium Entrepreneurs) are facing are the access to adequate institutional finance. Finance is the lifeblood of industrial development, as formulation of industrial establishment requires big financial investments. Many SMEs are incapable to fulfill the collaterals required by the private banking institutions. Capital crunch is a fundamental problem of industrialization particularly for the individual and tiny and small entrepreneur.
- ii) Simple, honest and non-politicized bureaucracy is an important requirement of industrialization. Red-tappism in the movement of files and unnecessary harassments cause a lot of frustration among the budding entrepreneurs. Speedy disposal of licenses and other bureaucratic hassles will entice more and more single and joint venture entrepreneurs to go for establishment of industries. The role of proactive bureaucracy was an important factor for industrialization in Japan and South Korea. Formulation of industrial policy is alright but putting it into practice is an arduous task. Most of the developing nations in Asia, Africa and Latin America fail in this respect.

Table 3: Competitive Industrial Performance (CIP) Index 2015

Economy	CIP Index	Rank
Germany	0.541	1
Japan	0.406	2
China	0.401	3
USA	0.394	4
Korea, Republic	0.393	5
Switzerland	0.339	6
Belgium	0.288	7
India	0.086	39
Nepal	0.004	129

Source: https://www.unido.org/sites/default/files/files/2017-11/IDR2018_FULL%20REPORT.pdf (accessed on 26/6/2018)

- iii) Creating an appropriate investment climate for industrial development in a country is the biggest issue and challenges for developing countries. The tax rebate and export and import policies are crucial factors in this direction. David (2003) found that a sound investment climate as reflected

in low customs clearance times, reliable infrastructure and good financial services attract foreign firms generally bring superior technology and management and hence raise the average productivity of firms. UNIDO has developed the Competitive Industrial Performance (CIP) index, which assesses industrial performance using indicators of an economy's ability to produce and export manufactured goods competitively (UNIDO, 2003). The Table-3 depicts the CIP of selected countries.

- iv) One of the greatest challenges of industrialization is its impact on the environment. Industrialization produces adverse impact on environment and also produces negative impact on the health status of the population. Environment supportive industrialization programme is essential for development. The establishment of heavy industries in rural areas has affected the health of rural area population. For example it is observed that the nearby villagers of tobacco plants are being affected with tuberculosis and asthma problems.
- v) Clustering of industries as it is being done in China is suitable for other developing countries intending to promote industrialization. Clustering promotes division of labour and networking among various industries established within the cluster, hence is more cost-effective.
- vi) One of the important inputs of industrialization which is largely being neglected by most of the developing nations is investment on research and development. The industrialization is linked with technological development and technology can not be improved without input of R&D. Therefore, increased investment on R&D and inputs received from R&D can push industrialization logically.
- vii) Attraction of foreign direct investment is also important for the promotion of industrialization in developing countries. In recent years, countries like China and India are attracting more FDI in industrial sector. The FDI will not only provide financial capital but also skill and management inputs for the establishment of new industries and effective functioning of the existing industries. Many scholars and researchers believe that FDI affects China's economic development positively.
- viii) Formulation of appropriate industrial policy is also a challenge before the countries having development planning system. India assigned highest priority to industrial sector during Second Five Year Plan resulting in establishment of big industries in the steel sector. Many African countries are now a day placing adequate emphasis on industrialization in their plan and policy documents.
- ix) It is not a flight of fancy, but delicately the establishment of big industries led to displacement of population. Therefore, there is a great deal of resentment by the NGOs, activists and civil society groups against the ruthless industrialization. Therefore, it is a great challenge before the government and development administration to rehabilitate people displaced because of establishment of industry.

2.6 MEASURES TO PROMOTE INDUSTRIALIZATION

Industry is the king pin of development and industrialization has played a key role in the development of the most of the developed countries of the world since its inception. Industrialization provides impetus to the development of agriculture as well as service sector. Therefore, measures to promote industrialization are very essential for the development of the developing countries. A few important measures to promote industrialization particularly in the developing countries are discussed below.

- 1) At the outset, a proactive and constructive role of the government is very essential for the development of industrial sector in any country. In the industrialized countries like Japan and South Korea, in the initial stage of industrialization, government has played an important role in the promotion of industry sector in the economy. The government assistance can encourage private industrialists to undertake new projects by reducing the risk they face.
- 2) The human resources capital is considered as an asset for faster industrialization of any country. That has happened in countries like Japan, South Korea and Singapore. Therefore, countries intending to industrialize have to create good technical institutions and manpower, which can play important role in the industrialization.
- 3) A well developed financial market is a sine-qua-non for the industrial development of any nation. In South Korea, during initial phase of its industrialization process, government banks gave finance to the private entrepreneur for opening of industries. India also nationalized its commercial bank and opened up industrial promotion specific banks like IDBI (Industrial Development Bank of India) for the proliferation of industries.
- 4) The formulation of appropriate Export and Import policy is critical to industrial development. The export promotion policy of the East Asian countries like South Korea, Taiwan and Japan are helpful in their industrialization. In recent years also Chinese industrial products are found in the markets of many developing countries. Marketing of industrial product is vital for the sustenance of the industries in general and SMIs (Small and Medium Industries) in particular.
- 5) For speedy industrialization, countries should focus on infrastructure development such as good road and electricity facilities. In developing countries, it is found that for the operation of industries, in many countries, the government restricts the use of electricity in the household sector and even promotes solar energy for the household sector consumption.
- 6) The developing countries in order to promote faster industrial development have to formulate and implement strong industrial policy. The industrial policy needs to clearly delineate the role of public and private sector in industrial development. However, a road map for the public-private partnership in industrial development has also to be prepared in the policy

and plan document.

- 7) Small Scale and Cottage industries hold key to the industrial development of the developing countries. Through the emphasis on small scale and cottage industries, the developing countries can create an army of entrepreneurs for the rural industrial development. A balanced rural and industrial development can take place only when industrialization proceeds in both rural and urban areas equally.
- 8) The Foreign Direct Investment in industrial sector is critical to industrial development of the developing countries. India during the Second Five Year Plan period took the help of Germany and USSR for the establishment of heavy industries in the steel sector in India. In recent years, it is observed that in many developing countries, the FDI are invested in the urban areas and hardly invested for the industrial development of the rural areas. China and Taiwan have tried to channelize FDIs to rural areas. Therefore, FDI in the rural industrial sector is considered to be the key for balanced industrial development.
- 9) Research and Development is the key to industrial promotion in any nations. European nations are divesting a lot of resources for the R&D in industrial sector. A gigantic share of R&D is invested by the government and therefore the governments of the developing countries have to promote industrial research, so that new innovations can take place.

These are a few measures among other measures which the developing countries have to initiate for the promotion of industrialization in the developing countries.

In these sessions you read about the key issues and challenges of industrialization as well as measures to promote industrialization and now answer the question given in Check Your Progress-3.

Check Your Progress 3

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

- 1) Briefly describe two key challenges of industrial development.

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- 2) Explain two important measures to promote industrialization in developing countries.

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2.7 LET US SUM UP

Industrial sector which is well known as the secondary sector plays an important role in the development of the developed as well as developing countries. The process of industrialization triggered off in Great Britain during mid-seventies, gradually spread across European nations and American and later Asian country of Japan. All other nation states experienced industrialization during nineties. In this unit we have discussed the industrialization in Europe and America as well as in a few Asian countries including India. The challenges before the developing countries are many which have hindered industrialization in them. However, the developing countries can initiate measures to promote industrialization, which would enhance their economic growth and development.

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2.9 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress-1

1) What are the different phases of industrialization in global context?

Answer: The three phases of Industrial Revolution in modern world history, based on various countries and regions went through the following phases:

- i) The First Phases (1770s to 1860s) started with Britain and then spread to other countries in Northern and Western Europe and the United States;
- ii) The Second Phase (1870s to 1950s) brought in Russia, Japan, Other parts of Eastern and Southern Europe, Australia and New Zealand; and
- iii) The Third Phase (1960s to present) brought in the so called Asian Tigers (Hong Kong, Singapore, Taiwan, South Korea) and has seen tentative development in key economic sectors in Turkey, India, Brazil, Chile and Argentina.

2) Industrialization in key to capital formation-Discuss

Answer: Industry is an important source of capital formation. Industry ensures higher income to its employees and higher profits to the industrialists which can promote higher saving and investment leading to higher capital formation. Promotion of manufacturing in private sector will lead to more savings and investment. Private investment in any economy has the advantage of not been associated with corruption and wasteful spending but largely associated with efficient and effective resources use.

Check Your Progress-2

1) Briefly describe the industrialization process of China

Some of the important features of industrialization in China are: (i) In the planned economy of China ‘heavy industries’ were concentrated in a few location and small and medium scale industries were developed through clustering approach or cluster based industrialization. It is said that China’s rapid industrialization “specially cities” Clustering helped in cost-reduction, sharing of technical know how and thereby enhanced productivity and profit margin of the entrepreneurs; (ii) The emphasis on rural industrialization is another important feature of China’s industrialization process; (iii)The industrialization laid emphasis on R&D in China. It was believed that industrialization is inextricably linked with technological development and

technology can not be improved without input on R&D; (iv) one of the important features of China's industrial development is role of FDI in manufacturing sector and the manufacturing sector has dominated China's FDI inflow.

