

# PART - A : FUNDAMENTALS OF HUMAN GEOGRAPHY

## UNIT – I: HUMAN GEOGRAPHY

### CHAPTER-1

## HUMAN GEOGRAPHY: NATURE AND SCOPE



### Revision Notes

- This chapter broadly covers and introduces the nature of geography.
- As you know, geography as a field of study is integrative, empirical and practical. Thus, the reach of geography is extensive and each and every event or phenomenon which varies over space and time can be studied geographically.
- **Physical geography** studies physical environment and human geography studies “the relationship between the physical/natural and the human worlds, the spatial distributions of human phenomena and how they come about, the social and economic differences between different parts of the world”.
- **Human geography** studies the inter-relationship between the physical environment and socio-cultural environment created by human beings through mutual interaction with each other.
- Human beings interact with their physical environment with the help of technology.
- Technology indicates the level of cultural development of the society. Human beings were able to develop technology after they developed better understanding of natural laws.
- The knowledge about nature is extremely important to develop technology and technology loosens the shackles of environment on human beings.
- In the early stages of their interaction with their natural environment, humans were greatly influenced by it. This type of interaction between primitive human society and strong forces of nature was termed as environmental determinism.
- There is a direct dependence of human beings on mother nature for resources, which sustain them. The physical environment for such societies becomes the “Mother Nature”.
- With social and cultural development, humans develop better and more efficient technology. They move from a state of necessity to state of freedom.
- They create possibilities with the resources obtained from the environment. Human activities create cultural landscape. The imprints of human activities are created everywhere: health resorts on highlands, huge urban sprawls, fields, orchards and pastures in plains and rolling hills, ports on the coasts, oceanic routes on the oceanic surface and satellites in the space. The earlier scholars termed this as **possibilism**.
- Nature provides opportunities and human beings make use of these and slowly nature gets humanised and starts bearing the imprints of human endeavour.
- Griffith Taylor, a geographer, introduced another concept which reflects a middle path (Madhyam Marg) between the two ideas of environmental determinism and possibilism. He termed it as **neo-determinism** or **stop and go determinism**.
- The concept shows that neither is there a situation of absolute necessity (environmental determinism) nor is there a condition of absolute freedom (**possibilism**). It means that human beings can conquer nature by obeying it.
- It means that possibilities can be created within the limits which do not damage the environment, and there is no free run without accidents.
- The free run which the developed economies attempted to take has already resulted in the greenhouse effect, ozone layer depletion, global warming, receding glaciers and degrading lands.
- The process of adaptation, adjustment with and modification of the environment started with the appearance of human beings over the surface of the earth in different ecological niches.
- Thus, if we imagine the beginning of **human geography** with the interaction of environment and human beings, it has its roots deep in history.
- **Welfare** or **humanistic school of thought** in **human geography** was mainly concerned with the different aspects of social well-being of the people.
- **Radical school of thought** employed Marxian Theory to explain the basic cause of poverty, deprivation and social inequality.
- **Behavioural school of thought** laid great emphasis on live experience and also on the perception of space by social categories based on ethnicity, race, religion, etc.

- The **human geography** assumes a highly inter-disciplinary nature. It develops close interface with other sister disciplines in social sciences in order to understand and explain human elements on the surface of the earth.



## Key Words

- **Physical Geography:** Physical geography is the study of the processes that shape the Earth's surface, the animals and plants that inhabit it, and the spatial patterns they exhibit.
- **Human geography:** It is the study of inter-relationship between the physical environment and socio-cultural environment created by human beings through mutual interaction with each other.
- **Possibilism:** Nature provides opportunities and humans avail of these opportunities. It is called 'Possibilism'.
- **Neo-determinism:** It believes that if human activities (pollution) cause long-term damage to the environment then such activities should be stopped otherwise humans can do everything that the environment allows us to do.
- **Humanistic school of thought:** It is mainly concerned with the different aspects of social well-being of the people. These included aspects such as housing, health and education.
- **Radical school of thought:** This school of thought has a strong base in Humanism which employed Marxian Theory to explain the basic cause of poverty, deprivation, and social inequality.
- **Behavioural school of thought:** This school of thought maintains that behaviours can be described scientifically without recourse either to internal physiological events or to hypothetical constructs such as thoughts and beliefs.

## UNIT – II: PEOPLE

### CHAPTER-2

## THE WORLD POPULATION & POPULATION CHANGE

### Topic-1

### Pattern of Population Distribution in the World, Density of Population, Factors Influencing Distribution of Population

**Concepts Covered** • Uneven distribution of world population, limited capacity of the land to support the people living on it, varied factors which influence the distribution of population across the globe.



## Revision Notes

- At the beginning of 21<sup>st</sup> century, the world recorded the presence of over six billion population.
  - The population of the world is unevenly distributed.
  - The term **population distribution** refers to the way people are spaced over the earth's surface. Broadly, 90 per cent of the world population lives in about 10 per cent of its land area.
  - The 10 most populous countries of the world contribute about 60 per cent of the world's population. Of these 10 countries, six are located in Asia.
  - Each unit of land has limited capacity to support people living on it. Hence, it is necessary to understand the ratio between the number of people to the size of land.
  - **Factors influencing the distribution of population are:**
- (a) **Geographical Factors:**
- Availability of water:** It is the most important factor for life. So, people prefer to live in areas where fresh water is easily available. It is because of this, river valleys are among the most densely populated areas of the world.
  - Landforms:** People prefer living on flat plains and gentle slopes. This is because such areas are favourable for the production of crops and to build roads and industries. The Ganga Plains are amongst the most densely populated areas of the world while the mountain zones in the Himalayas are scarcely populated.

