

# Chapter 8 - Infrastructure

## Question 1:

Explain the term infrastructure.

## Answer:

The term infrastructure refers to the underlying tangible and organisational structures that are essential for the smooth and prosperous functioning of an economy. In other words, infrastructure is regarded as a core support system that enables an economy to grow and develop. Generally, the term infrastructure means technical structure such as roads, transport, communication, bridges, dams, power, public institutions like schools, hospitals, etc. These structures not only serve as basic input for various economic activities like production, investment, but also enable an economy to break the shackles of traditional and primitive social structures and customs. The difference between a developed country and an underdeveloped country can be mainly attributed to the lack of sufficient and technically advanced infrastructure in the latter. Infrastructure has two-fold benefits- as an input and as a support system. Infrastructure *as an input* (roads, bank and power) facilitates the production process and attracts investment from domestic as well as from foreign investors. Infrastructure *as a support system* (such as schools, hospital) develops the quality of human capital by imparting quality and technical education and health facilities. This raises the standard and quality of living and helps the economy to eradicate major economic problems like poverty, unemployment and inequality. Hence, it can be concluded that the presence of quality and sufficient infrastructure is a necessary and sufficient condition for accomplishing economic growth and development.

## Question 2:

Explain the two categories into which infrastructure are divided. How are both interdependent?

## Answer:

Infrastructure is broadly classified under two categories:

- a. Economic infrastructure
- b. Social infrastructure

**Economic Infrastructure** refers to the elements of economic change that aid in the process of production and distribution. It improves the quality of economic resources and, thus, raises the productivity of the economy as a whole. In this way, it serves as a support system to economic growth. Energy, transportation, communication, banking and financial institutions are some of the examples of economic infrastructure. Greater the economic infrastructure, greater will be the production and more generation of employment opportunities. Thus, expenditure incurred on the economic infrastructure can be regarded as a necessary condition for economic growth.

**Social Infrastructure** refers to all those facilities and institutions that enhance the quality of human capital. Educational institutions, hospitals, nursing homes, housing facilities etc. are some of the examples of social infrastructures. The availability of such infrastructures raises the human productivity, thereby, improves the quality of standard of living. Unlike, economic infrastructure, social infrastructure indirectly increase the productivity and production of goods and services. For example,

availability of better health care and medical facilities enable a perennial supply of healthy workforce that in turn is reflected in the form of increased production levels.

Both economic and social infrastructures are interdependent on and complementary to each other. While economic infrastructure fosters economic growth, social infrastructure enhances the quality of standard of living and thereby leads to the welfare of the economy as a whole. The combined effect of these two infrastructures contributes to the prosperity of the economy. The economic growth attained with the help of economic infrastructure is imperfect without human development which is attained by means of social infrastructure. Thus, one infrastructure supports the other.

### Question 3:

How do infrastructure facilities boost production?

### Answer:

Infrastructure-social and economic, facilitates production. The role of infrastructure in economic production can be understood with the help of an example. If agriculture is devoid of irrigation facilities, then it would entirely depend on the monsoon that may hamper its production and productivity. As irrigation is essential to enhance productivity of agricultural sector, in the same manner, infrastructure is essential for smooth and efficient production of all sectors of the economy. Similarly, industrial production in the absence of proper means of transportation may lead to delays in the movement of raw materials, capital goods and finished goods. This, in turn, leads to delays in the production process and, thereby, hampers industrial production. Thus, infrastructure is the necessary condition for higher productivity and higher production.

### Question 4:

Infrastructure contributes to the economic development of a country. Do you agree? Explain.

### Answer:

Yes, infrastructure acts as a support system for production activity in the economy and, thereby, contributes to economic development. The following points will further explain the role of infrastructure in the economic development of a country:

- i. **Infrastructure Increases Productivity:** Infrastructure-social and economic facilitates production. The availability of quality infrastructure guarantees increase in production and productivity. Infrastructure ensures easy movement of goods and raw materials, thereby, reducing inefficiencies and lead to efficient utilisation of scarce resources and eliminate wastages.
- ii. **Infrastructure Encourages Investment:** Infrastructure provides an environment conducive to investment. Lack of facilities discourage investment. For example, an investor will not invest in absence of basic infrastructure such as transport and communication.
- iii. **Infrastructure Generates Linkages in Production:** Infrastructure promotes economic development by way of various linkages— forward and backward linkages. In other words, infrastructure provides scope for expansion of one industry due to the expansion of the other by way of forward and backward linkages. The process of economic growth becomes a dynamic process in the presence of sufficient infrastructure facilities. This can be explained with the help of a forward linkage. For example, if irrigation facilities boost agricultural production, then the related industries that

depend on agriculture for the supply of raw materials simultaneously experience increased production.

iv. **Infrastructure Enhances Size of the Market:** Infrastructure widens the size of the market. The fast and cost-effective movement of raw materials and finished goods in bulk enables a producer to offer his products across the country and even across international boundaries.

