



# Indian Economic Development



# INFRASTRUCTURE

After studying this chapter, the learners will

- understand the main challenges India faces in the areas of social and economic infrastructure
- know the role of infrastructure in economic development
- understand the role of energy as a critical component of infrastructure
- understand the problems and prospects of the energy and health sectors
- understand the health infrastructure of India.

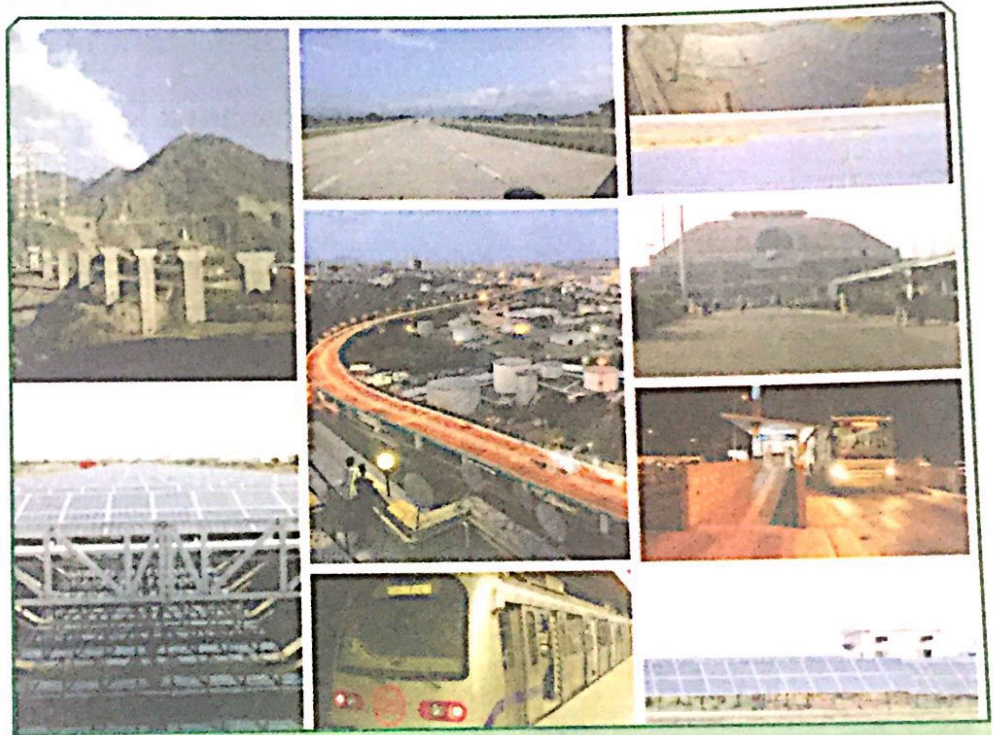
# INFRASTRUCTURE

TO DO

- What is Infrastructure?
- Infrastructure and Development
- The State of Infrastructure in India

## I. WHAT IS INFRASTRUCTURE?

Infrastructure refers to support system of economic and social development of a country. Imagine life in the absence of the means of transport and communication; imagine life in the absence of educational institutes, hospitals and nursing homes; imagine life in the absence of electricity or oil & diesel! Absence of these things would only drive us to the primitive age when production was just for subsistence. Production activity did not yield surplus for growth and development.



Infrastructure: Support System of Development

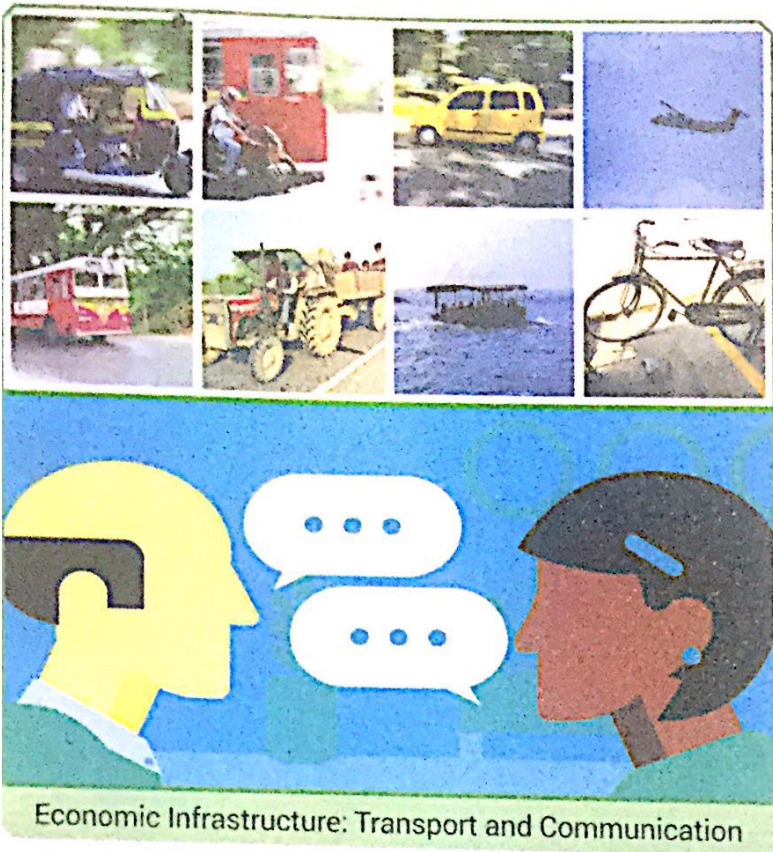
*Infrastructure refers to support system of economic and social development of a country without which economic growth and social development would only remain to be primitive.*

## Economic and Social Infrastructure

Infrastructure is broadly categorised as:

- (1) economic infrastructure, and
- (2) social infrastructure.

Following is a brief description of these concepts:



(1) **Economic Infrastructure:** Economic infrastructure refers to such elements of support system (like power, transport and communication) which serve as a driving force for production activity in the economy.

Abundant availability of power supply would accelerate the pace of production activity; abundant means of transport would facilitate the movement of goods from producers to the consumers, abundant means of communication would facilitate exchange, and so on and so forth.

In the absence of economic infrastructure, it is virtually not possible to develop an efficient system of growth and development.

(2) **Social Infrastructure:** Social infrastructure refers to such elements of support system (like schools, colleges, hospitals and nursing homes) which serve as a driving force for social development of a country. Social development refers to human resource development. It occurs when there is healthy and efficient workforce in the country.

While economic infrastructure accelerates the process of growth, social infrastructure accelerates the process of human development.

Indeed, economic growth is incomplete without human development. Accordingly, economic and social infrastructure are complementary to each other; one reinforces the other.



## ECONOMIC AND SOCIAL INFRASTRUCTURE ARE COMPLEMENTARY TO EACH OTHER

- ❑ Economic and social infrastructure are complementary to each other.
- ❑ Economic infrastructure includes sources of energy, better means of transport and communication, besides efficient system of banking and finance.
- ❑ All these elements of economic change are an essential prerequisite of economic growth.
- ❑ However, these elements (of economic infrastructure) would not be of any use if the bulk of population of a country continues to be illiterate and suffers from disease and sickness. This points to the significance of social infrastructure.
- ❑ Economic infrastructure must be complemented with social infrastructure for growth and development of a country.