- (iii) **Climate:** An extreme climate such as very hot or cold deserts are uncomfortable for human habitation. Areas with a comfortable climate, where there is not much seasonal variation attract more people. **Mediterranean regions** were inhabited from early periods in history due to their pleasant climate.
- (iv) **Soils:** Fertile soils are important for agricultural and allied activities. Therefore, areas which have fertile **loamy soils** have more people living on them as these can support intensive agriculture.
- (b) **Economic Factors:**
- (i) **Minerals:** Areas with mineral deposits attract industries. Mining and industrial activities generate employment. Katanga Zambia copper belt in Africa is one such good example.
- (ii) **Urbanisation:** Cities offer better employment opportunities, educational and medical facilities, better means of transport and communication. Mega cities of the world continue to attract large number of migrants every year.
- (iii) **Industrialisation:** Industrial belts provide job opportunities and attract large numbers of people. The Kobe-Osaka region of Japan is thickly populated because of the presence of a number of industries.
- (c) **Social and Cultural Factors:**
- (i) Some places attract more people because they have religious or cultural significance. In the same way, people tend to move away from places where there is social and political unrest.



## Key Words

- **Population distribution:** It refers to the way people are spaced over the earth's surface.
- **Density of Population:** The ratio between the number of people to the size of land. The number of people living per unit area. The number of people living per sq. km. is called density of population.
- **Mediterranean regions:** It refers to the region surrounding the Mediterranean Sea.
- **Loamy soil:** Soil containing sand, silt and clay is defined as loamy soil.

## Topic-2

## Population Growth, Components of Population Change

**Concepts Covered** • Population growth of a region, factors responsible for the change in population size.



## Revision Notes

- The **population growth or population change** refers to the change in the number of inhabitants of a territory during a specific period of time.
- **Population change** in an area is an important indicator of economic development, social upliftment and historical and cultural background of the region.
- There are three components of **population change** – births, deaths and migration.
- The **Crude Birth Rate (CBR)** is expressed as number of live births in a year per thousand of population in a particular region.
- Death rate plays an active role in population change. **Population growth** occurs not only by increasing birth rate but also due to decreasing death rate.
- Apart from birth and death, there is another way by which the population size changes. It is called as migration.
- Migration may be permanent, temporary or seasonal. It may take place from rural to rural areas, rural to urban areas, urban to urban areas and urban to rural areas.
- People migrate for a better economic and social life. There are two sets of factors that influence migration: push factor and pull factor.
- The push factors make the place of origin seem less attractive for reasons like unemployment, poor living conditions, political turmoil, unpleasant climate, etc.
- The pull factors make the place of destination seem more attractive than the place of origin for reasons like better job opportunities, living conditions, etc.



## Key Words

- **The Population Growth or Population Change:** It refers to the change in the number of inhabitants of a territory during a specific period of time. This change may be positive as well as negative. It can be expressed either in terms of absolute numbers or in terms of percentage.
- **Positive Growth of Population:** This happens when the birth rate is more than the death rate between two points of time or when people from other regions migrate permanently to a region.
- **Negative Growth of Population:** If the population decreases between two points of time, it is known as negative growth of population. It occurs when the birth rate falls below the death rate or people migrate to other regions.
- **Crude Death Rate:** It is expressed in terms of number of deaths in a particular year per thousand of population in a particular region.

## Topic-3

### Demographic Transition

**Concepts Covered** • *Demographic transition and the various stages involved.*



## Revision Notes

- The **Demographic Transition Theory** tells us that population of any region changes from high births and high deaths to low births and low deaths as society progresses from rural agrarian and illiterate to urban industrial and literate society.
- The first stage has high fertility and high mortality because people reproduce more to compensate for the deaths due to epidemics and variable food supply.
- Fertility remains high in the beginning of second stage but it declines with time. This is accompanied by reduced mortality rate.
- In the last stage, both fertility and mortality decline considerably. The population is either stable or grows slowly.
- Family planning is spacing or preventing the birth of children. Access to family planning services is a significant factor in limiting population growth and improving women's health.
- The preventive checks are better than the physical checks. For the sustainability of our resources, the world will have to control the rapid population increase.



## Key Words

- **Demographic Transition Theory:** This theory describes and predicts the future population of any area.
- **Agrarian:** A society which depends on agriculture as the primary means of subsistence.
- **Life expectancy:** It is defined as the average period a person may expect to live.
- **Mortality Rate:** It can be defined as the number of deaths in a particular population.



## Key Facts

- The world population is growing by 1.10 per cent per year, which means there is an addition of 83 million people annually.
- The last 10 years have seen the largest ever population of young people.
- There are more people migrating than ever before. In 2013, 232 million people were international migrants as compared to 175 million in 2000.
- More than half of the global population is urban.

## CHAPTER-3

# HUMAN DEVELOPMENT

### Topic-1

#### Growth and Development

**Concepts Covered** • Define human growth and development and identify its importance. List factors affecting growth and development.



### Revision Notes

- Both growth and **development** refer to changes over a period of time.
- The difference is that growth is quantitative and its value is neutral. It may have a positive or a negative sign.
- **Development** means a qualitative change which is always value positive. This means that **development** cannot take place unless there is an increment or addition to the existing conditions.
- **Development** occurs when positive growth takes place. Yet, positive growth does not always lead to development.
- **Development** occurs when there is a positive change in quality.
- The concept of **human development** was introduced by Dr. Mahbub-ul-Haq.
- Dr. Haq has described **human development** as development that “increases” people’s choices and improves their lives.
- The basic goal of **development** is to create conditions where people can live meaningful lives.
- Access to resources, health and education are the key areas in **human development**.
- Building people’s capabilities in the areas of health, education and access to resources is, therefore, important in increasing their choices.



### Key Words

- **Development:** Development means a qualitative change which is always value positive.
- **Human Development:** Human development refers to the development that increases people’s choices and improves their lives.