2) Write a short note on the Industrial Policy of 1948 of India

1948 Industrial Policy was the first industrial policy formulated by the government of India. The Features of Industrial Policy 1948 are as follows:

- a) The industrial policy resolution of 1948 contemplated a mixed economy reserving a sphere for both public and private sector.
- c) The industries were divided into four broad categories viz:
 - Defence industries and control of atomic energy. The ownership and management of these industries was the exclusive monopoly of the Central Government.
 - Coal, Iron and Steel, Ship Building, Telephone and Telegraphs were to be owned by the state.
 - Basic industries-Fertilizers electron chemicals, non-ferrous metals woolen textiles, minerals etc. were subject to the regulation of Central Government.
 - Remaining industries other than the above mentioned were open to the private sector.

Check Your Progress 3

1) Briefly describe two key challenges of industrial development.

Answer: The two important challenges are: (i) access to adequate institutional finance. Many SMIs are incapable to fulfill the collaterals required by the private banking institutions. Capital crunch is a fundamental problem of industrialization; and (ii) simple, non-corrupt and non-politicized bureaucracy is an important requirement of industrialization. Speedy disposal of licenses and other bureaucratic hassles will entice more and more single and joint venture entrepreneurs to go for establishment of industries. The role of proactive bureaucracy was an important factor for industrialization in Japan and South Korea.

2) Explain two important measures to promote industrialization in developing countries.

Answer: The two important measures, the developing countries have to take for strengthening industrialization are: (i) a well developed financial market is a sine-qua-non for the industrial development of any nation. In South Korea during initial phase of its industrialization process, government banks gave finance to the private entrepreneur for opening of industries. India also nationalized its commercial bank and opened up industrial promotion specific banks like IDBI (Industrial Development Bank of India) for the

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proliferation of industries; and (ii) secondly, the formulation of appropriate Export and Import policy is critical to industrial development. The export promotion policy of the East Asian countries like South Korea, Taiwan and Japan are helpful in their industrialization. In recent years also Chinese industrial products are found in the markets of many developing countries. Marketing of industrial product is vital for the sustenance of the industries in general and SMIs (Small and Medium Industries) in particular.

UNIT 3 SERVICE

Structure

- 3.1 Introduction
- 3.2 Meaning and Role of Service Sector in Development
- 3.3 Types of Service Sector
- 3.4 Issues and Challenges of Service Sector
- 3.5 Service Sector in India: Types and Challenges
- 3.6 Measures to Promote Service Sector
- 3.7 Let Us Sum Up
- 3.8 References and Selected Readings
- 3.9 Check Your Progress-Possible Answers

3.1 INTRODUCTION

Any economy is conventionally classified in to three sectors i.e. agriculture: comprising farming, forestry, animal husbandry and fisheries; the industry sector: consisting of mining, construction and manufacturing and all other activities excepts these two are included in the service sector, generally include services provided for the promotion of agricultural and allied sector activities i.e. supply of water, electricity and gas, transport and communications, wholesale and retail trade, finance and insurance, business and personal services, and community and social services. Customarily, the list in the service sector is so long that it is difficult to list out them easily. As it is remarked that compared to agriculture and manufacturing sector, the service sector occupies a diminishing place not only in public imagination but also in economic research. In this unit you will be able to learn about the service sector. After reading this unit, you will be able to:

- i) Describe the role of service sector in development.
- ii) Explain different types of service sectors and their role in development.
- iii) Discuss the various challenges the service sector facing in developing countries.

3.2 MEANING AND ROLE OF SERVICE SECTOR IN DEVELOPMENT

3.2.1 Meaning of Service Sector

Service sector is an important component of any country's economy both developed as well as developing. Service sector plays an important role in developing countries after the globalization. Griliches (1992) defines services as anything that is the result of labour that does not produce a tangible commodity. The National Classification of Economic Activities (NCEA) uses the methodology of classification of services defined by International Standard Industrial Classification (ISIC) formulated by the United Nations. It includes four categories

of services: (i) Distinctive service: include the physical distribution of goods, wholesale and retail trade, distribution of people and cargo (transport) and distribution of information (communications); (ii) Non profit services: those are public administration and other organizations such as unions, religious temples, welfare institutions, clubs; (iii) Business Services: consisting of intermediary services to other sectors, which includes financial activities, advisory services, legal, accounting, information technology, and real estate brokerage; and (iv) Customer Services: consists of wide range of social and personal services offered to an individual, mostly to emphasize the quality of life such as health services, education, restaurant, leisure services and other personnel and family (UN, 2008).

3.2.2 Role of Service Sector in Development

In recent year, service sector play an important role in the development of the developed and developing countries. In the developed countries, it contributes significantly to its economic growth, while its contribution to economic growth rate in the developing countries is on rise. Some of the important role service sector plays in economic development of a nation are discussed below:

- i) Service sector is an important contributor to GDP both in developed as well as developing countries. Services constitute an increasing percentage of GDP in nearly all developing countries. On an average, the contribution of service sector towards GDP is 50%. The contribution of service sector to the economies of Afghanistan and Bangladesh are 55 and 53 percent respectively. However, in the developed countries it is more than 70 percent. In the USA, it is 79.6 percent, while in Japan it is 71.6 percent.

Table 1: Contribution of Service Sector to GDP in Selected Countries

Countries	Contribution of Service Sector to GDP2015
Afghanistan	55
Bangladesh	53
China	43.1
Germany	70.6
India	56.4
Japan	71.6
USA	79.6

Source: https://en.wikipedia.org/wiki/List_of_countries_by_GDP_sector_composition(accessed on 12/2/2018)

- ii) Service sector is an important source of employment in developed countries like USA and other European countries. The Table 2 shows that the percentage of employment in the services sector to the total employment in the USA is 81, while in the underdeveloped countries of Afghanistan and Bangladesh it is 29 and 40 percent respectively.

Table 2: Employment in Service Sector in Selected Countries

Countries	Service Sector2017
Afghanistan	29
Bangladesh	40
China	49
Germany	71
India	31
Japan	70
USA	81

Source: <https://data.worldbank.org/indicator/SL.SRV.EMPL.ZS>(accessed on 12/2/2018)

The employment in the service sector in the developing countries having mixed economy system is gradually picking up after the globalization. It is one of the leading sectors providing employment with better wage rate in developing countries as compared to agriculture sector.

People employed in the service sector are having higher per capita income than their counter parts employed in the agriculture sector. Certain sectors of the service sectors i.e. IT, banking and financing pay more salaries to their employees as compared to the other sectors such as tourism, hotel industries, education and health. A study on the OECD economies reveals that, relative to the industrial sector, the services sector is characterized by higher earnings, longer average job tenure and higher job satisfaction. The people engaged in service sectors are better financially empowered to afford to quality of life necessities compared to other two sectors. The development of the agriculture and industrial sector also depends on the development of a strong service sector. It is said that development of service sector is a pre-requisite for the development of the agriculture and industrial sectors

- iii) The growth of service sector has effected in reduction of poverty and inequalities in the developed as well as developing economies and more particularly in developing economies. The services sector employment in many sub-sectors is featured with knowledge, skill and practices. Therefore, people employed in the service sector usually get more salaries compared to their counterpart. Service sector directly or indirectly promotes the efficiency and effectiveness of education and health sector. The higher education system becomes more skill and practical oriented with the growth of service sector. Demand for engineering and management programme and mushrooming growth of institutions imparting engineering and management education in the private sector for example in India is an outcome of this.
- iv) Service sector promotes sustainable development of an economy. The service sector helps to promote the efficiency of both agriculture and manufacturing sector through value additions. The value addition to these two sectors i.e. primary and secondary sector through service sector will help to promote sustainable economic development of an economy. The aim of sustainable development is to make the economy self-sustainable without depending much on the others. The immense contribution of service sector towards

economic growth and development in the developed economies of America and Europe foretells the role of service sector in sustainable development.

- v) One of the important advantages of services sector is that it promotes public private partnership in development. The important sectors which have attracted a lot of investment in public private partnership are education and health. The governments of the third world countries have assigned adequate emphasis on public private partnership in these two sectors. A lot of financial institutions such as banking and insurance in the service sector in recent years found to be left to the private sector.
- vi) Growth of service sector helps an economy to overcome balance of payment problem. The export of products relating to service sectors gives earning to the exporting nations and thus reduces their balance of payment deficits if any. The export of IT related services has improved the balance of payment position of many European and Asian nations. The export of India's service trade has increased astoundingly from a meager 11.7 billion dollar during 1998 to 102.9 billion dollar during 2008. This veritably explains the rising contribution of service sector to international trade and balance of payment.
- vii) Service sector lead to urbanization. It is seen that growth and proliferation of service sector has lead to expansion of urban areas and number of cities in developing countries is increasing.
- viii) It is one of the vital contributors to social sector development both in rural and urban areas. The two sub-sectors of the service sector such as education and health play important role in the social development of the nation. These two sub-sectors in the service sector are also creating a lot of opportunities at the grassroots level in the developing countries. With the liberalization, the education and health sector is proliferating in the urban areas by the private and corporate actors.