#### Question 5:

What is the state of rural infrastructure in India?

#### Answer:

During the colonial rule, the British aimed at developing infrastructure to facilitate their trade affairs. At the time of independence, Indian government found lack of sound infrastructure to realise their dream of economic development and growth. Most of the infrastructural development concentrated in the urban areas. The infrastructural development in the rural areas is still very meagre as compared to the size of the rural population. The women in the rural areas are still making use of bio fuels like cow-dung and fuel wood to meet their energy needs. The census of 2001 states that only 56% of the households has electricity connection, whereas, 43% still use kerosene. About 90% of the rural households use bio fuels for cooking. Tap water is used by only 24% of the rural households and improved sanitation is available to only 20%. As the infrastructure is an essential element of economic growth, so, it becomes a need of the hour to address the problem of infrastructure. The government of India invested only small proportion of GDP on infrastructure i.e. only 5% that is lesser than that of China and Indonesia. The economists see India as the third biggest economy in the world. For that to happen, India will have to boost its infrastructure, especially rural infrastructure. This will not only promote economic development of our country but also enhance economic welfare.

#### Question 6:

What is the significance of energy? Differentiate between commercial and non-commercial sources of energy.

#### Answer:

Energy is the most important component of economic infrastructure. It is a critical aspect of the development process of a nation. It is essential for industries as no commodity is produced without using energy. Now a days, energy is used even in the agricultural sector. It is needed to operate tube-wells, tractors and thrashers. It is also required in houses for cooking. One cannot even think of a day without electricity and other sources of energy like petrol, LPG, etc. So, we can say that energy is lifeline of the entire production activity.

Commercial energy	Non Commercial energy
i. The sources of energy that are available to the users at some price are referred to as commercial energy.	i. The sources of energy that are usually available freely to the users are referred to as non-commercial energy.

ii. This form of energy is used for commercial purposes.	ii. This form of energy is used for domestic consumption.
iii. For example, coal, petroleum, natural gas and electricity.	iii. For example, Firewood, agricultural waste, animal waste (cow dung)

### Question 7:

What are the three basic sources of generating power?

### Answer:

The three basic sources of generating power are thermal, hydro-electric, and nuclear power. The thermal power uses heat energy as its base for the production of electricity. Hydro-electric power involves production of electricity through the use of kinetic force of falling water. And the nuclear power involves the use of sustained nuclear fission to generate electricity.

The thermal sources, hydro-electric sources and nuclear power accounts for 70%, 28% and 2% of the power generation capacity respectively in India.

### Question 8:

What do you mean by transmission and distribution losses? How can they be reduced?

### Answer:

Electric power transmission and distribution losses refer to the losses that occur in transmission between the sources of supply and points of distribution. In other words, the loss of power that arises due to the inherent resistance and transformation inefficiencies in the electrical conductors and distribution transformers respectively are called transmission and distribution losses.

The following measures should be taken to reduce power transmission and distribution losses;

- i. Improved technology of transmission and distribution should be used.
- ii. Electricity distribution network should be privatised. This will infuse efficiency, thereby, eliminating wastages.
- iii. Theft cases of electricity should be handled strictly by the trustworthy employees. Strict imposition of fines and penalties should be imposed.

### Question 9:

What are the various non-commercial sources of energy?

**Answer:**

The sources of energy that are generally available free to the users and that do not have a recognized market are referred to as non-commercial energy. This form of energy is used for domestic and for consumption purposes, for example, Firewood, agricultural waste, animal waste (cow dung), etc. These goods neither command a price nor have established market.

**Question 10:**

Justify that energy crisis can be overcome with the use of renewable sources of energy.