### Topic-2

#### The Four Pillars of Human Development, Approaches to Human Development

**Concepts Covered** • The basic pillars and approaches of human development.



### Revision Notes

- Human development is supported by the concepts of equity, sustainability, productivity and empowerment.
- **Equity** refers to equal access to opportunities available to everybody. The opportunities available to people must be equal irrespective of their gender, race, income and, in the Indian case, caste.
- Sustainability means continuity in the availability of opportunities. To have sustainable human development, each generation must have the same opportunities.
- Productivity here means human labour productivity or productivity in terms of human work. Such productivity must be constantly enriched by building capabilities in people. Ultimately, it is people who are the real wealth of nations.
- **There are many ways of looking at the problem of human development:**
  - (i) **Income approach:** This is one of the oldest approaches to human development. Human development is seen as being linked to income. Higher the level of income, higher is the level of human development.
  - (ii) **Welfare approach:** The approach argues for higher government expenditure on education, health, social security and amenities. People are not participants in development but only passive recipients.
  - (iii) **Basic needs approach:** Six basic needs, i.e., health, education, food, water supply, sanitation and housing, were identified. Emphasis is paid on providing these basic amenities to everyone.
  - (iv) **Capability approach:** Building human capabilities in the areas of health, education and access to resources is the key to increasing human development.





## Key Words

- **Empowerment:** It means to have the power to make choices and such power comes from increasing freedom and capability.
- **Equity:** It refers to equal access to opportunities available to everybody. The opportunities available to people must be equal irrespective of their gender, race, income and, in the Indian case, caste.

## Topic-3

### The Human Development Index (HDI)

#### Key Areas of Ranking

**Concepts Covered** • What is HDI? The indicators of HDI, its importance and the four tiers of HDI.



## Revision Notes

- The **human development index (HDI)** ranks the countries based on their performance in the key areas of health, education and access to resources.
- A higher life expectancy means that people have a greater chance of living longer and healthier lives.
- The **human development index** measures attainments in human development. It reflects what has been achieved in the key areas of human development.
- The **human poverty index** is related to the human development index. This index measures the shortfall in human development.
- Often the **human poverty index** is more revealing than the human development index.
- International comparisons of human development are interesting.
- Often smaller countries have done better than larger ones in human development.
- Countries with very high **human development index** are those which have a score of over 0.800. This group includes 51 countries.
- High level of human development group has 55 countries. Providing education and healthcare is an important government priority.
- Countries with higher human development are those where a lot of investment in the social sector has taken place.
- Many of the countries with a high human development score are located in Europe and represent the industrialised western world.
- Countries with medium levels of human development form the largest group. There are a total of 46 countries in this group.
- As many as 41 countries record low levels of human development.
- A large proportion of these are small countries have been going through political turmoil and social instability in the form of civil war, famine or a high incidence of diseases.



## Key Words

- **Human Development Index:** The human development index (HDI) is an index which is used to rank the countries based on their performance in the key areas of health, education and access to resources. The human development index is a sum total of the weights assigned to all these dimensions.
- **Poverty Index:** This index measures the shortfall in human development.
- **Basic Amenities:** It refers to things that are considered essential to make life easier and more comfortable.
- **Life Expectancy:** It refers to the average number of years to be lived by a group of people born in the same year.

## UNIT – III: HUMAN ACTIVITIES

### CHAPTER-4

## PRIMARY ACTIVITIES

### Topic-1

### Hunting, Gathering, Pastoralism and Herding

**Concepts Covered** • Primary activities and its direct dependence on environment. The oldest economic activities known to human.



### Revision Notes

- **Primary activities** are directly dependent on environment as these refer to utilisation of earth's resources such as land, water, vegetation, building materials and minerals.
- It, thus, includes hunting and **gathering**, pastoral activities, fishing, forestry, agriculture and mining and quarrying.
- The earliest humans subsisted on:
  - (a) animals which they hunted; and
  - (b) the edible plants which they gathered from forests in the vicinity.
- Primitive societies depended on wild animals. People located in very cold and extremely hot climates survived on hunting.
- The early hunters used primitive tools made of stones, twigs or arrows so the number of animals killed was limited.
- **Gathering** and hunting are the oldest economic activity known. These are carried out at different levels with different orientations.
- **Gathering** is practised in regions with harsh climatic conditions. It often involves primitive societies, who extract both plants and animals to satisfy their needs for food, shelter and clothing.
- The yield per person is very low and little or no surplus is produced.
- **Gathering** is practised in: (i) high latitude zones which include northern Canada, northern Eurasia and southern Chile; (ii) Low latitude zones such as the Amazon Basin, tropical Africa, Northern fringe of Australia and the interior parts of Southeast Asia.
- In modern times some gathering is market-oriented and has become commercial.
- Gatherers collect valuable plants such as leaves, barks of trees and medicinal plants and after simple processing, sell the products in the market.
- At some stage in history, human beings might have thought of domestication of animals. People living in different climatic conditions selected and domesticated animals found in those regions.
- They move from one place to another, along with their livestock. Each nomadic community occupies a well-identified territory as a matter of tradition.
- Movement in search of pastures is undertaken either over vast horizontal distances or vertically from one elevation to another in the mountainous regions.
- The process of migration from plain areas to pastures on mountains during summers and again from mountain pastures to plain areas during winters is known as **transhumance**. In mountain regions, such as Himalayas, Gujjars, Bakarwals, Gaddis and Bhotiyas migrate from plains to the mountains in summers and to the plains from the high-altitude pastures in winters.
- Commercial **livestock rearing** is more organised and capital intensive.
- Commercial livestock ranching is essentially associated with western cultures and is practised on permanent ranches.
- Products such as meat, wool, hides and skin are processed and packed scientifically and exported to different world markets.
- New Zealand, Australia, Argentina, Uruguay and the United States of America are important countries where commercial **livestock rearing** is practised.



## Key Words

- **Red collar workers:** People engaged in primary activities are called red collar workers.
- **Primary activity:** Includes the activities of agriculture, mining, forestry farming, grazing, hunting and gathering, fishing and quarrying.
- **Nomadic herding:** Nomadic herding or pastoral nomadism is a primitive subsistence activity, in which the herders rely on animals for food, clothing, shelter, tools and transport.
- **Gathering:** Gathering is practised in regions with harsh climatic conditions. It often involves primitive societies, who extract both plants and animals to satisfy their needs for food, shelter and clothing.
- **Livestock rearing:** It means domestication of animals to produce commodities such as food, fiber, etc.
- **Transhumance:** The action or practice of moving livestock from one grazing ground to another in a seasonal cycle, typically to lowlands in winter and highlands in summer.