3.3 TYPES OF SERVICE SECTOR

The list of sub-sectors in the services sector is large as compared to the other two sectors such as agriculture and industry. However, it is important to analyze a few important service sector and their role in development. A few important service sectors are:

- a) Education
- b) Health Care Service
- c) Tourism Service
- d) Financial Sector
- e) The ICT sector

3.3.1 Education

Education is a potentially important determinant of access to employment because it converts individuals into a different kind of 'labour'. It is the most important service sector amongst all the sectors. Its product is investment in human capital. The effects of formal schooling on income endure throughout the lifetime of an educated individual. Education's utility enhances outside the labour market, such

as parenting and the enjoyment of leisure time. It is needless to mention that the crucial role of education fostering economic growth, personal and social development, as well as reducing inequality is well recognized. It provides employment to large number of people in educational institutions existing both in public and private sector across different countries in the world. Indirectly, the various types of general and technical education offered through education sector also opened up opportunity in various other sectors.

The Education services are basically divided into four categories:

- i) Primary Education Services
- ii) Secondary Education Services
- iii) Higher (Tertiary) Education Services
- iv) Adult Education and Extension.

Through education, populations are well equipped to contribute to and participate in the process of social and economic development. The education/employment link has resulted in numerous governmental initiatives aimed at promoting human capital development. The developed nations spend approximately 5.0 percent of GNP on education, while in developing nations it is around 4.0 percent.

3.3.2 Health Care Services

ODI (Oversees Development Institute) has noted that an efficient and equitable health services sector is not only a development objective *per se*, but it is also a fundamental driver of growth and poverty reduction at the macro and micro level. Although the primary health care service which provides basic health care services relating to common illness, preventive and promotive health care services to women and children at the grassroots level are offered by the government, yet the secondary and tertiary health care services are largely open to the private sector in developed as well as developing countries. The health care service provides employment to the paramedical and medical personnel and enables many families to come out of poverty. Health also directly and indirectly enhances productivity of a nation, as healthy individual can work more number of hours compared to their counterparts who are morbid and diseased. Inter and intra country migration of nursing and health personnel not only enhances individual income but also enables the immigrating nation states to gain from migration. Developing countries like India, China, Brazil and South Africa are increasingly important players in the international health services markets. Filipino nurses constitute 76% of foreign nurse graduates in the United States. In India, nurses from Kerala are found in almost all other states and in the private and corporate sector nursing homes and hospitals across the nation. The migration and export of health personnel is an important source of foreign earnings for the out-migrating nations/states. Regulation of health services can play an important role for a country's development by affecting the efficiency and equity of the domestic health system as well as the economy directly.

The Public Private partnership in health care and implementing government health care projects through NGOs has created a lot of employment opportunities in health sector. Besides, international NGOs and bilateral and multi-lateral organizations are also implementing a lot of health projects in health service sector. The growth of health sector also can accelerate the job opportunities in

informal and self employment sector. The rise of business in supplying requirements for health care institutions and opening up hotels, small shops in and around the big hospitals are examples. The liberalization of health care system can enhance the capabilities of the developing countries in the health sector which will enable them to earn more income from the health sector.

3.3.3 Tourism Services

Tourism is one of the leading service sectors in the developing countries. Tourism and travel-related service customarily includes services provided by hotels and restaurants, travel agents, and tour operator services, tourist guides services and other related services. It is also recognized that tourism is the biggest export service sector in many low-income developing countries (ODI, 2008). World Tourism Organization member countries put emphasis on tourism, especially in terms of its contribution to employment and generating foreign exchange. According to UN World Tourism Organization tourism receipts have more than doubled in the past 15 years, to 700 billion US dollar and tourist arrivals nearby doubled to 800 million in 2005. The World Tourism and Travel Council (WTTC) found that tourism contributes 15 percent to GDP and 16 per cent to employment in the Caribbean region. Tourism sector employees semi-skilled and casual workers, small and medium size enterprises and gives immerge employment opportunities to women thus influencing the household per capita income to a great extent. Eco-tourism and rural tourism in recent years created job opportunities in the semi-urban and rural areas. Considering its contribution the tourism services needs to be strengthened in developing countries.

3.3.4 Financial Sector Services

Financial sector is a leading service sector in any economy. ODI (2008) said access to financial services contributes to poverty reduction, enabling poor households to strengthen their livelihoods, i.e. by investing in micro-enterprises, and to better manage the risks they face. Opening up financial sector to trade can improve a country's financial health and balance of payment position. In recent years opening of the financial sector to international market has resulted in opening up foreign bank branches in many part of the developing countries. Informal financial market in India has provided self-employment opportunities to petty entrepreneur in India. The Garmin Bank in Bangladesh is an illustrious example of role financial sector has played in the women economic empowerment. The financial liberalization would open up many investment opportunities in the developing countries. The opening of banking and insurance sector to external players will not only leverage investment opportunities but also create job opportunities for skilled, semi-skilled and low-skilled individuals.

3.3.5 ICT Services

One of the important service sectors in the globalized era is the Information and communication Technology (ICT) sector. A few developing countries particularly India is getting rich dividend from the proliferation of ICT sector. Evidence suggests that a well developed ICT sector contributes to faster growth, better economic performance at the firm level and improved household welfare because if helps actors to engage in activities more efficiently (ODI, 2008). ICT hold tremendous promise as an enabler of social and economic development. ICT are increasingly being used to deliver health case services in the developing world,

especially to patients in remote areas where the health care services are neither available nor accessible. As far as education nor accessible. As far as education sector is concerned, ICTs are increasingly being used as tool to supplement and complement the curricula and teaching learning pedagogy and has opened new opportunities for skill training. Besides, ICT is being used for enhancement of efficiency of the industrial sector and for the protection of environment and sustainable development.

In these sessions you read about the role of various services sector in development, now answer the question given in Check Your Progress-1.

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe meaning and various subsectors of service sector.

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2) Narrate two important role of service sector.

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3.4 ISSUES AND CHALLENGES OF SERVICES SECTOR

A few important issues and challenges, the service sector confronting are discussed below:

- i) Infrastructure is vital to the proliferation of service sector. The infrastructure like electricity, telecommunication net work, and other basic utilities are required to be available by the government both for public and private sector in order to enhance contribution of service sector to economic growth. Marketing complexes, go-downs, and similar other infrastructure are required to be constructed for enhancing the effectiveness of service sector in an economy.
- ii) The effective operation of service sector requires skilled manpower. Therefore, in recent year demand for management and IT professional is on the rise because of the rise in service sector in the economy. In the developed countries, service sector provides employment to more than 75% of the

total employment in their economies. The developing countries are required to generate skilled manpower for the proliferation of service sector in their economies. To produce required amount of skilled manpower for the effective proliferation of the service sector is a challenge before the developing economies.

- iii) Tax administration, governance and corruption are challenges to services sector. A simple taxation system with minimum hassle will entice the entrepreneurs to venture into service sector activities. The corruption in the developing countries is the main hurdle in the path of growth of service sector. Good governance is necessary pre-requisite and bad governance a challenge for service sector.
- iv) Low wages and less employment are features of services sector in the developing economies. Despite its enhanced contribution to GDP, the rate of employment in the service sector particularly in developing countries has not been substantially enhanced as it is happening in developed countries of North America and Europe. Another woe of service sector in developing countries is low wage rate for people employed in the service sector. The low wage rate particularly in the service sector operating in urban areas is affecting the quality of life of people engaged in service sector.
- v) Formation of appropriate regulatory mechanism is also a challenge before the government of developing countries. Urban management is a big problem. The functioning of local self-government institutions and effective implementation of urban development programmes are also a big challenge for effective administration of urban development projects and programmes.
- vi) One of the important challenges before the service sector is the measurement of the performance of service sector. Unlike the two other sectors like agriculture and industry, it is very difficult to measure service sector output. Therefore, the performance of service sector in the economic development progress is scanty known to the lay man.

3.5 SERVICE SECTOR IN INDIA: TYPES AND CHALLENGES

After globalization service sector in India occupies an important place in India economy. At present, it is the fastest growing sector in India, contributing significantly to GDP, GDP growth, employment, trade and investment. Labour productive of services sector in India is the higher and has increased over the period of time. According to a UNCTAD statistics, service sector has facilitated India's integration with the world economy and market through trade and investment. The services sector in India has grown from less than \$10 billion to over \$90 billion by 2009. India's share in global services export has risen from a meagre 0.5 per cent in 1995 to over 2% in 2009. The National Income Accounting in India has included following areas into service sector.

- 1. Trade, Hotels and Restaurants (THR)
 - 1.1 Trade
 - 1.2 Hotels and Restaurants

2. Transport, Storage and Communication
 - 2.1 Railways
 - 2.2 Transport by other means
 - 2.3 Storage
 - 2.4 Communication
3. Financing, Insurance, Real Estate and Business Service
 - 3.1 Banking and Insurance
 - 3.2 Real Estate, Ownership of Dwellings and Business Services
4. Community, Social and Personal Services
 - 4.1 Public Administration and Defence (PA&D)
 - 4.2 Other Services

The share of services sector to GDP in India during the period 2000-01 to 2009-10 is 53.7 percent, compared to it, the contribution of agriculture and industry sector are 21.8 and 24.5 percent respectively.