**Answer:**

When the resources are extracted at more rapid pace than its regeneration, then we say that the carrying capacity of the environment reduces. The environment fails to perform its function of sustaining life and this results in an environmental crisis. These environmental crises are the result of a fall in the carrying and absorptive capacity of the environment. In today's scenario, the rate of consumption of resources is faster than the rate of their production. Consequently, the resources get exhausted quickly. But on the other hand, renewable resources get renewed or replenished quickly. These are unlimited and are not affected by human activities, such as solar and wind energy. Hence, energy crises can be overcome by the increased use of cost-effective technology of searching the renewable resources of energy.

**Question 11:**

How has the consumption pattern of energy changed over the years?

**Answer:**

The percentage use of different sources of energy is referred to as pattern of energy consumption. It can only be analysed when different sources of energy are converted into a common unit, which is termed as MTOE (Million Tonnes of Oil Equivalent) in India. The pattern of energy consumption has undergone considerable change overtime. The use of primary sources like coal, petroleum and natural gas has undergone a significant change. The non-commercial use of this energy has increased from 36% to 76% during 1953-54 to 2004-05. The percentage of direct final consumption of coal has drastically reduced irrespective of the increase in the total consumption of coal. Its consumption increased from 95 million tonnes in 1980-81 to 355 million tonnes in 2008-09. Also, the consumption of oil, for which our country was dependent upon Gulf countries, has increased. The consumption of electricity in the agricultural sector has increased overtime, whereas, it remained the highest in the industrial sector as compared to other sectors.

**Question 12:**

How are the rates of consumption of energy and economic growth connected?

**Answer:**

The rate of consumption of energy is crucial for economic growth or development process of a nation. The consumption of renewable sources of energy is related to sustainable economic development. The renewable sources of energy are free from pollution and health hazard. Also, energy consumption is essential for promoting agriculture and industrial process. Hence, more use of renewable source of energy leads to more sustained economic development.

### Question 13:

What problems are being faced by the power sector in India?

### Answer:

The power sector is m faced with some critical challenges. These are as follows:

- i. The installed capacity of India to generate electricity is not sufficient enough to meet an annual economic growth of 7%.
- ii. The State Electricity Boards (SEBs) that distribute electricity suffered a great loss of more than Rs.500 billion due to transmission and distribution of electricity.
- iii. The wrong pricing of electricity like supply of electricity at subsidised rates to agricultural sector and theft of electricity has exaggerated the problems of power sector.
- iv. The high power tariffs and prolonged power cuts is another challenge in the power sector.
- v. The thermal power station faces the scarcity of the raw materials to generate electricity.

### Question 14:

Discuss the reforms which have been initiated recently to meet the energy crisis in India.

### Answer:

The following reforms have been initiated by the government to meet the energy crises:

1. **Privatisation in Power Generation Sector:** The government earlier had the monopoly in the generation and distribution of electricity. Now, private sector has been given the rights to generate power.
2. **Privatisation in Power Transmission:** The Indian government has approved Tata Power and Powergrid Corporation of India for constructing transmission networks in joint venture.
3. **POWER for ALL by 2012:** The Ministry of Power has set up an objective of 'POWER for ALL by 2012' to achieve the target of 1000 KwHr (Units) of per capita consumption of electricity in India. This objective is aligned with the objective to achieve an economic growth of 8% p.a. The main motive of this target is to improve the quality of power, improve the commercial viability of power industries and to provide power to all.
4. **Setting up Regulatory Mechanism:** The Central Electricity Regulatory Commission (CERC) along with State Electricity Regulatory Commissions (SERC) has been established in 19 states under the Electricity Regulatory Commissions Act, 1998. These commissions and authorities regulate tariff, promote efficiency and competition.

5. **Encouraging FDI:** In order to achieve the target of POWER for ALL by 2012, the Ministry of Power aimed at attracting US \$250 billion of Investment (FDI and Domestic Investment Combined) into the power sector.
6. **Accelerated Power Development and Reform Programme (APDRP):** APDRP has been initiated in the year 2000-01 with the motive of improving financial viability, reducing transmission and distribution losses and promoting transparency through computerization.
7. **Awareness:** The government is encouraging people to increase the use of renewable resources and also creating awareness among the people to reduce the conventional resources. During the Eight Five Year Plan, government has set up National Energy Efficiency Programme (NEEP) that aimed at conservation of petroleum products.
8. **Improving Productivity:** The Indian government has been emphasising on the measures to improve the productivity of the existing power generating industries.