## Topic-2

### Agriculture System and Its Types

**Concepts Covered** • Various methods and types of farming practiced all over the world.



## Revision Notes

- **Agriculture** is practised under multiple combinations of physical and socio-economic conditions, which gives rise to different types of agricultural systems.
- Subsistence agriculture is one in which the farming areas consume all, or nearly so, of the products locally grown. It can be grouped in two categories — Primitive Subsistence Agriculture and Intensive Subsistence Agriculture.
- **Primitive Subsistence Agriculture or Shifting Cultivation:** The vegetation is usually cleared by fire, and the ashes add to the fertility of the soil. Shifting cultivation is, thus, also called slash and burn agriculture. The cultivation is done with very primitive tools such as sticks and hoes. After sometime (3 to 5 years), the soil loses its fertility and the farmer shifts to other parts and clears other patch of the forest for cultivation.
- **Intensive Subsistence Agriculture:** There are two types of intensive subsistence agriculture.
  - (i) **Intensive subsistence agriculture dominated by wet paddy cultivation:** It is characterised by dominance of the rice crop. Use of machinery is limited and most of the agricultural operations are done by manual labour.
  - (ii) **Intensive subsistence agriculture dominated by crops other than paddy:** In this type of agriculture, wheat, soyabean, barley and sorghum are grown.
- **Plantation Agriculture:** The characteristic features of this type of farming are large estates or plantations, large capital investment, managerial and technical support, scientific methods of cultivation, single crop specialisation, cheap labour, and a good system of transportation, which links the estates to the factories and markets for the export of the products.
- **Extensive Commercial Grain Cultivation:** Wheat is the principal crop, though other crops like corn, barley, oats and rye are also grown. The size of the farm is very large; therefore, entire operations of cultivation from ploughing to harvesting are mechanised.
- **Mixed Farming:** Mixed farms are moderate in size and usually the crops associated with it are wheat, barley, oats, rye, maize, fodder and root crops. Fodder crops are an important component of mixed farming. Crop rotation and inter-cropping play an important role in maintaining soil fertility.
- **Dairy Farming:** Dairy is the most advanced and efficient type of rearing of milch animals. It is highly capital intensive. Animal sheds, storage facilities for fodder, feeding and milching machines add to the cost of dairy farming. It is highly labour intensive as it involves rigorous care in feeding and milching.
- **Mediterranean Agriculture:** It is highly specialised commercial agriculture. It is practised in the countries on either side of the Mediterranean Sea. Viticulture or grape cultivation is a speciality of the Mediterranean region. This region also produces olives and figs. The advantage of Mediterranean agriculture is that more valuable crops such as fruits and vegetables are grown in winters when there is great demand in European and North American markets.
- **Market Gardening and Horticulture:** It specialises in the cultivation of high value crops such as vegetables, fruits and flowers, solely for the urban markets.
- It is both labour and capital intensive and lays emphasis on the use of irrigation, HYV seeds, fertilisers, insecticides, greenhouses and artificial heating in colder regions.
- The regions where farmers specialise in vegetables only, the farming is known as truck farming. The distance of truck farms from the market is governed by the distance that a truck can cover overnight, hence the name truck farming.



- **Co-operative Farming:** A group of farmers form a co-operative society by pooling in their resources voluntarily for more efficient and profitable farming. Individual farms remain intact, and farming is a matter of co-operative initiatives.
- **Collective Farming:** It is based on social ownership of the means of production and collective labour. The farmers pool in all their resources like land, livestock and labour. However, they are allowed to retain very small plots to grow crops in order to meet their daily requirements.



## Key Words

- **Agriculture:** It is the practise of farming, including cultivation of the soil and rearing of animals.
- **Dairy farming:** Dairy farming is described as a class of animal or agricultural husbandry that deals with milk production from dairy cows, sheep and goats.

## Topic-3

### Mining: Factors and Methods

**Concepts Covered** • *Various methods of mining and factors affecting mining activities.*



## Revision Notes

- The development of mining began with the Industrial Revolution and its importance is continuously increasing.
- The factors that affect the mining activities are:
  - (i) Physical factors include the size, grade and the mode of occurrence of the deposits.
  - (ii) Economic factors such as the demand for the mineral, technology available and used, capital to develop infrastructure and the labour and transport costs.
- **Mining is of two types: surface and underground mining.**
- Surface mining also known as **open-cast mining**, is the easiest and the cheapest way of mining minerals that occur close to the surface.
- When the ore lies deep below the surface, **underground mining** method (shaft method) has to be used. It requires specially designed lifts, drills, haulage vehicles, ventilation system for safety and efficient movement of people and material. This method is risky. Poisonous gases, fires, floods and caving in lead to fatal accidents.
- The developed economies are retreating from mining due to high labour cost.
- Several countries of Africa and few of South America and Asia have over 50 per cent of the earnings from minerals alone.



## Key Words

- **Copper Age:** This is the transition age between Neolithic and the Bronze Age. This age is marked by the development and use of copper tools.
- **Bronze Age:** This age is characterized by the use of bronze tools.
- **Open cast mining:** It is the kind of mining in which cut is made at the surface of the ground for the purpose of extracting minerals.
- **Under ground mining:** In this type of mining, various underground mining techniques are used to excavate minerals.



## Key Facts

- India is the biggest producer and consumer of dairy products.
- The average net income for a dairy farmer is USD 387 a cow per year.
- One of the simplest types of mining is gold panning.
- The biggest open pit mine in the world is the Bingham Canyon copper pit in Utah.