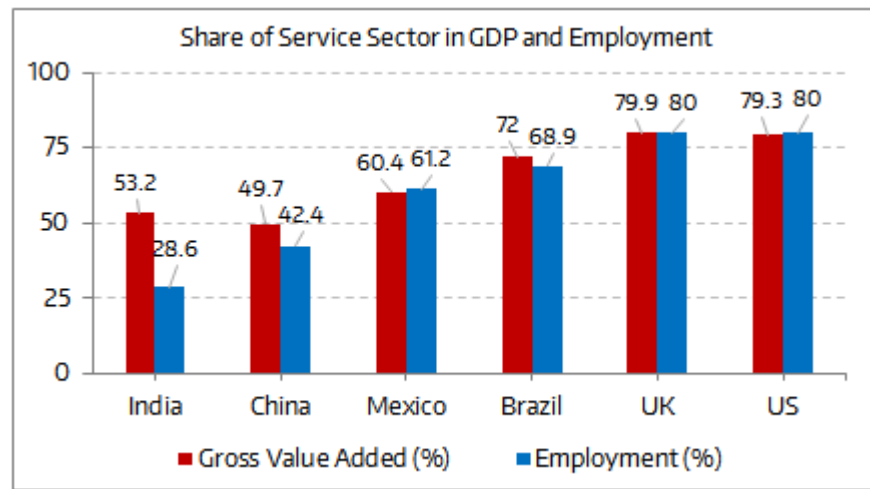
Table 3: Share and Growth of India's Services Sector (at factor cost)

	2000-01	2011-12*	2012-13*	2013-14"
Trade, hotels & restaurants	14.5(5.2)	17.4(1.2)	17.2(4.5)	24.0 (3.0)*
Trade	13.2 (5.0)	15.9(1.0)	15.8(4.8)	-
Hotels & Restaurants	1.3 (7.0)	1.5 (3.8)	1.4 (0.5)	-
Transport, storage & communication	7.6 (9.2)	7.3 (9.4)	7.5 (6.0)	-
Railways	1.1 (4.1)	0.7 (7.5)	0.8 (0.3)	-
Transport by other means	5.0 (7.7)	5.4 (8.6)	5.6 (6.6)	-
Storage	0.1 (6.1)	0.1 (2.9)	0.1 (8.6)	-
Communication	1.5 (25.0)	1.1 (11.2)	1.1 (6.5)	-
Financing, insurance, real estate, & business services	14.1 (3.5)	16.5 (11.3)	17.2 (10.9)	18.5 (12.9)
Banking & Insurance	5.4 (-2.4)	5.7 (12.9)	5.9 (11.8)	-
Real estate, ownership of dwellings & business services	8.7 (7.5)	10.7 (9.9)	11.4 (10.0)	-
Community, social & personal services	4.7 (4.6)	13.8 (4.9)	14.3 (5.3)	14.5 (5.6)
Public administration & defence	6.5 (1.9)	5.9 (4.2)	6.0 (3.4)	-
Other services	8.2 (7.0)	7.8 (5.4)	8.2 (6.8)	-
Construction	6.0 (6.1)	8.2 (10.8)	8.1 (1.1)	7.8 (1.6)
Total services	51.0 (5.1)	54.9 (6.6)	56.3 (7.0)	57.0 (6.8)
Total services (Including construction)	57.0 (5.2)	63.1 (7.1)	64.4 (6.2)	64.8 (6.2)
Total GDP	100.0 (4.1)	1000.0 (6.7)	100.0 (4.5)	100.0 (4.7)

Source: Central Statistics Office (CSO)

Notes: Shares are in current prices and growth in constant prices; Figures in parentheses indicate growth rate* first revised estimates, @second revised estimates, ** provisional estimate; # includes the combined share and growth of trade, hotels & restaurants and transport, storage & communication for 2013-14.

It is an irony that in comparison to growth of service sector, employment in the service sector has not been enhanced adequately. The Indian Economic Survey-2019-17 shows that employment in the service sector is 28.6 percent compared to 53.2 percent to GDP, while in the USA the contribution to GDP and employment are 79.3 and 80 percent respectively.



Source: <https://www.equitymaster.com/5minWrapUp/charts/index.asp?date=08/14/2017&story=1&title=Indias-Services-Sector-Growth-Not-in-Line-with-Employment-Growth> (accessed on 7/3/2018).

Some of the challenges which service sector is facing in India are narrated below:

- 1) At the outset, it is observed that there is no concrete policy on service sector, while there is policies agriculture and industrial sector. There is no nodal ministry to look after the service sector. Moreover, service sector deals with several ministries both at the centre and state level with conflicting interest. Multiplicity of regulatory bodies creates multiplicity of regulations and multiple clearances requirements.
- 2) There is no systematic collection, collation and analysis of data in service sector performance appraisal. In India, data on services is collected and collated by multiple agencies. Data should be collected on a yearly basis for understanding the trends and there should be a centralized system of data collection and collation. Available of proper data will enable the policy makers to take appropriate step for the promotion of services sector.
- 3) Attraction in service sector investment through FDI in India encounters several restrictions. India is considered more restrictive than Korea in terms of indicators such as equity restrictions, on foreigners, screening of foreign applicants, hiring of key personnel and operational conditions imposed on foreigners. According to Organization for Economies Cooperation and Development (OECD) FDI Restrictive Index, 2010, India is considered more restrictive that Korea but less than China and Japan.
- 4) The high corporate tax in India adversely affects the service sector. The corporate tax in India is 30-40% compared to around 17 percent in Singapore and up to 25 percent in China. India needs a radical tax reform which should also consider the charges in corporate tax which will motivate corporate sector to invest more and more in service sector.

- 5) The investment and availability of infrastructure facility is also poor as compared to other countries. The provision of infrastructure facilities like transport, ports and power in India by the government is low and needs to be improved in order to entice corporate houses to investment in service sector. It will also attract more and more FDIs. Lack of adequate infrastructure causes delay in project implementations.
- 6) It is seen that services sector in India works in isolation without adequate backing of primary and secondary sector. Therefore, in order to strengthen service sector coordination between these three sectors i.e. primary sector, secondary sector and service sector is essential.
- 7) There is lack of adequate research and development in service sector. In India, R & D expenditure is low, both in terms of its proportion to GDP and in comparison to rest of the world. India ranks below China and Brazil in terms of capacity for innovation. The India government needs to promote investment in R&D not only by government but also with the help of private and corporate sector.
- 8) The contribution of service sector to the total export of the country need to be enhanced. It is remarked that although India is portrayed as a major exporter of services, its rank among WTO member countries in services exports is lower than that of China's and its export competitiveness concentrate in few sectors and a few markets.

3.6 MEASURES TO PROMOTE SERVICE SECTOR

The contribution of service sector to GDP and employment is quite high in developed countries as compared to the developing countries. In many developing countries although the contribution of service sector to the GDP is increasing, yet its contribution to employment is not proportionately rising. Some of the measures to be taken for the promotion of service sector particularly in the developing countries are as follows:

- i) The developing countries have to attract FDI in the service sector, so that its contribution not only in terms of GDP but also in terms of total employment will increase. The developing countries should have liberal FDI policy in service sector.
- ii) The investment of the private and personal sector in the service sector activities has to be promoted. The private sector investment in service sector activities like banking, insurances, health, education, IT have to be given boost in the developing countries.
- iii) The countries need to have integrated development corridor where all the sector such as agriculture, industry and service sector have to interface each other. Special service sector corridor will go a long way to promote service sector in the developing countries.
- iv) Developing countries have to promote SMEs so that it will create external economies for the service sector activities.
- v) The developing countries need to make appropriate ramifications in their education policy by giving more importance to skill education. As the service

sector is mostly skill oriented therefore the education system in the developing countries has to be tuned accordingly.

- vi) Last but not the least developing countries need to have a Service Sector Policy which will give road map for the development of the service sector in the country.

In this session you read about the characteristics and challenges of service sector in India and now answer the questions given below in Check Your Progress-2

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

- 1) Briefly describe two important challenges of service sector.

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- 2) Narrate the role of service sector to India's economic development.

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3.7 LET US SUM UP

Service sector is an important component of any country's economy both developed as well as developing. Service sector plays an important role in developing countries after the globalization. However, the jobless growth of service sector in the developing countries in general and in India particular is a major challenge. However, many countries have not developed specific policy for the service sector although there are policies for the agriculture and industrial sector. Service sector contribute nearly and even more than one third to GDP in the developed countries and its contribution in the developing countries is increasing day by day. Therefore, the contribution of service sector to development is essential for overall development of the economy.

3.8 REFERENCES AND SUGGESTED READINGS

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3.9 CHECK YOUR PROGRESS: POSSIBLE ANSWERS

Check Your Progress-1

- 1) Briefly describe meaning of service sector and various subsectors of service sector.

Answer: Service sector plays an important role in developing countries after the globalization. Griliches (1992) defines services as anything that is the result of labour that does not produce a tangible commodity. The various sub-sector of the service sector are education, health tourism, banking, insurance, etc.

- 2) Narrate two important roles of service sector.

Answer: Service sector is an important contributor of GDP both in developed as well as developing countries. On an average, the contribution of service sector towards GDP is 50%. People employed in the service sector are having higher per capita income than their counter parts employed in the agriculture sector. Certain sectors of the service sectors i.e. IT, banking and financing pay more salaries to their employees as compared to the other sectors such as tourism, hotel industries, education and health.