## 2. INFRASTRUCTURE AND DEVELOPMENT

Following observations highlight how exactly infrastructure contributes to the process of growth and development:

### (1) Infrastructure Promotes Productivity:

- (i) Productivity in Primary Sector:** Think of agricultural production without permanent means of irrigation. Agricultural production would then depend entirely on rainfall. Farmers would sow the seed only if it rains. If the rainfall is deficient, sowing would also be deficient. It means that, in the absence of permanent means of irrigation (an important component of economic infrastructure), actual output in agriculture would remain lower than the attainable output (or the potential output).
- (ii) Productivity in Secondary Sector:** Think of industrial production without such sources of energy as coal, petroleum and electricity. Perhaps, industrial production would then depend upon wind energy or solar energy. However, these are still underdeveloped sources of energy. Implying, low level of productivity.
- (iii) Productivity in Tertiary Sector:** Come to the tertiary sector. Let us consider tourism as a production activity. Can tourism be a productive activity in the absence of rapid means of transport and communication? Certainly not. In the absence of rapid means of transport and communication, tourism would perhaps exist only as a hobby of the explorers like Columbus and Vasco da Gama.

Thus, across all sectors of economy (primary, secondary and tertiary sectors), high productivity is possible only when we have good infrastructural facilities.

(2) **Infrastructure Induces Investment:** Infrastructure induces investment. **Example:** A developed network of highways would definitely induce investment across all sectors of the economy. Because, it facilitates efficient movement of goods and services across different regions of the country. Infact, infrastructure is the backbone of business investment.

(3) **Infrastructure Generates Linkages in Production:** Developed means of transport & communication, ample sources of energy along with good facilities of banking and insurance would generate inter-industrial linkages. It is a situation when expansion of one industry facilitates the expansion of the other. Accordingly, growth becomes a self-propelling activity of change.

*Linkages in production refers to a situation when expansion of one industry facilitates the expansion of the other. Economic growth becomes a self-propelling activity of change. But, this is possible only when we have ample infrastructural facilities.*

(4) **Infrastructure Enhances Size of the Market:** We know, large-scale production is possible only when size of the market is large. Infrastructure enhances size of the market. It was with a view to expanding size of the market for the British products in India that a network of railways was developed under the British Raj.

*Means of transport are an important component of economic infrastructure. These means are central to the growth of the market, and growth of the market is central to growth of the economy.*

(5) **Infrastructure Enhances Ability to Work:** Here, we are referring to social infrastructure. It includes educational and medical institutions. These institutions promote education, skill formation and healthcare. These are essential parameters to enhance the ability to work. Implying a rise in efficiency and therefore, a rise in productivity. Accordingly, growth process is accelerated.

(6) **Infrastructure Facilitates Outsourcing:** A country having a good infrastructure, emerges as a destination for outsourcing. India is emerging to be global destination for call centres, study centres and medical tourism. It is owing largely to its sound system of social infrastructure.

(7) **Infrastructure Induces FDI:** FDI (Foreign Direct Investment) is instrumental in the growth process in less developed countries like India where domestic investment is very low. Since 1991 (when economic reforms were initiated), FDI inflow in the India economy has substantially increased, thanks to the expanding infrastructure.

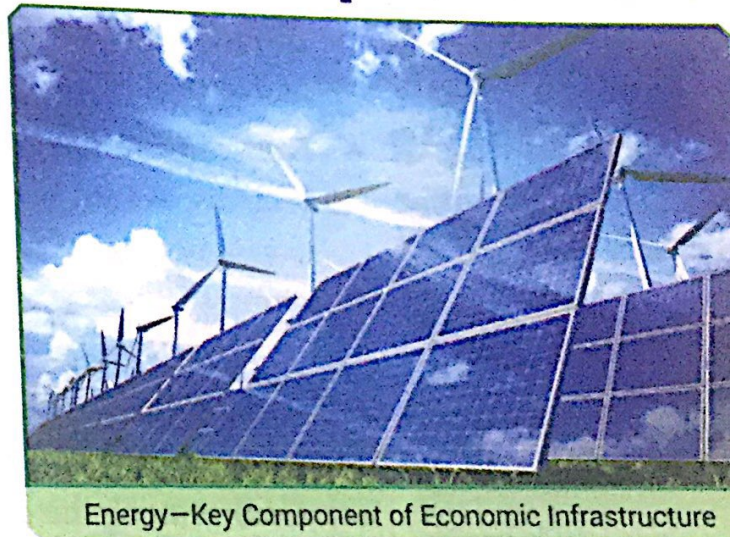
Briefly, we can say that infrastructure is an important determinant of growth and development of a country. It raises productivity of the factors of production, and induces investment in diverse areas of economic activity. It enhances size of the market and develops an economy as a global destination for outsourcing.

### 3. THE STATE OF INFRASTRUCTURE IN INDIA

The state of infrastructure in India is examined with reference to two vital components of infrastructure *viz.*, Energy (as a key component of economic infrastructure) and Health (as a key component of social infrastructure).

#### A. Energy [Key Component of Economic Infrastructure]

Energy is the most important component of economic infrastructure. It is the lifeline of production activity across all sectors of the economy. In the primary sector, energy is a critical input to operate tubewells and tractors. In the secondary sector, energy is a critical input to operate machines (the hub of production activity). In the tertiary sector, energy is crucial input to operate computers (the hub of service sector).



Energy—Key Component of Economic Infrastructure

#### Commercial and Non-Commercial Sources of Energy

Sources of energy are broadly classified as commercial and non-commercial.

- ◆ Coal, petroleum products, natural gas and electricity are the important sources of commercial energy, as these goods are largely used for commercial purposes in the factories and farms. They have an established market of sale and purchase.
- ◆ Firewood, agricultural waste (straw, etc.) and animal waste (cow dung) are the important sources of non-commercial energy, as these goods are generally used in the rural households as consumer goods.

Generally, commercial sources of energy command price while non-commercial do not. Also, commercial sources of energy are exhaustible, while the sources of non-commercial energy are renewable.

### Commercial vs. Non-commercial Energy

	Commercial Energy	Non-commercial Energy
(i) Components (or Sources)	Coal, petroleum products, natural gas, electricity.	Firewood, animal waste, agricultural waste.
(ii) Use	Largely industrial, and for commercial purposes.	Largely domestic, and for consumption purposes.
(iii) Nature of Goods	Goods of commercial energy are traded through the market. These goods command price. There is domestic as well as international market for these goods.	Goods of non-commercial energy are generally procured by the villagers as free goods. Often, these goods do not command price. At best there is a local market for these goods.

#### Growth of Coal use and its changing use-profile

- During the period between 1951 and end of the century, consumption of coal has risen nearly ten times.
- However, its use pattern has undergone a drastic change.
- Non-commercial use of coal (or direct final consumption of coal) has significantly reduced in favour of its commercial use.
- Presently, coal is the principal source of commercial energy in India.

### Conventional and Non-Conventional Sources of Energy

- ◆ Conventional sources of energy are those which have a long history of their knowledge and use. **Example:** Coal, petroleum, natural gas and electricity.
- ◆ Non-conventional sources of energy are those sources which have been discovered or explored only in the recent past and which are yet to gain popularity for their use. **Example:** Solar energy, wind energy, biomass, etc.

#### Conventional Sources

Following are the conventional sources of energy:

(1) **Coal:** Among the conventional sources of energy in India, the most important is coal. Following are some important facts related to coal as the conventional source of energy in India:

- ◆ India is rich in coal production.
- ◆ In 1950-51, production of coal in India was 328 lakh tonnes which increased to 6,764 lakh tonnes in 2017-18.
- ◆ Of the total energy produced in India, 67 per cent consists of coal.
- ◆ It is estimated that India has total reserves of 319 billion tonne of coal (as on 31, March 2018).

#### Two main Producers of Coal are

- (i) Coal India Limited, and
- (ii) Singareni Collieries Company Limited.