## CHAPTER-5

### SECONDARY ACTIVITIES

#### Topic-1

### Manufacturing: Characteristics of Modern Large Scale Manufacturing

**Concepts Covered** • *What is manufacturing and features of modern large scale manufacturing.*



#### Revision Notes

- Secondary activities add value to natural resources by transforming raw materials into valuable products.
- To add value to raw material it needs to be changed into finished goods. Secondary activities, therefore, are concerned with **manufacturing**, processing and construction (infrastructure) industries.
- **Manufacturing** involves application of power, mass production of identical products and specialised labour in factory settings for the production of standardised commodities.
- **Manufacturing** may be done with modern power and machinery or it may still be very primitive.
- Under the '**Craft Method**' factories produce only a few pieces which are made-to-order. So the costs are high. On the other hand, mass production involves production of large quantities of standardised parts by each worker performing only one task repeatedly.
- **Modern manufacturing is characterised by :**
  - (i) a complex machine technology
  - (ii) extreme specialisation and division of labour for producing more goods with less effort, and low costs
  - (iii) vast capital
  - (iv) large organisations
  - (v) executive bureaucracy
- The geographical location of the manufacturing industries should be located at points where the production costs are minimum.
- The existence of a market for manufactured goods is the most important factor in the location of industries.
- The developed regions of Europe, North America, Japan and Australia provide large global markets as the purchasing power of the people is very high.
- Industries based on cheap, bulky and weight-losing material (ores) are located close to the sources of raw material such as steel, sugar, and cement industries.
- Labour supply is an important factor in the location of industries.
- Industries which use more power are located close to the source of the energy supply such as the aluminium industry.
- Speedy and efficient transport facilities to carry raw materials to the factory and to move finished goods to the market are essential for the development of industries.
- Communication is also an important need for industries, for the exchange and management of information.
- Government policies also influence the location of manufacturing industries.
- Many industries benefit from nearness to a leader-industry and other industries. These industries are termed as agglomeration economies.



#### Key Words

- **Manufacturing** : It means a process which involves transforming raw materials into finished goods of higher value for sale in local or distant markets.
- **Craft method** : It means factories produce only a few pieces which are made-to-order.
- **Mass production** : It means factories produce large quantities of standardised parts by each worker performing only one task repeatedly.

## Topic-2 Classification of Manufacturing Industries

**Concepts Covered** • Basis of classification of manufacturing industries.



### Revision Notes

- The amount of capital invested, number of workers employed and volume of production determine the size of industry.
- The household/cottage manufacturing unit is the smallest manufacturing unit. The craftsmen or artisans use local raw materials and simple hand tools to produce everyday goods in their homes with the help of their family members or part-time labour. This type of manufacturing has low commercial significance and most of the tools are devised locally.
- Some common everyday products produced in this sector of manufacturing include foodstuffs, fabrics, mats, containers, tools, furniture, etc.
- Small scale manufacturing uses local raw material, simple power-driven machines and semi-skilled labour .
- Large scale manufacturing involves a large market, various raw materials, enormous energy, specialised workers, advanced technology, assembly-line mass production and large capital.
- Agro-based industries involve the processing of raw materials from the field and farm into finished products for rural and urban markets.
- Mineral based industries use minerals as a raw material. Some industries use ferrous metallic mineral and some use non-ferrous metallic minerals.
- Chemical based industries use natural chemical minerals, e.g. mineral-oil (petroleum) is used in petrochemical industry.
- Chemical industries are also based on raw materials obtained from wood and coal.
- Forest based raw material using industries use timber for furniture industry, wood, bamboo and grass for paper industry, and lac for lac industries come from forests.
- Animal based industries use leather for leather industry and wool for woollen textiles are obtained from animals.
- There are industries which are based on ownership such as the **Public sector industries** that are owned and managed by governments, **Private sector industries** that are owned by individual investors, **Joint sector industries** are managed by joint stock companies or sometimes the private and public sectors together.
- Traditional large-scale industrial regions are based on heavy industry, often located near coal-fields and engaged in metal smelting, heavy engineering, chemical manufacture or textile production.
- High technology, or simply high-tech, is the latest generation of manufacturing activities. Robotics on the assembly line, computer-aided design (CAD) and manufacturing, electronic controls of smelting and refining processes, and the constant development of new chemical and pharmaceutical products are notable examples of a high-tech industry.
- Professionals (white collar) make up a large share of the total workforce. The actual production is done by blue collar workers.
- The iron and steel industry forms the base of all other industries and, therefore, it is called the basic industry. It may also be called the heavy industry because it uses large quantities of bulky raw materials and its products are also heavy.
- Cotton textile industry has three sub-sectors *i.e.* handloom, powerloom and mill sectors.
- Cotton textile manufacturing requires good quality cotton as raw material. India, China, U.S.A., Pakistan, Uzbekistan, Egypt produce more than half of the world's raw cotton.



### Key Words

- **Capital** : It means wealth or money or other assets owned by an individual or organisation with the purpose of investing.
- **Agro-processing** : Agro- processing involves the processing of raw materials from the field and farm into finished products for rural and urban market.
- **Agri-business** : It means commercial farming on an industrial scale often financed by large business houses

whose main interests lie outside agriculture, for example, large corporations in tea plantation business.

- **Public sector industries** : It refers to industries that are owned and managed by governments.
- **Private sector industries** : It refers to industries that are owned by individual investors.
- **Joint sector industries** : It refers to industries that are managed by joint stock companies or sometimes the private and public sectors together.