**Question 15:**

What are the main characteristics of health of the people of our country?

**Answer:**

Health is not only mere absence of disease but also includes the state of complete physical, mental, and social well-being of an individual. In other words, it means a sound physical and mental state of the individual. A person's ability to work depends on his health. A healthy person can contribute more actively. Hence, health and development of a person are the integral parts of a nation's social and economic development. It is very difficult to assess public health in terms of the single set of measures. So, various other indicators have been taken into account like infant mortality rate, maternal mortality rate, life expectancy and nutrition level along with the communicable and non communicable diseases. The various health indicators in India have been tabulated in the table below.

### **Health Indicators in India**

<i><b>Health Indicators</b></i>	<i><b>India</b></i>
Infant Mortality Rate/1,000 live-births	68
Under-5 mortality/1,000 live-births	87
Birth by skilled attendants	43
Fully immunised	67
Health expenditure as % of GDP	1.4
Government health spending to 5 total government spending (%)	5
Per Capita spending in International Dollars	96

***Source: World Health Record 2005 and Economic Survey 2007-08***



### Question 16:

What is a global burden of disease?

### Answer:

Global Burden of Disease (GBD) is an indicator used by the experts to measure the number of people dying prematurely due to a particular disease. This also includes the number of years spent by them in a state of disability due to various diseases. India bears a frightening 20 % of the GBD. More than half of the GBD is accounted by communicable diseases such as diarrhea, malaria and tuberculosis.

### Question 17:

Discuss the main drawbacks of our health care system.

### Answer:

In recent years, India has embarked upon the development of vast health infrastructure.. This is evident from the fall in the death rate, infant mortality rate and rise in life expectancy. But more need to be done in the field of health care. The following are some of the deficiencies in the Indian health care:

a. **Unequal Distribution of Health Care Services:** The health care services are unequally distributed across rural and urban areas. Rural areas that supports 70 % of the population, has only  $\frac{1}{5}$ <sup>th</sup> of the hospitals. Further, the doctor-population ratio is as worse as 1:2,000. This implies that for every 2,000 people, there is only one doctor in India. Only half of the dispensaries are set up in villages. Most of the health care facilities have been confined mostly to the urban areas.

b. **Communicable Diseases:** various communicable diseases like AIDS (Acquired Immune Deficiency Syndrome), HIV (Human Immune Deficiency Syndrome), and SARS (Severe Acute Respiratory Syndrome) have made their way to India.. All these deadly diseases pose serious threat to human capital reserve, thereby,impeding economic growth.

c. **Poor Management:** The health care centres lack trained and skilled personnel in the rural areas. Therefore, rural people have to rush to the urban health care centres. This becomes worse in the absence of proper roads and other cost-effective means of transportation.

d. **Lack of Modern Techniques and Facilities:** The government health centres are usually devoid of the basic facilities like blood testing, X-rays, etc. These centres lack modern techniques and medical facilities like, CT-scan, sonography, etc. In order to avail these services, people need to depend on the private hospitals that charge exorbitant fees.

e. **Privatisation:** The inability of the government to provide sufficient health care centres and other medical facilities paved the way for the private sector to step in. The private sector is governed by price signals, thereby, catering to the need of the higher income group, leaving the low income group and the poor at their own mercy. This is due to the privatisation of the health care sector The private hospitals are attracting more patients than the government hospitals as the government hospitals are devoid of facilities.

### Question 18:

How has women's health become a matter of great concern?

**Answer:**

Half of the total population in India constitutes women. Women are lagging behind in education, health care, and economic participation as compared to men. The child sex ratio has declined from 945 in 1991 to 927, showing the growing incidents of female foeticide in the country. The married women population close to 3,00,000 have already given birth to one child. About 50 % of the married women between the age of 15 and 49 suffer from anemia. This resulted in 19 % of maternal deaths. The major cause of maternal morbidity and mortality in India is abortions. These factors point towards the women's health due to which it has become a matter of great concern.

**Question 19:**

Describe the meaning of public health. Discuss the major public health measures undertaken by the state in recent years to control diseases.

**Answer:**

Public health refers to the act of protecting public's health through education, research and development and promotion of healthy lifestyle. It aims at the improvement and well being of the people around the globe. It focuses on the protection and improvement of health of the entire population rather than individual.