The principal consumers of coal are: (i) Thermal power stations using coal to generate electricity, (ii) Steel plants, (iii) Cement factories, (iv) Railways, (v) Fertiliser factories, and (vi) Brick kilns.

However, Indian coal contains large quantity of ash and generates less heat. It hampers efficiency of thermal power stations.

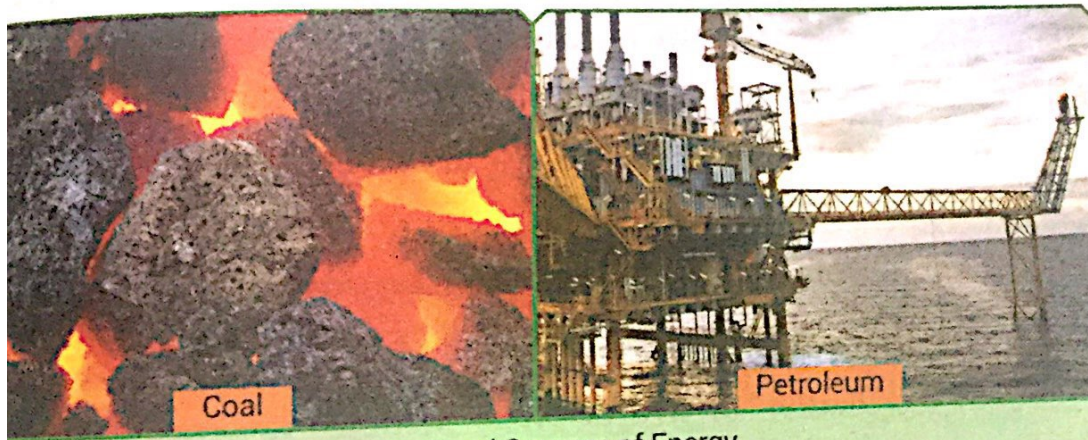
Therefore, some good quality coal (with less ash and more heat) is imported from other countries.

**Petroleum:** It is another conventional source of energy in India.

But production of petroleum in India is far less than its demand. This causes large-scale imports from rest of the world.

Domestic annual production of crude oil has been stagnant at around 36-38 million tonnes in last eight years (from 2010-11 to 2017-18).

The gap between domestic consumption and domestic production has tended to rise over time, causing a significant rise in the volume of imports.



Conventional Sources of Energy

**Natural Gas:** It is equally significant as a conventional source of energy. This is used as a raw material in fertiliser and petroleum products and as cooking gas (LPG) in households.

Main reserves of natural gas are found in Mumbai, Gujarat, Tripura, Andhra Pradesh, Tamil Nadu and Rajasthan.

It may be noted that LPG is also produced as a by-product of crude oil.

### How important is Gas as a New Source of Energy?

- Here, we are referring to natural gas which earlier used to be flared up (burnt) owing to the lack of technology to harness it.
- This gas is liquified and used largely as fuel in the households (LPG is a well-known household name).
- Commercial use of gas by the steel fabricators and other producers is also picking up fast.
- Of late, use of LPG as a fuel for cars and other light vehicles is also being encouraged.
- Production of gas has scaled up from 1.5 billion cubic meters in 1970-71 to nearly 31.90 billion cubic meters in 2016-17.
- However, at the current rate of its production, stocks of natural gas may not last long. Hence, we must conserve the use of LPG as a non-polluting fuel.

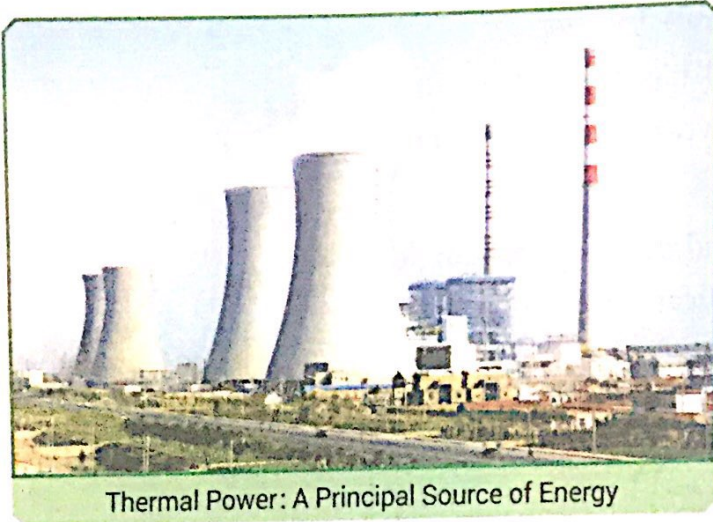
### Did You Know?

- Lignite is quite similar to coal and is also used as a source of energy.
- It is mainly used by those thermal power stations which are close to lignite fields.
- Found largely in Tamil Nadu and Gujarat, India produces nearly 20 million tonnes of lignite in a year.

### Alarming Facts

- ❑ Exploitation of coal reserves and the use of coal for production (as well as consumption) purpose is rising to alarming proportions.
- ❑ It is feared that, if demand for coal continues to rise at the existing rate, the coal supplies of the country may not last longer than 125 years.
- ❑ Continuing with the current rate of production and consumption of crude oil and natural gas, it is not beyond 25 years that we shall exhaust all our stocks.
- ❑ Keeping in mind this fact, we are considering a freeze on the domestic production of crude oil, relying largely on the imports.

(4) **Electricity:** Electricity is the most useful conventional source of energy in India.



Thermal Power: A Principal Source of Energy

Three main sources of electricity in India are:

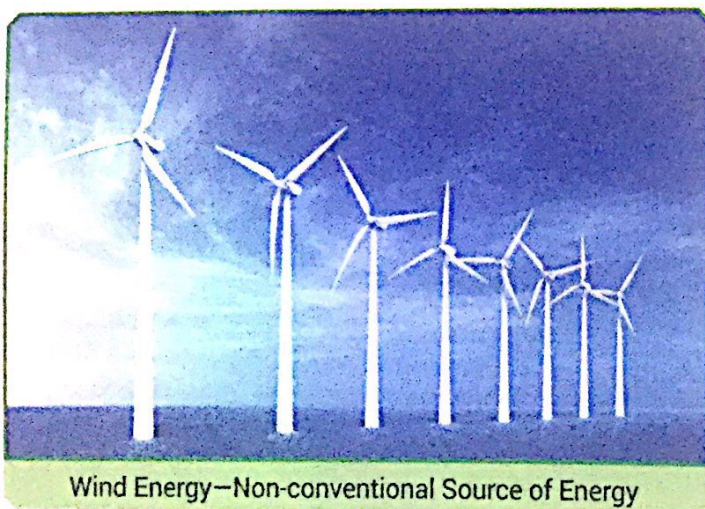
- Thermal Power Stations.
- Hydro-electricity Stations.
- Atomic Power Stations.

After independence, we started relying more on hydro-electricity generation. But over time, we have increasingly switched over to thermal power as a source of electricity.

This is despite the fact that the use of coal in thermal stations causes environmental pollution. Why?

The shift from hydro to thermal has occurred, because:

- we have large reserves of coal, and
- installation of hydroelectric stations involves huge initial investment, besides a long gestation lag.



Wind Energy—Non-conventional Source of Energy

### Non-Conventional Sources

Following are the non-conventional sources of energy:

- Solar energy (energy from the sun),
- Wind energy,
- Biomass energy, including energy in the form of gobar gas,
- Geothermal energy, and
- Energy through tides and waves as well as temperature gradient overseas.

Solar energy and wind energy have been in use in the past (though not on a large-scale) as a source of commercial energy. Other sources of non-conventional energy as stated above are still in their experimentation stage of commercial use.