## CHAPTER-6

# TERTIARY AND QUATERNARY ACTIVITIES

### Topic-1

#### Types of Tertiary Activities

**Concepts Covered** • *Meaning of tertiary activities and various components of service sector. People engaged in tertiary activities.*



### Revision Notes

- Many professionals provide their services against payment of their fees. Thus, all types of services are special skills provided in exchange for payments.
- Health, education, law, governance and recreation, etc., require professional skills. These services require other theoretical knowledge and practical training.
- **Tertiary activities** are related to the service sector.
- Manpower is an important component of the service sector as most of the **tertiary activities** are performed by skilled labour, professionally trained experts and consultants.
- **Tertiary activities** include both production and exchange. The output is indirectly measured in terms of wages and salaries.
- **Tertiary activities**, therefore, involve the commercial output of services rather than the production of tangible goods. They are not directly involved in the processing of physical raw materials.
- Thus, **trade**, transport, communication and services are some of the important **tertiary activities**.
- Trade is essentially buying and selling of items produced elsewhere. All this work takes place in towns and cities also known as trading centres.
- Trading centres may be divided into rural and urban marketing centres. Rural marketing centres cater to nearby settlements. These are quasi-urban centres. They serve as trading centres of the most rudimentary type.
- Periodic markets in rural areas are found where there are no regular markets and local periodic markets are organised at different temporal intervals. Urban marketing centres have more widely specialised urban services. They provide ordinary goods and services as well as many of the specialised goods and services required by people.
- Wholesale trading constitutes bulk business through numerous intermediary merchants and supply houses and not through retail stores.
- Transport is an organised industry created to satisfy man's basic need of mobility. Modern society requires speedy and efficient transport systems to assist in the production, distribution and consumption of goods.
- Communication services involve the transmission of words and messages, facts and ideas.
- Where the transport network is efficient, communications are easily disseminated.
- The use of telecommunications is linked to the development of electrical technology.
- The telegraph, morse code and telex have almost become things of the past.
- Radio, television, pictures, telephone, newspaper and internet have truly revolutionised the global communication system.
- Services are provided to individual consumers who can afford to pay for them.
- Low-order services, such as grocery shops and laundries, are more common and widespread than high-order services or more specialised ones like those of accountants, consultants and physicians. Personal services are made available to the people to facilitate their work in daily life.
- **Tourism** has become the world's single largest tertiary activity in total registered jobs (250 million) and total revenue (40 per cent of the total GDP).

- In some regions, **tourism** is seasonal because the vacation period is dependent on favourable weather conditions, but many regions attract visitors all round the year.
- **Tourism** fosters the growth of infrastructure industries, retail trading, and craft industries (souvenirs).
- When medical treatment is combined with international tourism activity, it lends itself to what is commonly known as medical tourism.



## Key Words

- **Tourism:** Tourism is travel undertaken for purposes of recreation rather than business.
- **Tertiary activities:** Tertiary activities include both production and exchange of services.
- **Trade:** It means buying and selling of things.
- **Economic activities:** Economic activity can be defined as any activity which results in production and distribution of goods and services.
- **Medical tourism:** When medical treatment is combined with international tourism activity, it lends itself to what is commonly known as medical tourism.

## Topic-2

### Quaternary Activities, Quinary Activities and Digital Divide

**Concepts Covered** • Knowledge oriented activities, quinary activities and importance of access to modern information and communications technology.



## Revision Notes

- There are people who work in a segment of the service sector that is knowledge oriented. This sector can be divided into **quaternary and quinary activities**.
- **Quaternary activities** centre around research & development and may be seen as an advanced form of services involving specialised knowledge, technical skills and administrative competence.
- Quaternary sector along with the tertiary sector has replaced all primary and secondary employment as the basis for economic growth.
- The highest level of decision makers or policy makers perform **quinary activities**.
- Often referred to as 'gold collar' professions, they represent another subdivision of the tertiary sector representing special and highly paid skills of senior business executives, government officials, research scientists, financial and legal consultants, etc.
- When **outsourcing** involves transferring work to overseas locations, it is described by the term off-shoring.
- Business activities that are outsourced include information technology (IT), human resources, customer support and call centre services and at times also manufacturing and engineering.
- **Outsourcing** is coming to those countries where cheap and skilled workers are available. These are also out-migrating countries.
- Opportunities emerging from the Information and Communication Technology based development is unevenly distributed across the globe.
- While developed countries in general have surged forward, the developing countries have lagged behind and this is known as the **digital divide**.



## Key Words

- **Quaternary activities:** Quaternary activities involve collection, production and dissemination of information or even the production of information.
- **Quinary activities:** They are services that focus on the creation, re-arrangement and interpretation of new and existing ideas; data interpretation and the use and evaluation of new technologies.
- **Outsourcing:** Outsourcing or contracting out is giving work to an outside agency to improve efficiency and reduce costs.
- **Digital divide:** A digital divide is an economic and social inequality according to categories of persons in a given population for their access to use of, or knowledge of information and communication technologies (ICT).



## UNIT – IV: TRANSPORT COMMUNICATION AND TRADE

### CHAPTER-7

## TRANSPORT COMMUNICATION AND TRADE

### Topic-1

#### Transport: Modes of Transport

**Concepts Covered** • *Transport as an organised service industry. Various modes of transport.*



### Revision Notes

- **Transport**, communication and trade establish links between producing centres and consuming centres.
- The high living standards and quality of life depend on efficient transportation, communications and trade.
- **Transport** provides the network of links and carriers through which trade takes place.
- Roads and railways form part of land transport; while waterways and airways are the other two modes. Pipelines carry materials like petroleum, natural gas, and ores in liquefied form.
- Every nation has developed various kinds of transportation for defence purposes.
- The principal modes of world transportation are land, water, air and pipelines.
- The significance of a mode depends on the type of goods and services to be transported, cost of transportation and the mode available.



### Key Words

- **Transport network:** Several places (nodes) joined together by routes (links) to form a pattern which permits vehicular movement or flow of some commodity is called transport network.
- **Transport:** Transport is a service or facility for carrying persons and goods from one place to the other using humans, animals and different kinds of vehicles.

### Topic-2

#### Land Transport, Water Transport, Air Transport, Pipelines

**Concepts Covered** • *Various means of transportation and its importance: land, water, air and pipeline*



### Revision Notes

- In early days, humans themselves were carriers.
- With the invention of the wheel, the use of carts and wagons became important. The revolution in transport came about only after the invention of the steam engine in the eighteenth century.
- The invention of the internal combustion engine revolutionised road transport in terms of road quality and vehicles (motor cars and trucks) plying over them.
- Road transport is the most economical for short distances compared to railways.
- The quality of the roads varies greatly between developed and developing countries because road construction and maintenance require heavy expenditure.
- The highest **road density** and the highest number of vehicles are registered in Asian continent compared to Western Europe.
- Highways are **metalled roads** connecting distant places. In developed countries, every city and port town is linked through **highways**.
- Europe has a large number of vehicles and a well-developed highway network.
- Railways are a mode of land transport for bulky goods and passengers over long distances. The railway gauges vary in different countries and are roughly classified as broad (more than 1.5 m), standard (1.44 m), metre gauge (1 m) and smaller gauges.