Check Your Progress-2

- 1) Briefly describe two important challenges of service sector.

Answer: The infrastructure like electricity, telecommunication net work, and other basic utilities are required to be available by the government both for public and private sector in order to enhance contribution of service sector to economic growth. Besides infrastructure, availability of skilled manpower is also another important issue and challenge of service sector.

- 2) Narrate the role of service sector to India’s economic development.

Answer: The share of services sector to GDP in India during the period 2000-01 to 2009-10 is 53.7 percent, compared to it, the contribution of agriculture and industry sector are 21.8 and 24.5 percent respectively. However, as compared to the role the service sector plays in the economic growth rate of the country, it has not been effective enough to accelerate employment in the service sector.

UNIT 4 INFRASTRUCTURE

Structure

- 4.1 Introduction
- 4.2 Meaning and Need for Infrastructure Development and Management
- 4.3 Exigencies of Infrastructure Development and Management
- 4.4 The Characteristics of Infrastructure Development and Management
- 4.5 How to Measure Infrastructure Development and Management
- 4.6 Some Important Sub- sectors of Infrastructure Development – An Indian Perspective
- 4.7 Perspective of Rural and Urban Infrastructure Development in India
- 4.8 Let Us Sum Up
- 4.9 References and Selected Readings
- 4.10 Check Your Progress- Possible Answers

4.1 INTRODUCTION

Infrastructure is a key factor in driving a country's growth and development. Infrastructure development can also help in narrowing development gaps between developed and lagging regions. Infrastructure, especially transport and communication, is crucial for regional cooperation and integration. In the absence of efficient physical connectivity, any initiatives taken towards regional trade liberalization will remain ineffective. The role of infrastructure in fostering economic development and integration has been supported by empirical literature. A number of studies have highlighted the importance of physical infrastructure as a determinant of economic growth. There are many categories of infrastructure such as transportation infrastructure which includes road networks, ports, and airports; and communication infrastructure covers telecommunication networks. Information infrastructure and energy availability are two other such categories etc..

After studying this unit, you should be able to:

- discuss the meaning and characteristics of infrastructure, and the factors affecting Infrastructural development
- discuss the rural and urban infrastructure strategies
- discuss the infrastructural development in different sub-sectors such as road, housing, sanitation, drinking water, and energy.

4.2 MEANING AND NEED FOR INFRASTRUCTURE DEVELOPMENT AND MANAGEMENT

4.2.1 Infrastructure- Meaning and History

Infrastructure can be defined as the basic physical and organizational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function. The term typically refers to the technical

structures that support a society, such as roads, water supply, sewers, power grids, telecommunications, and so on. Viewed functionally, infrastructure facilitates the production of goods and services; for example, roads enable the transport of raw materials to a factory, and also for the distribution of finished products to markets. In some contexts, the term may also include basic social services such as schools and hospitals.

Infrastructure – What it means?

Infrastructure is often confused with the following overlapping or related concepts- Land improvement and land development. The terms land improvement and land development are a general terms that in some contexts may include infrastructure, but in the context of a discussion of infrastructure would refer only to smaller scale systems or works that are not included in infrastructure because they are typically limited to a single parcel of land, and are owned and operated by the land owner. For example, an irrigation canal that serves a region or district would be included with infrastructure, but the private irrigation systems on individual land parcels would be considered land improvements, not infrastructure. Service connections to municipal service and public utility networks would also be considered land improvements, not infrastructure.

The word infrastructure has been used in English since at least 1927 and meant: *The installations that form the basis for any operation or system.* Other sources, such as the Oxford English Dictionary, trace the word's origins to earlier usage, originally applied in a military sense. The word was imported from French, where it means *sub grade*, the native material underneath a constructed pavement or railway. The word is a combination of the Latin prefix *infra* meaning *below*, and *structure*. The military sense of the word was probably first used in France, and imported into English around the time of the First World War. The military use of the term achieved currency in the United States after the formation of the North Atlantic Treaty Organization (NATO) in the 1940s, and was then adopted by urban planners in its modern civilian sense by 1970.

The term came to prominence in the United States in the 1980s following the publication of *America in Ruins* (Choate and Walter, 1981), which initiated a public policy discussion of the nation's 'infrastructure crisis', purported to be caused by decades of inadequate investment and poor maintenance of public works. That public policy discussion was hampered by lack of a precise definition for infrastructure. A U.S. National Research Council panel sought to clarify the situation by adopting the term 'public works infrastructure', referring to: "...both specific functional modes - highways, streets, roads, and bridges; mass transit; airports and airways; water supply and water resources; wastewater management; solid-waste treatment and disposal; electric power generation and transmission; telecommunications; and hazardous waste management - and the combined system these modal elements comprise. A comprehension of infrastructure spans not only these public works facilities, but also covers the operating procedures, management practices, and development policies that interact together with societal demand and the physical world to facilitate the transport of people and goods, provision of water for drinking and a variety of other uses, safe disposal of society's waste products, provision of energy where it is needed, and transmission of information within and between communities." In subsequent years, the word has grown in popularity and been applied with increasing

generality to suggest the internal framework discernible in any technology system or business organization.

4.2.2 Need for Infrastructure Development and Management

The importance of infrastructure for sustained economic development is well recognized. High transactions costs arising from inadequate and inefficient infrastructure can prevent the economy from realizing its full growth potential, regardless of the progress on other fronts. Physical infrastructure covering transportation, power, and communication, through its backward and forward linkages, facilitates growth; social infrastructure including water supply, sanitation, sewage disposal, education and health, which are in the nature of primary services, has a direct impact on the quality of life. The visible signs of shortfalls in capacity and inefficiencies include increasingly congested roads, power failures, long waiting lists for installation of telephones, and shortages of drinking water illustrate the widening gap between demand and supply of infrastructure, and raise questions concerning the sustainability of economic growth in future.

The efficacy of private sector participation in infrastructure development would be contingent upon the capability to commercialize these projects whereby recovery of investments would be through a system of user charges. There is a potential for public private partnerships (PPPs) to contribute more and to help bridge the infrastructure gap in India. There has been considerable progress in the last ten years in attracting private investment into the infrastructure sectors; first in telecommunications, then in ports and roads, and in individual projects in other sectors. With the current GDP growth of 8 per cent, in which there is contribution of nearly 51 per cent from services, and 16 per cent from manufacturing sector, there is a need for proper alignment of resources. To sustain this growth, India needs to develop sound infrastructure so that the right input of a) skilled, qualified, and socially contented labour; b) visible and reliable supply chains; c) prompt and accurate information for decision making; and d) efficient process and updated technology can be given to the operations of manufacturing and services.

The need to provide world class infrastructure that keeps pace with 8 per cent economic growth is clear. City roads are choked with traffic, power cuts are a fact of life and passengers are routinely delayed as booming air travel tests airport capacity. The demand for infrastructural services has increased rapidly after industrial liberalization of the Indian economy. Unfortunately, infrastructural bottlenecks remain the biggest stumbling block of industrial progress in the country. By their very nature, infrastructure projects involve huge initial investments, long gestation periods and high risk. The resulting bottlenecks are beginning to pose serious impediments to enhancing productivity. Urban infrastructure includes water supply and sanitation which are important basic needs for improvement in the quality of life and enhancement of the productive efficiency of citizens. There has been a steady increase in the urban population on account of rapid industrialization, natural growth, and migration from rural areas. This has prompted the working out of alternative ways of meeting the increasing demand for transport given the constraints of land and capital, and the need to control energy consumption, pollution, and accidents. An input – output model of infrastructure is given below.