### Conventional and Non-conventional Sources of Energy

Conventional Sources of Energy	Non-conventional Sources of Energy
(i) These include coal, petroleum and electricity.	(i) These include solar energy, wind energy, biomass energy, etc.
(ii) These are being used as diverse sources of commercial energy over a long period of time.	(ii) Most of these are only in the experimentation stage and are being used as diverse sources of commercial energy only to a little extent.
(iii) In India, conventional sources (coal and petroleum in particular) are being used in total disregard to the environment.	(iii) These are being developed as sources of commercial energy with a view to checking environmental pollution.

**Note:** The principal factor differentiating between conventional and non-conventional sources of energy is that while conventional sources (coal and petroleum in particular) are not environment-friendly, non-conventional sources of energy are environment-friendly.

### BIO ENERGY

This type of energy is obtained from organism or organic matter. It is of two kinds:

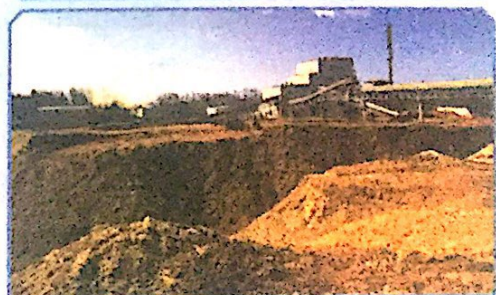
- (i) **Biogas:** It is that source of energy which is obtained from Gobar Gas Plant by putting cow dung (gobar) into the plant. Besides producing gas, this plant converts gobar into manure.

Biogas can also be used for cooking, lighting, heating and generation of electricity. Under the national programme of biogas, till 2014, as many as 47.5 lakh biogas plants had already been established. They produce biogas equivalent to 39 lakh tonnes of fuel wood every year. Institutional biogas plants have also been set-up in the country. These plants provide facilities like cooking of food collectively for the entire community or for lighting the houses, etc.

- (ii) **Biomass:** Biomass is an organic material that comes from plants and animals. It is a source of producing energy through plants and trees. The objective of biomass programme is to encourage afforestation for energy, so that fuel for the generation of energy based on gas technique could be obtained. So far, 643 MW



Biogas



Biomass

Bio-energy

capacity for the generation of biomass energy has been installed. It is proposed to achieve a target for the production of 19,500 MW of energy under biomass programme.

## Primary and Final Sources of Energy

A distinction is often drawn between the primary and final sources of energy which is as under:

### Primary and Final Sources of Energy

Primary Sources	Final Sources
<p>(i) Primary sources of energy are available as free gifts of nature. Example: Coal, Lignite, Petroleum and Gas.</p>	<p>(i) Final sources of energy are non-available as free gifts of nature. These are obtained by converting input into output. Example: Electricity. It is obtained by using coal as an input.</p>
<p>(ii) These are directly used as energy inputs for the production of goods and services. Example: Coal is directly used to run steam engines. It needs no transformation before use.</p>	<p>(ii) These sources are to pass through a process of transformation before they are used as energy inputs. Electricity is used as an energy input only after coal is transformed into electricity.</p>
<p>(iii) These sources can be converted into other forms of energy, like coal can be converted into electricity.</p>	<p>(iii) These sources are used only as final sources of energy input. These cannot be converted into other forms of energy. Thus, electricity cannot be converted into coal.</p>

## Pattern of Energy Consumption in India

We may note the following points in this regard:

- (i) Pattern of energy consumption refers to the percentage use of different sources of energy.
- (ii) Percentage use of different sources of energy can be studied only when different energy sources are converted into some common unit.

In India, different sources of energy are converted into a common unit known as MTOE (million tonne of oil equivalent).

- (iii) Use pattern of energy has undergone a considerable change over time.

Primary sources of energy including coal, lignite, petroleum and natural gas have witnessed a significant reversal in their use pattern. Non-commercial use of these resources which was more than one-third (36 per cent) in 1953-54, increased to nearly three-fourth in 2017-18. Obviously, it implies that between this period (1953-54 to 2017-18), the non-commercial use of the primary sources of energy jumped from one-third to three-fourth.

- (iv) Direct final consumption of coal (referring to non-commercial use of coal) has drastically reduced as a percentage of the total, even when total consumption of coal has risen nearly by a factor of ten. Presently, coal is the principal source of primary energy in India, its consumption amounting to 963.91 million tonnes in 2018-19 compared to just 95 million tonnes in 1980-81.
- (v) Our consumption of oil has considerably increased over time for which we are largely dependent upon the oil-rich gulf countries.
- (vi) Consumption of electricity in agricultural sector has substantially increased over time (500 times in a span of 68 years of the plan-period). However, compared to other sectors, it still continues to be very low.
- (vii) Consumption of electricity in the industrial sector continues to be the highest compared to other sectors (agricultural, commercial, domestic, etc.).

### Sectoral Share of Energy Consumption in India

Following are some notable points with regard to the sectoral share of energy consumption in India:

- (i) Industrial sector has maintained its supremacy in energy consumption, compared to other sectors (transport, agriculture and households). Its consumption is estimated to be nearly 37.8 per cent of the total consumption of commercial energy, compared with 22 per cent consumption of the transport sector, 21.9 per cent consumption of the agricultural sector and 24.3 per cent consumption of the household sector.
- (ii) Consumption of commercial energy is very low in agricultural sector. This suggests the dependence of this sector on manual labour and the use of hand-operated tools and implements. This has led to a low level of productivity in the Indian agricultural sector. Consequently, poverty prevails and the quality of life is miserably low.

*Low use of commercial energy in agricultural sector points to a high degree of dependence on manual labour and a low degree of mechanisation. This has led to a lower level of productivity and prevalence of poverty in the Indian agricultural sector.*

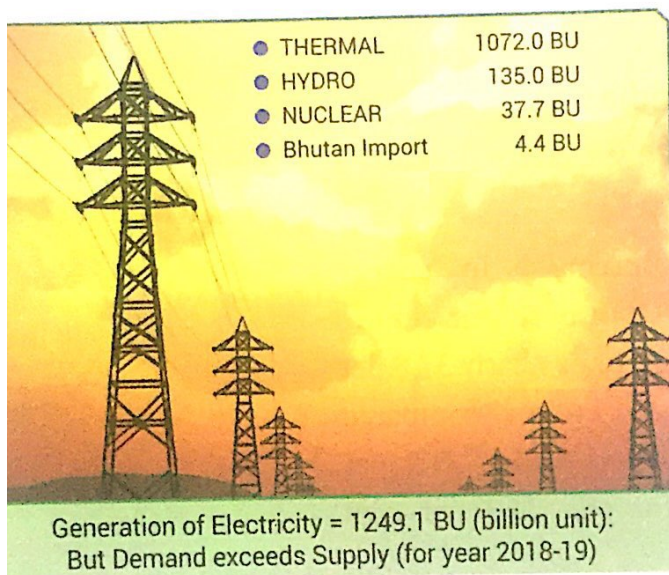
- (iii) Overtime, there has been a fall in percentage consumption of energy of the transport sector, while share of industrial sector has tended to rise. It suggests massive expansion of the industrial sector in India, and a shift from household industry to a factory system of production.

## Emerging Challenges in Power Generation

Power is the most important form of energy. It is commonly called electricity. It is of critical significance in the context of growth and development. Scholars often relate growth rate of power generation to growth rate of GDP. It is believed that power generation ought to be faster than GDP growth. Unfortunately, in India, generation of electricity is emerging to be a serious challenge and a bottleneck in the process of growth and development.

This is borne out by the following points:

- (1) **Inadequate Generation of Electricity:** In spite of a total installed power generation capacity of about 3,64,960.14 MW (as of November, 2019), India is still struggling to meet the surging demand for power.