In the recent years, India has embarked upon the development of vast infrastructure.. At the village level, a variety of hospitals were set up by the name of Primary Health Centres (PHCs). The large number of hospitals is run by various voluntary agencies and by the private sector. The hospitals are managed by professionals and by Para Medical professionals trained in medical, pharmacy and nursing colleges. There has been a significant expansion in the provision of health services. The number of hospitals and dispensaries has increased from 9300 to 43300 and hospital beds from 1.2 to 7.2 million during 1951 to 2000. Also, nursing personnel has increased from 0.18 to 8.7 lakh and allopathic doctors from 0.62 to 5 lakhs during the same period. The provision of various facilities has resulted in the eradication of small pox, polio, leprosy, and other deadly diseases.

**Question 20:**

Differentiate the six systems of Indian medicine.

**Answer:**

The following are the six systems of medicines constituted by ISM (Indian Systems of Medicines).

- a. Ayurveda
- b. Yoga
- c. Siddha
- d. Naturopathy
- e. Unani

#### f. Homeopathy

**Ayurveda** is one of the traditional systems of medicine that is still used in India. It is a holistic way to achieve health through body, mind and spirit. The *ayurvedic* practitioners recommend diet and lifestyle changes along with drug therapy. They have identified a number of medicinal preparations and surgical procedures for curing various ailments and diseases that cannot be completely curable in other medical systems. The methods of *ayurveda* such as applying herbs and massage can also be applied along with other systems.

**Yoga** as an art originated and was practised in India from thousand years. It has references in 'Upanishads' and 'Puranas' composed by Indian Aryans in the Vedic period. The main credit for systematising yoga goes to *Patanjali* who wrote 'Yoga Sutra', two thousand years ago. *Yoga Sutra* is the most important basic text on Yoga. It is through this means that the essential message of yoga is spread throughout the world. It is defined as an art of righteous living or an integrated system for the benefit of the body, mind and inner spirit.

*Siddha* comes from the word *Siddhi* which means an object to attain perfection or heaven. This is the oldest among the Indian Medical Systems namely *Ayurveda* and *Unani*. It is also known as *Siddha Vaidya* in India and also the oldest medical system in the world. As nowadays, people's preference to natural health remedies and herbal health remedies is increasing day by day, *Siddha* has emerged as an important and unique system of Indian medicine when compared to other traditional medical systems in existence.

**Naturopathy** deals with the healing power of nature as it assumes that all healing powers are within our body. This means that within every human organism there is a healing energy. Naturopathy regards that when we go against nature only then we fall ill. 'Fasting' has been described as Nature's way to recover. A thorough rest that includes fasting is the most favorable condition in which an ailing body can purify and recover itself.

**Unani** has a long and impressive record in India. It was introduced in India around 10th century A.D. with the spread of Islamic civilisation. Now *Unanipathy* has become an important part of Indian Systems of Medicine. India is one of the leading countries in terms of its popularity. It is very much similar to our *Ayurveda*. *Unani* established that disease is a natural process and that the symptoms are the reactions of the body to the disease.

**Homeopathy** consists of two words 'Homeo' meaning similar and 'Pathos' meaning suffering or treatment. In this system, a drug and a disease that produce similar symptoms cancels each other. It is popular among the people due to its remarkable healing capacity. Also, its remedies are free from side effects.

#### Question 21:

How can we increase the effectiveness of health care programmes?

#### Answer:

Health is a public good and a basic human right. Therefore, it should be provided to all and no person should be deprived of health care facilities. These facilities can be provided to all if public health services are decentralised. It implies that the power of providing these services should be delegated from the central to the local authorities. The success of health care depends upon education, spread of knowledge, awareness and efficient health infrastructure. It is crucial to create awareness about health and hygiene among people. The telecom and IT sectors can further aggravate the

effectiveness of health care programmes. Further, providing quality medical facilities at nominal costs can promote its worthiness and popularity. In order to enhance the effectiveness of health care programmes, the main focus should be on increasing the number of hospitals, modernisation of medical facilities, development of infrastructure, improving the doctor-population ratio and increasing the number of medical colleges in India. The availability and development of medical facilities in the rural areas is still a far cry. Further, there must be some regulation to check the exorbitant fees charged by the private medical centres to make health care facilities accessible and affordable to all.