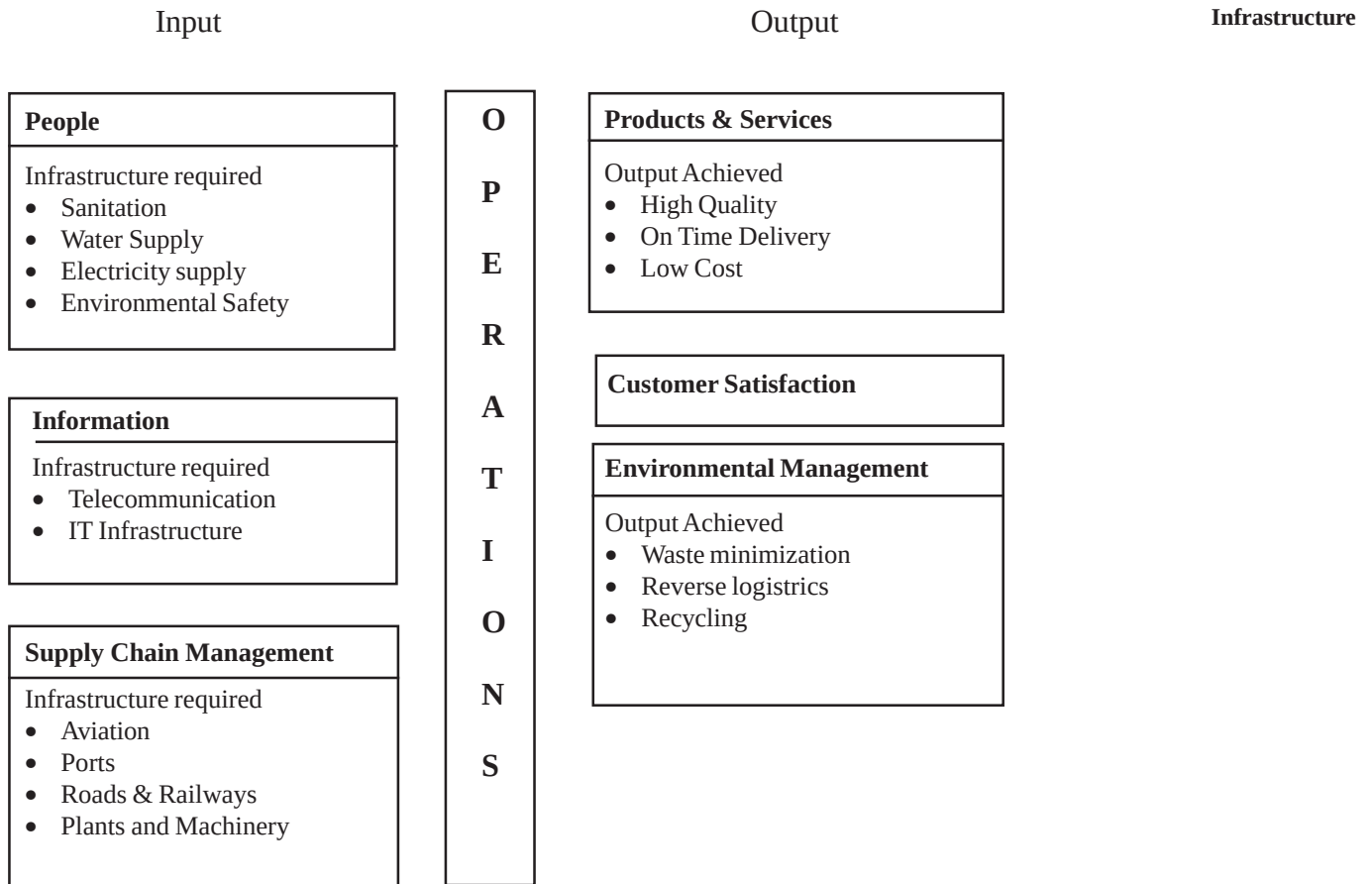


Figure 4.1.: Influence of various infrastructural factors on the operations of an organization, or a project.

Infrastructural development in a country helps to run the operations of any company efficiently and effectively. Since cost is a reality and price is a possibility, and, due to high competition, price is decided by the market forces, the cost control is imperative and within the scope of a company. Lowering costs can be achieved through better managed operations, backed by sophisticated infrastructure. Nowadays, the nature of operations management in India is changing. Customer demands for better services, growing dominance of technology, the view of the individual enterprise as just one component of the total value system, the increase in interconnectedness and globalization of business and economics, and the widening range of stakeholders to be satisfied are all factors contributing to the substantial operational challenges. There are many issues that the infrastructure or construction industry must take care of. One is correlating the project cost estimates with actual costs incurred. From our experience we have seen that the average cost of a project goes up by 30 per cent compared to the budgeted cost. If the project size is huge, an increase of 30 per cent means an additional burden of several crores of rupees to complete it. Monitoring and controlling costs of projects is a key concern due to their geographical spread as well as temporary or mobile offices. Centralized purchasing becomes difficult in such situation, resulting in the loss of volume discounts and a higher landing cost of materials. Subsequently, it becomes difficult to check the inventory and account for materials used.

Ideally, inventory levels need to be checked so that the budgeted project cost is constantly and automatically updated. In this way, at any phase of the project, an

estimate of the cost, per cost site, can be drawn up and compared to the current cost. The time for project execution is shrinking. Infrastructural projects have high upfront costs and long payback periods; there are real cost savings to be gained by executing projects rapidly - even a small overrun can mean the loss of crores of rupees. These gigantic projects require micro-monitoring of small individual projects across multiple locations, and this is done with the help of operations management. The availability of adequate, efficient and affordable infrastructural facilities both economic and social constitutes the core of development strategy and efforts. In the absence of infrastructure services, enterprises are forced to seek higher cost alternatives which impact profits and production levels adversely. In India, the demand for infrastructural services has increased rapidly since the industrial liberalization of the economy. Unfortunately, infrastructural bottlenecks remain the biggest stumbling block of industrial progress in the country. By their very nature, infrastructure projects involve huge initial investments, long gestation periods, and high risk.

In this session you read about meaning and need for infrastructure in development. Now answer the questions given in Check Your Progress-1

Check Your Progress 1

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Briefly describe what do you mean by infrastructure?

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2) Why infrastructure is important for development?

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4.3 EXIGENCIES OF INFRASTRUCTURE DEVELOPMENT AND MANAGEMENT

The style of urban infrastructure provision that encourages more efficient patterns of resource consumption is the basis for the development of sustainable cities. The conventional approach to urban infrastructure management was based on the premise of facilitating infrastructure supply. The increased awareness of environmental issues and sustainability, coupled with a need to make our cities worth living, demand interventions in the provisions and management of urban

infrastructure that are being advocated. Demand side interventions broadly has two aspects –managing the existing demand, and channelling or monitoring the ever increasing demand. The increase in existing demand is correlated with the consumption pattern. The notion of modern consumerism has been deeply embedded in the present socio-cultural set up. In today’s society, consumption can be seen as a set of social and cultural practices that serve as a way of establishing differences. This changing attitudinal behaviour mounts pressure on the existing infrastructural system and subsequently calls for sustainable management.

Hence, the management of existing demand requires network operators to understand the consumers and to develop more intimate relationships with them in order to modify the demand on the stressed parts of their network. On the other hand, channelling or monitoring of ever increasing demand covers the issues of regional planning, i.e., micro, as well as macro, planning, covering the intricacies of rural-urban interactions. The present section, however, encapsulates the demand side intervention in the planning process (both, micro and macro), with a critical analysis of the existing Indian planning approach to the urban infrastructure system, and, finally, suggests an alternate planning philosophy to the ongoing chaos.

4.4 THE CHARACTERISTICS OF INFRASTRUCTURE DEVELOPMENT AND MANAGEMENT

Broadly, following are the characteristics of infrastructure development and management.

4.4.1 Natural Monopoly Character of Infrastructure

The most general economic characteristic of modern infrastructure is the supply of services through a networked delivery system designed to serve a multitude of users. This is especially true for piped water, electric power, telecommunications, sewerage, and rail services. Many infrastructure facilities are characterised by declining costs, leading to what is known as a natural monopoly situation. It is important to remember that natural monopoly arises out of technological factors and not due to policy.

It may also be pointed out that the services of infrastructure will be non-tradable. To give an example: should there be insufficient demand for electricity in place A, its supply may be diverted to place B; however, one will not be able to do that for the transmission system that brings electricity to place A. Hence the transmission system is non-tradable even though electric power itself may be tradable.

4.4.2 Public Goods Character of Infrastructure

The demand for infrastructure services arises from both industry and individuals. However, since it is not possible to create infrastructure facilities in an incremental fashion – investments are lumpy – such facilities have to be built complete for a particular size. Hence, in the initial stage supply will be greater than the demand for such facilities while the reverse may occur over a period of time. This

characteristic of infrastructure services, generally, that supply is greater than demand, indicates that consumption of its services is non-rival. Such non-rivalness is a characteristic of public goods. The characteristic of non-rivalness implies zero marginal cost of providing benefits of a public good (infrastructure in this case) to an additional consumer. In this sense infrastructure creates external benefits or positive externalities. However, infrastructure services have one characteristic that is absent in the case of pure public goods namely, price exclusion, whereby the enjoyment of benefits is contingent on payment of charges.

4.4.3 Representation of Infrastructure in National Accounts

From the national accounts point of view, infrastructure would form part of the capital stock of the nation. However, in the year it is created the infrastructure facility would be part of production for that accounting period. Where the production spills over numerous periods, it may be necessary to recognise that output is being produced continuously and record it as a work-in-progress. This would be in keeping with the recommendations of SNA 1993 (United Nations: *System of National Accounts 1993*, p. 127).

Once the infrastructure is completed, its contribution is in terms of the services it provides by its usage. Thus, the output of transportation would be measured by the value of the amount receivable for transporting goods and persons. The volume of transport services would be measured by indicators such as tonne-kilometres or passenger-kilometres (United Nations: *System of National Accounts 1993*, p.136).

However, in the case of roads, the situation is different. For a long time the facility was provided by the Government, though now, there is private provision as well. However, services on roads are provided by different entities, both public and private.

4.4.4 Distinction between Physical and Social Infrastructure

Even though social infrastructure is not considered here, it will be appropriate to extend the notion of infrastructure proposed here to the social sector as well. Thus, a hospital or a school would constitute the infrastructure facility, which will provide services in the form of health care and education over a period of time. However, one will have to be careful not to attribute all the characteristics of infrastructure listed above to the social sector. For instance, it cannot be argued that a hospital facility is a natural monopoly even though a substantial amount of sunk costs may be involved. Further, as far as bestowing externalities is concerned, this is more likely to be true for basic health care, possibly preventive health care, while externalities may diminish in the case of higher end health care, and possibly curative health care.