India's Central Electricity Authority anticipated, for 2017-18 fiscal year, power deficit to be 0.6 per cent.

In the last financial year, the energy shortage was 0.7 per cent.

Excess of demand over supply has given rise to many problems. These are the problems of (i) excessive load on distribution, (ii) low voltage, (iii) voltage fluctuation, (iv) power cuts, etc.

It is imperative to increase supply to meet with the rising demand.

- (2) **Less Capacity Utilisation:** In India, there is an under-utilisation of production capacity of thermal power stations.

Capacity utilisation is indicated by Plant Load Factor (PLF).  
[PLF = electricity generated ÷ production capacity]

In 2018-19, PLF in India was nearly 61.07 per cent. It means just 60 per cent of electricity is available, the rest goes waste.

- (3) **Transmission and Distribution (T&D) Losses:** In Delhi, transmission and distribution losses of electricity are close to the tune of 50 per cent of electricity production.

In most states of the country, it is more than 20 per cent.

It may partly be due to our backward technology but largely due to pilferage involving the official staff.

It is owing to the mounting T&D losses that most states are now going in for privatisation of the distribution network.

(4) **Losses of Electricity Boards:** Production and distribution of electricity in India is the near monopoly of the government.

Electricity is distributed by State Electricity Boards (SEBs).

At present, almost all the electricity boards are running into huge losses.

They do not have funds to make payment for the electricity purchased by them.

In 2016-17, these boards suffered overall commercial loss of ₹ 40,295 crore. This is explained in terms of the following factors:

(i) theft of electricity, (ii) loss of electricity during the course of transmission, and (iii) free supply of electricity.

### **Coping with the Challenge of Power Generation**

The challenge of power generation can be met through the following measures:

(1) **Increase Production Capacity:** Production capacity or installed capacity needs to be raised to improve the supply of electricity across all sectors of the economy.

(2) **Improve Plant Load Factor:** Plant Load Factor (PLF) needs to be improved so that the existing capacity is fully utilised.

(3) **Minimise the Transmission and Distribution Losses:** Transmission and distribution losses must be minimised so that the actual availability of electricity improves. However, this requires huge investment on the maintenance and upgradation of the existing plants. Indeed, it is a difficult task.

(4) **Improve Supply of Inputs to Power Plants:** Thermal power plants in India (often suffering the shortage of inputs) need regular supplies of coal. This would ensure fuller utilisation of the existing plant capacity.

(5) **Encourage Privatisation and FDI in Power Generation:** Private sector is yet to play a significant role in the generation of power in India. The government must encourage their participation. Also, FDI (Foreign Direct Investment) in power generation should be encouraged.

## Let us be Conservative in the use of Electricity

- ❑ While the urgency of increased electricity generation is not denied, it is equally important that the users (including households and the producers) should learn to minimise the use of electricity as much as possible.
- ❑ We can focus on the use of energy-efficient electric appliances, as well as energy-saving lighting-devices.

## B. Health [Key Component of Social Infrastructure]



Health: Key Component of Social Infrastructure

Health means a sound physical and mental state of the individual. It does not simply mean absence of disease.

Good health implies the following:

- increase in overall efficiency to handle difficult tasks,
- increase in productivity of labour, and
- increase in mental abilities.

## Development of Health Services after Independence

There has been a substantial improvement of health facilities after independence. Following observations prove this point:

- (1) Decline in Death Rate:** Death rate has come down from as high as 27 per thousand in 1951 to 6.3 per thousand in 2017.
- (2) Reduction in Infant Mortality Rate:** Infant mortality rate (referring to death of the infants up to 1 year of age) has significantly reduced from 146 per thousand in 1951 to 32 per thousand in 2017.
- (3) Rise in Expectancy of Life:** Expectancy of life has risen from 32 years in 1951 to 69.4 years in 2018.
- (4) Control over Deadly Diseases:** Deadly diseases like malaria, tuberculosis (TB), cholera and smallpox have been brought under control.
- (5) Decline in Under-five Mortality Rate:** Under-five mortality rate has declined significantly from 248 per thousand in 1960 to 39 per thousand in 2017.

### Essential Indicators of Good Health

- Low Death Rate
- Low Infant Mortality Rate
- High Expectancy of Life
- Low Incidence of Deadly Diseases
- High Nutrition Levels

### Female Life Expectancy is greater than Male Life Expectancy

- It is 70 years for females compared to 66.9 years for male.
- It is a pointer towards a significant improvement in healthcare in India.



Following table indicates expansion of health services in India between the period 1951-2017.

**Table 1. Expansion of Health Services**

Item	1951	2017
1. Medical Colleges	28	460
2. Dispensaries and Hospitals (All)	9,209	55,223
3. Community Health Centres (CHCs), Primary Health Centres and Sub-Centres	725	1,87,505
4. Number of Beds in Hospitals (Private and Public)	3.2	13,76,013 (2013)
5. Doctors	61,840	18,15,063
6. Nurses	18,054	28,21,815
7. Number of Doctors per 10,000 population	1.7	13.96

Source: National Health Profile, 2018

- (i) Significant it is to note that the number of dispensaries and hospitals has increased from a little over 9,200 to approximately 55,223.
- (ii) Also, there has been a substantial rise in the number of doctors from nearly 62,000 to more than 18,15,063.
- (iii) Expansion of healthcare facilities has been so significant that there is a complete eradication of smallpox from India which at one time used to be a deadly disease in the country.

To improve health facilities to its citizens, government announced National Health Policy, 2017. Government has launched Ayushman Bharat (National Health Protection Mission) to provide health insurance of ₹5 lakh per family per year to poor households in the country.

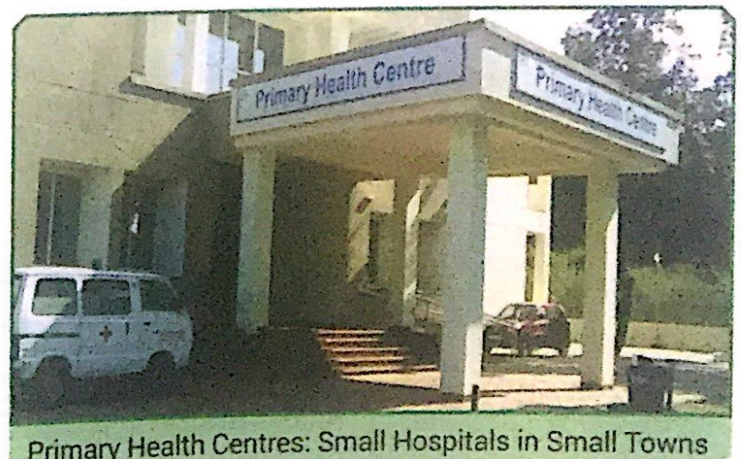
### Healthcare System in India

India has a three-tier healthcare system, as under:

**Tier-1** includes PHC (Primary Health Centres), CHC (Community Health Centres), and Sub-centres

- (i) These are small hospitals (or healthcare centres) set-up mostly in small towns and rural areas, and managed by the single doctor and ANM (Auxiliary Nursing Midwife).
- (ii) These centres focus on educating people on issues relating to healthcare, and provide immunisation facilities against infectious diseases.
- (iii) Preliminary treatment is offered to patients within the manageable limits.

It may be noted that community health centres often work as referral centres for the primary health



Primary Health Centres: Small Hospitals in Small Towns

## Medical Tourism

- Medical tourism is choosing to travel outside your local area for medical services. It is also known as medical travel or health tourism.
- Medical tourism is a growing sector in India. India's medical tourism is expected to grow at the rate of 30 per cent.
- Medical tourism is attractive for the patients from developed countries due to cost advantage and for the patients from poor countries due to better quality.
- Cost of major surgeries in India is just 10 per cent of that in developed countries.