4.5 HOW TO MEASURE INFRASTRUCTURE DEVELOPMENT?

What counts as a development result? Simply counting project outputs is no longer adequate. The focus, for example, is less on counting the kilometres of road built than on measuring the impact of crucial infrastructure on the lives of people down the road. Did access to health care improve? Did the cost of growing

vegetables go down? Did more goods get to market, and did the villagers' incomes increase?

Some of the ways to measure the infrastructure development are discussed below as done on World Bank guidelines.

i) Implementation Completion Reports (ICR)

When a project is completed and closed at the end of the loan disbursement period (a process that can take anywhere from 1-10 years) the World Bank or funding agencies, and the borrower government or developer, document the results achieved; the problems encountered; the lessons learned; and the knowledge gained from carrying out the project. The report, prepared by World Bank operational staff, is submitted to the Bank's Board of Executive Directors for information purposes. The knowledge gained from this results measurement process is intended to benefit similar projects in the future.

ii) Independent Evaluation Group (IEG)

An independent unit within the World Bank or Funding agencies strives to provide an objective basis for assessing the results of the Bank's work. The IEG assesses the performance of roughly one project out of four (about 70 projects a year). These project performance reports measure outcomes against the original objectives, sustainability of results and institutional development impact. From time to time, the IEG also produces impact evaluation reports to assess the economic worth of projects and the long term effects on people and the environment.

iii) Quality Assurance Group (QAG)

The Quality Assurance Group evaluates the operations work of the World Bank staff or funding agencies in developing countries, providing timely feedback that can help rectify project design and improve project supervision. The QAG publishes an Annual Report on portfolio performance which gives the Bank's Board of Directors and Senior Management a strategic overview of the size, composition and quality of the Bank's lending portfolio and analytical research program.

iv) Results Measurement System (RMS)

The International Development Association (the World Bank's fund for the world's poorest countries) tracks aggregated results. Its Results Measurement System (RMS) is designed to strengthen the focus of the IDA's activities on development outcomes and keep donors aware of the IDA's effectiveness. The system measures results on two levels.

- a) Aggregate country outcomes including
 - o Growth and poverty reduction
 - o Governance and investment climate
 - o Infrastructure for development
 - o Human development.
- b) The IDA's contribution to country outcomes, or agency effectiveness.

v) GIS Mapping

Due to the demanding need for infrastructure development, as well as to keep the existing infrastructure maintained in a proper condition, the multi sensor mobile mapping has become a critical need of many developing, as well as developed countries. It is well established that switching from static to dynamic mapping has increased the pace of infrastructure development manifold. Presently, there are a number of systems being deployed worldwide without any common standard for accuracy and performance. Automation, high accuracy, and budgets are the salient elements which will satisfy the demands of various segments of the infrastructure markets.

7.6 SOME IMPORTANT SUB - SECTORS OF INFRASTRUCTURE DEVELOPMENT - AN INDIAN PERSPECTIVE

Some of the important sub-sectors of infrastructure are discussed briefly for your understanding

4.6.1 Roads

The road sector can broadly be divided into the following

- i) national highways
- ii) state highways
- iii) major district roads
- iv) other district roads
- v) rural roads
- vi) general staff roads.

Currently, at 3.3 million km, India's road network is the second largest in the world. Road density in terms of population is only 2.75 km per 1,000 people compared to the world average of 6.7. The road density in terms of land at 770 km per 1,000 square km is also short of the world average of 841. Indian roads carry around 85 per cent of passenger traffic and 65 per cent of freight traffic.

The network comprises 68,354 km of national highways and 599,622 km of state roads, and rural and other roads. National highways constitute only two per cent of the total road length, but carry nearly 40 per cent of the traffic. State highways constitute about 13 per cent of the road length and carry 40 per cent of the traffic. The road network is grossly inadequate in capacity. Only 14 per cent of national highways and one per cent of state highways are four-lane. Further, only about 59 per cent of national highways and 22 per cent of state highways are double-lane. Due to poor surfacing, average vehicular speeds are around 50 km per hour.

Inadequacy of funds is a prime reason for the demand-supply gap. Experts estimate that the shortfall in terms of funding for developing and preserving assets has consistently remained at over 40 per cent. For state roads, the estimates state that only half of what is required annually is available. In addition, several roads that were designated national highways during the Ninth and Tenth Plans continue to

be substandard. Rapid traffic growth and overloading of vehicles adds to the problem.

Some other factors pose challenges for the sector. These involve land acquisition, encroachment on highways, environmental and forest clearances, shifting of utilities, railway approvals for rail over bridges, local law and order problems, poor performance by some contractors, etc. The 11th Five Year Plan assigns high priority to the expeditious completion of works approved under different phases of the NHDP.

In 2017, Government of India launched Bharat Malapariyjana a new umbrella program for the highways sector that focuses on optimizing efficiency of freight and passenger movement across the country by bridging critical infrastructure gaps through effective interventions like development of Economic Corridors, Inter Corridors and Feeder Routes, National Corridor Efficiency Improvement, Border and International connectivity roads, Coastal and Port connectivity roads and Green-field expressways.

4.6.2 Housing

The policies of urban development and housing in India have come a long way since the 1950s. The pressure of urban population and lack of housing and basic services were very much evident in the early 1950s. In some cities this was compounded by migration of people from Pakistan. However, the general perception of the policy makers was that India is predominantly an agricultural and rural economy and that there are potent dangers of over urbanization which will lead to the drain of resources from the countryside to feed the cities. The positive aspects of cities as engines of economic growth in the context of national economic policies were not much appreciated and, therefore, the problems of urban areas were treated more as welfare problems and sectors of residual investment rather than as issues of national economic importance.

The Government through a National Agenda declared *Housing For All* as a priority area and has set a target of construction of 2 million houses every year with emphasis on the poor and deprived, out of which 0.7 million houses are to be constructed in urban areas. The government of India launched the “Housing for All by 2022” in 2016 aimed for urban areas with following components/options to States/Union Territories and cities:

- a) Slum rehabilitation of Slum Dwellers with participation of private developers using land as a resource;
- b) Promotion of affordable housing for weaker section through credit linked subsidy;
- c) Affordable housing in partnership with Public & Private sectors and
- d) Subsidy for beneficiary-led individual house construction or enhancement.

4.6.3 Sanitation

India is witnessing a high rate of population growth, and increasing urbanization. More than 28 per cent of India’s population resides in urban areas; more than 80 million urban citizens are below the poverty line, with little or no access to basic infrastructure services such as water supply and sanitation (WSS). The cost of inefficient and unreliable WSS services is borne disproportionately by the urban

poor, who spend around US\$15–20 billion annually on the treatment of waterborne diseases. Public private partnerships in delivering WSS services can assist in remedying this situation to a certain extent. However, given the challenges of affordability and lack of baseline information, structuring PPP in the WSS sector has been relatively more difficult than in other sectors. There are only a handful of PPP projects in the WSS sector in India as compared to power generation, roads and ports.

The Swatch Bharat Abhiyan, a flagship mission of the government of India and the government is providing toilet at homes, schools and public places and also sage disposal of garbage. The mass movement intends to create a Clean India. Some of the objectives of Swatch Bharat Mission¹ are:

- To eradicate the system of open defecation in India.
- To convert the insanitary toilets into pour flush toilets.
- To remove the system of manual scavenging.
- To make people aware of healthy sanitation practices by bringing behavioral changes in people.
- To link people with the programmes of sanitation and public health in order to generate public awareness.
- To build up the urban local bodies strong in order to design, execute and operate all systems related to cleanliness.
- To completely start the scientific processing, disposals reuse and recycling the Municipal Solid Waste.
- To provide required environment for the private sectors to get participated in the Capital Expenditure for all the operations and maintenance costs related to the clean campaign.

4.6.4 Drinking Water

Water is a prime natural resource, a basic human need and a precious national asset. Planning, development and management of water resources needs to be governed by national perspectives. As per the latest assessment (1993), out of the total precipitation, including snowfall, of around 4000 billion cubic metre in the country, the availability from surface water and replenishable ground water is put at 1869 billion cubic meters. Because of topographical and other constraints, about 60 per cent of this, i.e., 690 billion cubic meters from surface water, and 432 billion cubic meters from ground water can be put to beneficial use. Availability of water is highly uneven in both space and time. Precipitation is confined to only about three or four months in a year and varies from 100 mm in the western parts of Rajasthan to over 10000 mm at Cherrapunji in Meghalaya. Rivers and underground aquifers often cut across state boundaries. Water, as a resource is one and indivisible:

- rainfall, river waters, surface ponds and lakes, and ground water are all part of one system
- Drinking water (from tap to the mouth) supply, including the system of pipes, pumps, valves, filtration and treatment equipment and meters, including buildings and structures to house the equipment, used for the collection, treatment and distribution of drinking water

- Sewage collection and disposal
- Drainage systems (storm sewers, ditches, etc.)
- Major irrigation systems (reservoirs, irrigation canals)
- Major flood control systems (dikes, levees, major pumping stations, and floodgates).