## GBD (Global Burden of Disease)

- GBD is an indicator used to assess (i) the number of premature deaths due to a particular disease, and (ii) the duration of disability of the persons suffering from that disease.
- We can be proud of habitating 1/7th of the world population, but we also have the dubious distinction of carrying 20 per cent of GBD.

## Tier-2 includes Secondary Healthcare Institutions

These institutions are upgraded (compared to PHC) and have facilities for surgery, ECG and X-rays. They are located in big towns and district headquarters.

## Tier-3 includes Tertiary Healthcare Centres

- (i) These are high-end and fully equipped medical centres, offering specialised medical facilities.
- (ii) The tertiary sector also includes educational and research centres such as AIIMS (All India Institute of Medical Sciences, New Delhi), PGI (Post Graduate Institute, Chandigarh), and NIMHNS (National Institute of Mental Health and Neuro Sciences, Bengaluru).

## Private Sector Health Infrastructure

Here, following are some notable observations:

- (i) The private sector accounts for more than 80 per cent of total healthcare spending in India.
- (ii) Of those seeking treatment, 78 per cent rural and 81 per cent urban patients are availing private non-institutional (out-patient) facilities and 58 per cent rural and 62 per cent urban are going to private hospitals.
- (iii) Private sector in healthcare has gained a dominant presence in all the sub-markets—medical education and training, medical technology and diagnostics, manufacture and sale of pharmaceuticals, hospital construction and finally, the provision of medical services.
- (iv) At the time of independence, the private sector in India accounted for only 8 per cent of healthcare facilities. But today, 93 per cent of hospitals, 64 per cent of beds and 80-85 per cent of doctors belong to private sector health infrastructure.

Thus, private sector has emerged as the dominant source of healthcare services in India.

## Health as an Emerging Challenge

Consistent efforts since independence have produced good results in the area of health, a key component of social infrastructure. As already noted, it is significant that: (i) death rate has substantially reduced, (ii) birth rate has significantly declined, (iii) infant mortality has come down, (iv) expectancy of life has risen, and (v) epidemic deaths have substantially reduced. Yet, healthcare in India continues to be a challenge.

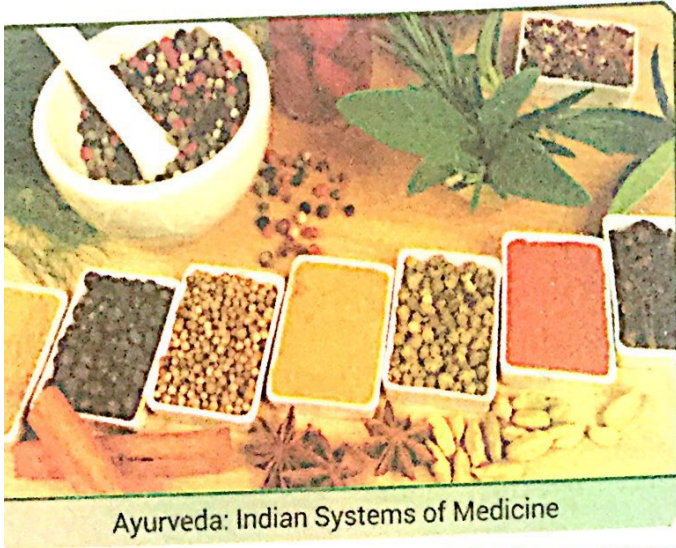
Following observations highlight how healthcare is an emerging challenge.

- (1) **Unequal Distribution of Healthcare Services:** Distribution of healthcare services is extremely unequal across rural and urban sectors of the country. Most of the healthcare facilities have been confined to the urban areas.
- (2) **Communicable Diseases:** Communicable diseases like AIDS (Acquired Immune Deficiency Syndrome), HIV (Human Immunodeficiency Virus) and SARS (Severe Acute Respiratory Syndrome) are raising their ugly heads and are posing a serious threat to the society.
- (3) **Poor Management:** There is a substantial mismatch between the number of patients and the number of healthcare centres. Health personnel are grossly inadequate particularly in the rural areas, and often the rural folk have to rush to the urban healthcare centres or be the victims of local quacks (un-authorised doctors).
- (4) **Privatisation:** The government is gradually moving towards privatisation of healthcare services. The number of private hospitals is surging in place of government hospitals. Consequently, healthcare is becoming increasingly expensive and beyond the reach of the millions in India.
- (5) **Poor Upkeep and Maintenance:** Upkeep and maintenance of the government healthcare centres is very poor. The quality difference between private and public hospitals is so huge that the people are often compelled to depend on private treatment, even when not affordable.
- (6) **Poor Sanitation Level:** Sanitation level is extremely poor both in the rural and urban areas in India. Sanitation infrastructure has two functions:
  - ◆ to make clean surroundings where we live and work,
  - ◆ to arouse awareness of sanitation among the masses and encourage their participation in awareness programmes.

In both these areas, we are way behind the international standards. It has been found that nearly 30 per cent of the houses have no toilet facilities in the urban areas. In the urban slums, sanitation is absolutely miserable: slum dwellers are highly prone to disease and disasters. Rural sanitation is still worse. In a recent survey of 150 districts in India, kachcha latrines are found to be a luxury. Rural population does not have even 20 per cent of the required sanitary facilities. However, it is noteworthy to acknowledge the efforts of the government towards achieving universal sanitation coverage through 'Swachh Bharat Mission', a flagship scheme of the government, which aims to achieve a Swachh Bharat by 2019.

Briefly, we can state that healthcare in India, though it has significantly improved over time, is still way behind the developed countries of the world. To illustrate the above fact, while health expenditure is nearly 15 per cent of GDP in USA, in India, it is merely 5 per cent. In India, government share in total expenditure on healthcare is about 20 per cent, contrasting with 50 per cent in USA. The government is still to go a long way in expanding healthcare facilities in India.

### Indian Systems of Medicine (ISM)



Ayurveda: Indian Systems of Medicine

Indian systems of medicine are the systems of medicine which are considered to be Indian in origin or which have come to India from outside and got assimilated into Indian culture. India has six recognised systems of medicine in this category. These are: Ayurveda, Yoga, Unani, Sidha, Naturopathy and Homeopathy (AYUSH). As on April 1, 2015, there are 3,632 ISM hospitals, 26,325 dispensaries, 58,020 beds, 7,44,563 registered practitioners, 544 under-graduate colleges and 170 post-graduate colleges in India.

### RURAL-URBAN AND RICH-POOR DIVIDE

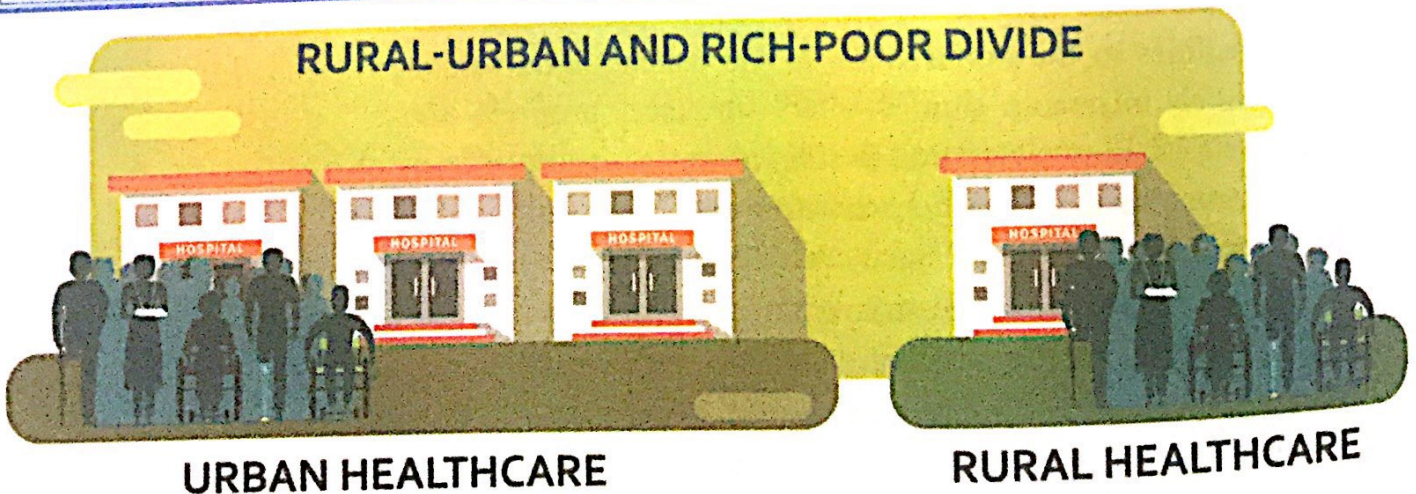
Health infrastructure is significantly biased in favour of the rich and in favour of the urban areas. While about 70 per cent of the country's population lives in rural areas, 80 per cent of the hospitals are located in urban areas. Percentage of population having access to proper medical care is just about 25 per cent and access to specialised medical care is insignificant, if not listless.

Another bitter truth: while the rich are to spend only 2 per cent of their income on healthcare, the poor are to spend as much as 12 per cent of their income on healthcare. Implying a debt-trap for the poor as and when expenditure on healthcare becomes essential.

### WOMEN'S HEALTH

Women in India suffer from a serious neglect not only in the area of education, but in the area of healthcare as well. More than 50 per cent of women in India in the age group of 15-49 years suffer from nutritional deficiency. Female foeticide is a common practice, causing a decline in sex ratio (from 946 in 1951 to 940 in 2011) and suggesting a social bias of healthcare against women in the country.

### RURAL-URBAN AND RICH-POOR DIVIDE



URBAN HEALTHCARE

RURAL HEALTHCARE

## Power Points & Revision Window

- **Infrastructure:** It refers to support system of economic and social development of a country, without which economic growth and social development is not possible.
- **Economic Infrastructure:** It refers to such elements of support system (like power, transport and communication) which serve as a driving force for production activity in the economy.
- **Social Infrastructure:** It refers to such elements of support system (like schools, colleges and hospitals) which serve as a driving force for social development of the country.
- **Infrastructure Contributes to Development** in a variety of ways: (i) Infrastructure promotes productivity, (ii) Infrastructure induces investment, (iii) Infrastructure generates linkages in production, (iv) Infrastructure enhances size of the market, (v) Infrastructure enhances ability to work, (vi) Infrastructure facilitates outsourcing, (vii) Infrastructure induces FDI.
- **Energy:** An important component of economic infrastructure.
  - **Forms and Sources:**
    - (i) Commercial and non-commercial energy.
    - (ii) Conventional and non-conventional sources of energy.
    - (iii) Primary and final sources of energy.
- **Pattern of Energy Consumption in India:** Direct final consumption of coal has reduced over time, though its total consumption (including coal as an input for other forms of energy) has substantially risen.
  - **Consumption of oil** has substantially risen over time, and so has our dependence on other countries for oil.
  - **Consumption of electricity** in agricultural sector has substantially risen over time, but still continues to be dismally low compared with other sectors of the economy. Industrial sector continues to be the biggest user of electricity in India.
- **Electricity as an Emerging Challenge:** Because: (i) Inadequate generation of electricity, (ii) Less capacity utilisation, (iii) Transmission and distribution losses, (iv) Losses of electricity boards.
  - **Coping with this challenge,** we should: (i) Increase production capacity, (ii) Improve plant load factor, (iii) Minimise the T&D losses, (iv) Improve the supply of inputs to power plants, (v) Encourage privatisation and FDI in power generation.
- **Health:** An important component of social infrastructure.
- **Development of Health Services after Independence:** (i) Decline in death rate, (ii) Reduction in infant mortality rate, (iii) Rise in expectancy of life, (iv) Control over deadly diseases, (v) Decline in under-five mortality rate.
- **Health as an Emerging Challenge:** Because: (i) Unequal distribution of healthcare services, (ii) Communicable diseases (like AIDS, HIV) are rising, (iii) Poor management of healthcare services, (iv) Increasing privatisation, (v) Poor upkeep and maintenance, (vi) Poor sanitation level.

# EXERCISE

## 1. Objective Type Questions (Remembering & Understanding based Questions)

### A. Multiple Choice Questions

Choose the correct option:

- Which of the following is considered as social infrastructure?  
(a) Transport (b) Education  
(c) Communication (d) Energy
- Which of the following is not a type of commercial energy?  
(a) Firewood (b) Natural gas  
(c) Coal (d) Electricity
- Which of the following is considered as non-conventional energy?  
(a) Solar energy (b) Wind energy  
(c) Biomass (d) All of these
- Infrastructure facilitates:  
(a) outsourcing (b) industrial linkages  
(c) investment (d) all of these
- Which of the following is an essential indicator of good health?  
(a) Low death rate (b) High expectancy of life  
(c) Low infant mortality rate (d) All of these
- Health infrastructure in India is biased against:  
(a) the rich (b) the poor  
(c) both (a) and (b) (d) none of these
- Global Burden of Disease (GBD) as an indicator is used to assess:  
(a) the quantity of life (number of years) lived by the people  
(b) the quality of (disease free) life lived by the people  
(c) both the quantity and quality of life lived by the people  
(d) none of these
- Such elements of support system which serve as a driving force for production activity in the economy is referred to as:  
(a) economic infrastructure (b) social infrastructure  
(c) both (a) and (b) (d) none of these
- Infrastructure contributes to growth and development on account of which of the following?  
(a) It promotes productivity  
(b) It generates linkages in production  
(c) It reduces the size of the market  
(d) Both (a) and (b)

10. With respect to coal as the conventional source of energy, choose the correct statement.
- India is deficient in coal production
  - Of the total energy produced in India, 67 per cent consists of coal
  - The principle consumers of coal are thermal power stations, steel plants among others
  - Both (b) and (c)
11. With respect to sectoral share of energy consumption in India, choose the correct statement.
- Industrial sector has maintained its supremacy in energy consumption
  - Consumption of commercial energy is high in rural areas
  - Overtime, there is a fall in energy consumption of transport sector
  - Both (a) and (c)
12. Which of the following are the emerging challenges in power generation in India?
- Inadequate generation of electricity
  - Less capacity utilisation
  - Transmission and distribution losses
  - All of these
13. Which of the following facts illustrate the development of health services after independence in India?
- |                                  |                             |
|----------------------------------|-----------------------------|
| (a) Decline in death rate        | (b) Rise in life expectancy |
| (c) Control over deadly diseases | (d) All of these            |

### Answers

1. (b)    2. (a)    3. (d)    4. (d)    5. (d)    6. (b)    7. (c)    8. (a)    9. (d)    10. (d)  
 11. (d)    12. (d)    13. (d)

### B. Fill in the Blanks

Choose appropriate word and fill in the blank:

- \_\_\_\_\_ infrastructure accelerates the process of economic growth. (Economic/Social)
- Economic and social infrastructure are \_\_\_\_\_ to each other. (complementary/competitive)
- \_\_\_\_\_ is the most important component of economic infrastructure. (Energy/Hospital)
- Wind energy is a \_\_\_\_\_ source of energy. (conventional/non-conventional)
- \_\_\_\_\_ is a source of energy obtained from global gas plants by putting cow dung into the plant. (Biomass/Biogas)
- India has \_\_\_\_\_ healthcare system. (two-tier/three-tier)
- \_\_\_\_\_ health centres focus on educating people on issues relating to healthcare. (Community/Primary)
- \_\_\_\_\_ sector accounts for more than 80 per cent of the total healthcare spending in India. (Private/Public)
- Infrastructure \_\_\_\_\_ size of the market. (reduces/enhances)

10. \_\_\_\_\_ healthcare centres are high-end and fully equipped medical centres.  
(Secondary/Tertiary)

**Answers**

- |             |                  |            |                     |
|-------------|------------------|------------|---------------------|
| 1. Economic | 2. complementary | 3. Energy  | 4. non-conventional |
| 5. Biogas   | 6. three-tier    | 7. Primary | 8. Private          |
| 9. enhances | 10. Tertiary     |            |                     |

**C. True or False**

State whether the following statements are True or False:

- |  |              |
|--|--------------|
| 1. Social infrastructure accelerates the process of human development.   | (True/False) |
| 2. Schools, colleges, hospitals are elements of economic infrastructure.   | (True/False) |
| 3. Infrastructure generates linkages in production.  | (True/False) |
| 4. Goods of non-commercial energy are generally procured by the villagers as free goods.   | (True/False) |
| 5. The shift from hydro-electricity stations to thermal power stations has occurred because it is very cheap to import coal.   | (True/False) |
| 6. Biogas is a source of energy produced from plants and trees.  | (True/False) |
| 7. There is a need to encourage privatisation and FDI in power generation to cope with the challenge of power generation in India.   | (True/False) |
| 8. Community health centres often work as referral centres for primary health centres.   | (True/False) |
| 9. Private sector has emerged as the dominant source of healthcare services in India.  | (True/False) |
| 10. Indian systems of medicine are the systems of medicine which are considered to be Indian in origin or which have come to India from outside and got assimilated into Indian culture. | (True/False) |

**Answers**

1. True    2. False    3. True    4. True    5. False    6. False    7. True    8. True    9. True    10. True

**D. Matching/Chronological**

I. From the set of statements given in Column I and Column II, choose the correct pair of statements:

Column I	Column II
(a) Economic infrastructure	(i) Accelerates the process of human development
(b) Natural gas	(ii) Non-conventional source of energy
(c) Power generation in India	(iii) Optimum capacity utilisation
(d) AIIMS	(iv) Tertiary healthcare centre

**Answer**

(d) AIIMS— (iv) Tertiary healthcare centre



II. Identify the correct sequence of alternatives given in Column II by matching them with respective items in Column I:

Column I	Column II
(a) Economic infrastructure	(i) A conventional source of energy
(b) Petroleum	(ii) Available as free gifts of nature
(c) Primary sources of energy	(iii) Have facilities for surgery and ECG
(d) Secondary healthcare institutions	(iv) Means of transport

Answers

(a)—(iv), (b)—(i), (c)—(ii), (d)—(iii)

### E. 'Very Short Answer' Objective Type Questions

1. Define infrastructure.

Ans. Infrastructure refers to support system of economic and social development of a country.

2. Define economic infrastructure.

Ans. Economic Infrastructure refers to such elements of support system (like power, transport and communication) which serve as a driving force for production activity in the economy.

3. Define social infrastructure.

Ans. Social infrastructure refers to such elements of support system (like schools, colleges, hospitals and nursing homes) which serve as a driving force for the process of social development of a country.

4. Why is energy a component of infrastructure?

Ans. Energy is the lifeline of entire production activity. We cannot think of a day when we can do without electricity power, oil or diesel.

5. Why is healthcare a component of infrastructure?

Ans. Healthcare service is a component of social infrastructure as it is a key element in the production of healthy and efficient manpower in the country.

6. What is medical tourism?

Ans. Medical tourism is choosing to travel outside your local area for medical services.

7. What are primary healthcare centres in India?

Ans. Primary healthcare centres are small hospitals set-up mostly in small towns and rural areas and managed by a single doctor.

8. What are secondary healthcare centres in India?

Ans. Secondary healthcare centres are upgraded healthcare centres (compared to PHC) and have facilities for surgery, ECG and X-rays. They are located in big towns and district headquarters.

9. What are tertiary healthcare institutions in India?

Ans. Tertiary healthcare institutions are high-end and fully equipped medical centres, offering specialised medical facilities.

## 2. Reason-based Questions (Comprehension of the Subject-matter)

Read the following statements carefully. Write True or False with a reason.

1. Infrastructure generates linkages in production.

Ans. True. Reason: Provision of infrastructural facilities at one place (like SEZ—special economic zone) induces investment across several areas of production which are linked to each other. A car manufacturing unit at one place (owing to infrastructural facilities like of transport, communication and banking) would certainly attract investment in inter-linked areas of production activities (like manufacturing of nuts and bolts and other inputs needed for the production of cars).

2. Infrastructural facilities raises productivity in tertiary sector of the economy.

Ans. True. Reason: Infrastructural facilities include rapid and efficient means of transport and communication. Such facilities are essential ingredients in the provision of such services as of education, health, banking and insurance (the core components of tertiary sector).

3. Non-conventional sources of energy are more environment-friendly than the conventional sources.

Ans. True. Non-conventional sources of energy include solar energy, wind energy and biomass. All of these sources are non-polluting, and are therefore, environment-friendly. Conventional sources, on the other hand, include coal and petroleum, the use of which leads to air pollution. These are not environment-friendly.

4. GDP growth is related to the generation of electricity in the economy.

Ans. True. Because, electricity is the core element of energy used across all sectors of the economy. Higher the generation of electricity, higher would be the GDP growth. Thus, generation of electricity is much higher in developed countries compared to the less developed countries.

5. Decline in death rate is a pointer to the growth of social infrastructure in the economy.

Ans. True. Because, growth of social infrastructure leads to improved healthcare facilities. In turn, improved healthcare facilities lead to a fall in death rate.

6. Privatisation of healthcare is a hurdle in the provision of healthcare facilities across rural areas of the country.

Ans. True. Reason: Private sector provides healthcare for profit. People in the rural areas are relatively poor and cannot afford expensive medical care. Accordingly, most medicare facilities (in the private sector) are confined to the urban areas.

7. Use of non-commercial energy leads to environmental degradation.

Ans. True. Reason: Firewood is the key component of non-commercial energy. People in the rural areas obtain firewood largely by way of tree-felling. It leads to environmental degradation.

# "ASSIGNMENT"

DATE

11

- Q:1 → Explain the term 'infrastructure'.
- Q:2 → Infrastructure contributes to the economic development of a country. Do you agree? Explain.
- Q:3 → What is the state of rural infrastructure in India?
- Q:4 → What are the three basic sources of generating power?
- Q:5 → How are the rates of consumption of energy and economic growth connected?
- Q:6 → What problems are being faced by the power sector in India?
- Q:7 → Discuss the reforms which have been initiated recently to meet the energy crisis in India.
- Q:8 → What are the main characteristics of health of the people of our country?
- Q:9 → What is a 'global burden of disease'?
- Q:10 → Discuss the main drawbacks of our health care system.
- Q:11 → Describe the meaning of Public health. Discuss the major public health measure undertaken by the State in recent years to control diseases.
- Q:12 → How can we increase the effectiveness of health care - programmes?