4.6.5 Energy

Energy for cooking and lighting are vital for the quality of life of the people in the rural and urban areas. However, because of energy deficiency and poor energy management many households in particularly rural areas are deprived of 24 hour electricity and energy for cooking. Electricity- during the Eleventh Plan, the government aims to add power generation capacity of about 70,000 MW and provide electricity to all un-electrified hamlets and all rural households through the Rajiv Gandhi Grameen Vidyutikaran Yojna (RGGVY). Some of the features of RGGVY are:

- Electrical power network, including generation plants, electric grid, substations, and local distribution
- Natural gas pipelines, storage and distribution terminals, as well as the local distribution network
- Petroleum pipelines, including associated storage and distribution terminals
- Steam, or, hot water production and distribution networks for district heating systems.

Under Ujala Yojana launched in 2016, the government of India is providing cooking gas connection to the families in rural and urban areas. Moreover, under the scheme LED bulb a power saving mechanism is being provided at low cost. The main objective of scheme is to:

- promote efficient lighting,
- enhance awareness on using efficient equipment which reduce electricity bills and preserve environment.

In this session you read about the various types of infrastructure. Now answer the question asked in Check Your Progress-2

Check Your Progress 2

Note: a) Answer the following questions in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Write the appropriate measurement method of infrastructure development.

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- 2) Based on your understanding and experience find out the major sectors of infrastructure development.

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4.7 PERSPECTIVE OF RURAL AND URBAN INFRASTRUCTURE DEVELOPMENT IN INDIA

The infrastructure development strategy in Indian context can be broadly categorised into rural and urban infrastructure development.

4.7.1 Rural Infrastructure

India's economic growth and development is predicated to a large extent upon the development of its 700-million strong rural population. A majority of the population lives in about 600,000 small villages and are engaged primarily in agriculture, directly or indirectly. A substantial portion of India's current agricultural labour force has to move to non-agriculture sectors for incomes in all sectors to go up. The challenge is to manage the transition of 80 per cent of the rural population from a village-centric agricultural-based economy to an industry based economy. Infrastructure development in rural India needs to be put on a fast track in order to tap the rural retail opportunity currently estimated at \$34 billion, which, according to a Confederation of Indian Industry (CII) and Yes Bank study, is expected to touch the \$58 billion mark by 2015. The study focuses only on FMCG, durables, agricultural inputs (including tractors) and two and four wheelers.

Grey Areas of India's Rural Infrastructure

- A set of basic facts define the constraints within which the economic growth and development of India's rural population must be addressed. Fundamentally, they relate to resource constraints, the nature of infrastructure, and the future trajectory of the geographical distribution of the population.
- These services include, at a minimum: market access, educational, health, financial, entertainment, transportation, and communications. Further, services depend on the availability of infrastructure.
- Infrastructure investment is irregular and inadequate to support 600,000 villages, and the average cost of providing infrastructure is inversely related to the scale of the operation.
- Limitations on the financial and other resources available for providing infrastructure made it impossible to provide infrastructure at every village in India. Even if they were provided at every village, it will not be commercially sustainable.

4.7.2 Urban Infrastructure

Global and Indian experience indicates that the urban sector has increasingly become an important driver of economic growth.. The urban population of India has rapidly increased in recent years. In 1961 about 79 million persons lived in urban areas of the country, by 2001, their number had gone up to over 285 million, an increase of over 350 per cent in the last four decades, which will increase to over 400 million by the year 2011 and 533 million by the year 2021.

In 1991 there were 23 metropolitan cities, which have increased to 35 in 2001. As a result, most urban settlements are characterized by shortfalls in housing and water supply, inadequate sewerage, traffic congestion, pollution, poverty and social unrest making urban governance a difficult task.

Urban infrastructure consists of drinking water, sanitation, sewage systems, electricity and gas distribution, urban transport, primary health services, and environmental regulation. Many of these services are in the nature of 'local' public goods with the benefits from improved urban infrastructure in a given city limited to the citizens living in that city.

Widespread urbanization is a twentieth century phenomenon. Rome was probably the first settlement to reach one million populations in 5 BC, while London became the second such city in 1800. In 1900, the total urban population of the world was not more than 250 million, less than 15 per cent of the total population. The Indian urban population today is itself greater than this number. In 2000, the world's urban population had increased to almost 2.9 billion, about 47 per cent of the total population. Today Asian countries have emerged as most populous countries. According to a United Nations Study (1995), by the year 2015, ten of the world's fifteen largest cities will be in Asia, three of these will be in India.

The structural reforms and the associated development strategies launched in 1991 are expected to accelerate rural urban migration and boost the pace of urbanization. The demographic and economic growth in India is likely to be concentrated in and around 50 to 60 large cities with population of about a million or more. There is migration from villages to town and cities which results in the growth of metropolitan cities since they provide multiple avenues, services and amenities, e.g., education, health care, employment, business, and entertainment options. People also migrate for economic opportunities and urban lifestyles. Though urbanization brings about development in the social, economic and cultural spheres of life, sometimes it disturbs the ecological system. Rapid and unplanned growth of urban agglomeration generates a series of negative environmental and social effects. Today, urban India presents a pathetic scene. Cities have become sites of rotting garbage, degrading drainage systems, and a shocking night soil removal system. Besides, the poor have practically no access to covered toilets, and in many towns and cities, the majority have to defecate in the open. The untreated sewage being dumped into the nearest water body leads to health hazards. India is one of the least urbanized countries in the world because between 1951 and 2001, the level of urbanization increased by just 13 percentage points. However, it has the second largest urban population in the world and more than two third of it lives in the 393 cities that have population of over 0.1 million. The four mega cities, viz., Mumbai, Kolkata, Delhi, and Chennai, with a population of more than 6 million each in 2001, account for almost one fourth of the total urban population living in cities. As per the 2001 census, 285 million

people, i.e., 27.8 per cent of the 1027 million total population of India resides in 4368 cities and towns in the country, whereas in 1991, 25.7 per cent of the population lived in urban areas. The decadal growth in urban population during 1991-2001 has been 31.2 per cent, whereas at the beginning of the 20th century, only 10.8 per cent of the total 218 million population of the country resided in cities and towns. The number of million plus cities has increased to 35 in 2001 from 12 in 1981 and 23 in 1991. These 35 million plus cities account for 107.9 million urban population of the country. As per the projections of Government of India, the urban population of the country in 2011 will be 405.26 million and 553.04 million in 2021. Thus, around one third population is expected to live in urban areas.

4.8 LET US SUM UP

Dear learner, in this unit we started by looking into the meaning and need for infrastructure development and understood that infrastructure is a key factor in driving a country's growth and development by narrowing development gaps between developed and lagging regions. Later we discussed exigency and characteristics of infrastructure development. We also discussed different measures of infrastructure development viz implementation completion reports, independent evaluation, quality assurance, results measurement system and GIS mapping. Later we discussed some important sub- sectors of infrastructure for development viz., roads, housing, sanitation, drinking water and energy. At the end we discussed the infrastructure development strategy with Indian perspective.

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4.10 CHECK YOUR PROGRESS - POSSIBLE ANSWERS

Check Your Progress 1

- 1) Briefly describe what do you mean by infrastructure?

Answer: Infrastructure can be defined as the basic physical and organizational structures needed for the operation of a society or enterprise, or the services and facilities necessary for an economy to function. The term typically refers to the technical structures that support a society, such as roads, water supply, sewers, power grids, telecommunications, and so on.

- 2) Why infrastructure is important for development?

Answer: There is no disagreement about the importance of infrastructure for sustained economic development is well recognized. Inadequate and inefficient infrastructure can prevent the economy from realizing its full growth potential, regardless of the progress on other fronts. Physical infrastructure covering transportation, power, and communication, through its backward and forward linkages, facilitates growth; social infrastructure including water supply, sanitation, sewage disposal, education and health,

which are in the nature of primary services, has a direct impact on the quality of life. The widening gap between demand and supply of infrastructure, and raise questions concerning the sustainability of economic growth in future.

Check Your Progress 2

- 1) Write the appropriate measurement method of infrastructure development.

Answer: There is no one method to measure infrastructure development. Broadly it the process of measurement follows- **Implementation Completion Reports (ICR)**, Independent Evaluation Group (IEG), Quality Assurance Group (QAG), **Results Measurement System (RMS)**. The International Development Association (the World Bank's fund for the world's poorest countries) tracks aggregated results. Its Results Measurement System (RMS) is designed to strengthen the focus of the IDA's activities on development outcomes and keep donors aware of the IDA's effectiveness. The system measures results on two levels.

- 2) Based on your understanding and experience find out the major sectors of infrastructure development.

Answer: The major sectors of infrastructure development are: roads and highways networks; housing; sanitation; drinking water and energy.

MDV 103: ISSUES AND CHALLENGES OF DEVELOPMENT

Block	Unit Nos	Unit Titles
1		BASIC ISSUES IN DEVELOPMENT
	1	Population
	2	Poverty
	3	Inequality
	4	Unemployment
2		SECTORAL ISSUES IN DEVELOPMENT
	1	Agriculture
	2	Industry
	3	Services
	4	Infrastructure
3		SOCIAL ISSUES IN DEVELOPMENT
	1	Education and Development
	2	Health and Development
	3	Gender and Development
4		EMERGING ISSUES IN DEVELOPMENT
	1	Energy and Development Nexus
	2	Natural Resource Management and Environment
	3	Sustainable Development
	4	Climate Change
5		GOVERNANCE
	1	Governance – An Overview
	2	Participatory and Decentralized Governance
	3	Good Governance: Attributes and Challenges
	4	E-Governance and Development