- Trans–continental railways, *i.e.* Trans–Siberian Railway, Trans–Canadian Railways, The Union and Pacific Railway, the Orient Express and the Australian Trans–Continental Railway run across the continent and link its two ends. They were constructed for economic and political reasons to facilitate long runs in different directions.
- One of the great advantages of water transportation is that it does not require route construction.
- Compared to land and air, ocean transport is a cheaper means of haulage (carrying of load) of bulky material over long distances from one continent to another.
- Some of the major ocean routes are The Northern Atlantic Sea Route, The Mediterranean–Indian Ocean Route, The Cape of Good Hope Sea Route, The North Atlantic Sea Route and The South Pacific Sea Route.
- The development of inland waterways is dependent on the navigability, width and depth of the channel, continuity in the water flow and transport technology in use.
- The significance of rivers as inland waterways for domestic and international transport and trade has been recognised throughout the developed world.
- Air transport is the fastest means of transportation, but it is very costly. Being fast, it is preferred by passengers for long-distance travel.
- At present no place in the world is more than 35 hours away. This startling fact has been made possible due to people who build and fly airplanes.
- Today, more than 250 commercial airlines offer regular services to different parts of the world.
- Pipelines are used extensively to transport liquids and gases such as water, petroleum and natural gas for an uninterrupted flow.
- Cooking gas or LPG is supplied through pipelines in many parts of the world. Pipelines can also be used to transport liquefied coal.
- In Europe, Russia, West Asia and India, pipelines are used to connect oil wells to refineries, ports or domestic markets.



## Key Words

- **Metalled roads:** Roads that are made of cement and concrete are known as metalled roads.
- **Unmetalled roads:** They are made of mud, sand, etc., and are rough and have dried up tracks.
- **Road density:** Road density can be defined as the ratio of the length of the country's total road network to the country's land area.
- **Highways:** Highways are metalled roads connecting distant places. They are constructed for unobstructed vehicular movement.
- **Border roads:** Roads laid along international boundaries are called border roads.
- **Passenger liners:** It can be defined as a ship whose primary purpose is to carry passengers from one port to another.
- **Cargo ships:** It can be defined as ships whose primary purpose is to transport cargo or bulky goods from one place to another.
- **Big Trunk Route:** It is the busiest sea route in the world and covers almost one fourth of the world's trade.

## Topic-3

### Communication: Satellite Communication, Cyber-space–Internet

**Concepts Covered** • *Various types of Communication*



## Revision Notes

- Human beings have used different methods of long-distance communications of which the telegraph and the telephone were important.
- Even today, the telephone is the most commonly used mode. In developing countries, the use of cell phones is made possible by **satellites** and it is important for rural connectivity.
- Today the **internet** is the largest electronic network on the planet connecting about 1,000 million people in more than 100 countries.
- Artificial satellites are now successfully deployed in the earth's orbit to connect even the remotest corners of the globe with limited onsite verification.
- Cyberspace is the world of electronic computerised space. It is encompassed by the Internet such as the World Wide Web (www).
- The speed at which this electronic network has spread is unprecedented in human history.

- As billions use the internet each year, cyberspace will expand the contemporary economic and social space of humans through e-mail, e-commerce, e-learning and e-governance. Internet together with fax, television and radio will be accessible to more and more people cutting across place and time.



## Key Words

- **Internet:** It can be defined as worldwide system of computer networks providing information and communication facilities.
- **Digitisation:** It can be defined as the process of converting text, pictures or sound into a digital form that can be processed by the computer.
- **Satellite:** It is defined as an artificial body which is placed in the orbit round the Earth or some other planet with the motive to collect information or for the purpose of communication.

## Topic-4

### International Trade

**Concepts Covered** • *Bases and changing patterns; ports as gateways of international trade; role of WTO in international trade.*



## Revision Notes

- International trade is the exchange of goods and services among countries across national boundaries. Countries need to trade to obtain commodities, they cannot produce themselves or they can purchase elsewhere at a lower price.
- The initial form of **trade** in primitive societies was the barter system, where direct exchange of goods took place.
- In ancient times, transporting goods over long distances was risky, hence trade was restricted to local markets
- The Silk Route is an early example of long distance trade connecting Rome to China – along the 6,000 km route.
- Fifteenth century onwards, the European colonialism began and along with trade of exotic commodities, a new form of trade emerged which was called slave trade.
- After the Industrial Revolution the demand for raw materials like grains, meat, wool also expanded, but their monetary value declined in relation to the manufactured goods. The industrialised nations imported primary products as raw materials and exported the value added finished products back to the non-industrialised nations.
- International trade is based on the principle of comparative advantage, complementarity and transferability of goods and services and in principle, should be mutually beneficial to the trading partners.
- International trade has three very important aspects. These are volume, sectoral composition and direction of trade.
- Balance of trade records the volume of goods and services imported as well as exported by a country to other countries.
- If the value of imports is more than the value of a country's exports, the country has negative or unfavourable balance of trade and vice-versa.
- International trade may be categorised into two types: (a) Bilateral trade and (b) Multi-lateral trade
- The act of opening up economies for trading is known as free trade or trade liberalisation. This is done by bringing down trade barriers like **tariffs**. Trade liberalisation allows goods and services from everywhere to compete with domestic products and services.
- In 1948, to **liberalise** the world from high customs tariffs and various other types of restrictions, General Agreement for Tariffs and Trade (GATT) was formed by some countries. In 1994. The GATT was transformed into the World Trade Organisation from 1st January 1995.
- WTO is the only international organisation dealing with the global rules of trade between nations. It sets the rules for the global trading system and resolves disputes between its member nations. WTO also covers trade in services, such as telecommunication and banking, and others issues such as intellectual rights.
- Regional Trade Blocs have come up in order to encourage trade between countries with geographical proximity, similarity and complementarities in trading items and to curb restrictions on trade of the developing world
- **Ports:** The chief gateways of the world of international trade are the harbours and ports. Cargoes and travellers pass from one part of the world to another through these ports. The ports provide facilities of docking, loading, unloading and the storage facilities for cargo. In order to provide these facilities, the port authorities make arrangements for maintaining navigable channels, arranging tugs and barges, and providing labour and managerial services.
- The base of international trade are as follows:

- (i) **Difference in national resources:** The resources all over the world are unevenly distributed.
- (a) **Geological structure:** It determines the mineral resource base and topographical differences ensure diversity of crops and animals raised.
- (b) **Mineral resources:** They are unevenly distributed the world over.
- (c) **Climate:** It influences the type of flora and fauna that can survive in a given region.
- (ii) **Population factors:** The size distribution and diversity of people between countries affect the type and volume of goods traded.
  - (a) **Cultural factors:** Distinctive forms of art and craft develop in certain cultures which are valued the world over, e.g., China produces the finest porcelains and brocades.
  - (b) **Size of population:** Densely populated countries have large volume of internal trade but little external trade because most of the agricultural and industrial production is consumed in the local markets.
- (iii) **Stage of economic development:** At different stages of economic development of countries, the nature of items traded undergo changes.
- (iv) **Extend of foreign investment:** Foreign investment can boost trade in developing countries which lack in capital required for the development of mining, oil drilling, heavy engineering, lumbering and plantation agriculture.
- (v) With expansions of rail, ocean and air transport, better means of refrigeration and preservation, trade has experienced spatial expansion.



### Key Words

- **Tariff:** a tax that has to be paid on goods coming into a country
- **Trade:** the voluntary exchange of goods and services.
- **Liberalize:** remove or loosen restrictions on (something, typically an economic or political system).



### Key Facts

- The Big Inch and the Little Big Inch are collectively known as the Inch pipelines.
- The Trans-Siberian Railway is the world's longest railway with a total length of approx. 9,332 km. It was built between 1891 to 1905.
- The longest tunnel on the Trans-Siberian route is ten kilometres long.
- From the start to finish the Trans-Siberian Railway passes eight different time zones.
- The Trans-Canadian Pacific Railway took four years to complete.

## PART - B : INDIA: PEOPLE AND ECONOMY

### UNIT – VI: PEOPLE

### CHAPTER-8

## POPULATION: DISTRIBUTION, DENSITY, GROWTH & COMPOSITION

### Topic-1

### The Uneven Distribution of Population in India

**Concepts Covered** • Factors responsible for the uneven growth of population in India.



### Revision Notes

- India has a highly uneven pattern of population distribution.
- Uttar Pradesh has the highest population followed by Maharashtra, Bihar and West Bengal.
- On the other hand, the share of population is very small in the states like Jammu & Kashmir, Arunachal Pradesh and Uttarakhand in spite of these states having fairly large geographical area.

- As far as the physical factors are concerned, it is clear that climate along with terrain and availability of water largely determines the pattern of population density.
- Among the socio-economic and historical factors of distribution of population, important ones are evolution of settled agriculture and agricultural development; pattern of human settlement; development of transport network, industrialisation and urbanisation.
- The urban regions of Delhi, Mumbai, Kolkata, Bengaluru, Pune, Ahmedabad, Chennai and Jaipur have high concentration of population due to industrial development and urbanisation drawing a large number of rural-urban migrants.
- The **density of population** in India (2011) is 382 persons per sq km.
- There has been a steady increase of more than 200 persons per sq km over the last 50 years as the density of population increased from 117 persons per sq km in 1951 to 382 persons per sq km in 2011.



## Key Words

- **Density of population** : Density of population is expressed as number of persons per unit area. It is a crude measure of human and land relationship.
- **Agricultural density of a population** : It is the number of farmers per unit area of farmland.
- **Physiological density of a population** : It is the number of people per unit area of net cultivated area.
- **Population change** : The population growth or population change refers to the change in number of inhabitants of a territory during a specific period of time.

## Topic-2

### Growth of Population

**Concepts Covered** • Population growth and its components. Trends in population growth in India.



## Revision Notes

- **Growth in population** is the change in the number of people living in a particular area between two points of time.
- **Population growth** has two components namely: natural and induced.
- The natural growth is analysed by assessing the crude birth and death rate.
- The induced components are explained by the volume of inward and outward movement of people in any given area.
- The decadal and annual growth rates of population in India are both very high and steadily increasing over time.
- The **growth of population** in India over the last one century has been caused by annual birth rate and death rate of migration and thereby shows different trends.
- There are four distinct phases of growth identified within this period.
- **Phase I** : The period from 1901 to 1921 is referred to as the period of stagnant or stationery phase of growth of India's population.
- **Phase II** : The decades 1921-1951 are referred to as the period of steady population growth.
- **Phase III** : The decades 1951-1981 are referred to as the period of population explosion in India.
- **Phase IV** : In the post-1981 till present the growth rate of country 's population though remained high, has started slowing down gradually.
- A continuous belt of states from west to east in the north-west, north and north-central parts of the country has relatively high growth rate than the southern states.
- During 2001-11, the growth rates of almost all states and Union territories have registered a lower figure compared to the previous decade, namely, 1991-2001.
- An important aspect of population growth in India is the growth of its adolescents. The adolescent population, though, regarded as the youthful population having high potentials, but at the same time, they are quite vulnerable if not guided and channelised properly.
- There are some challenges for the society as far as the adolescences are concerned, some of which are lower age at marriage, illiteracy—particularly female illiteracy, school dropouts, low intake of nutrients, high rate of maternal mortality of adolescent mothers, high rates of HIV/AIDS infections, physical and mental disability or retardedness, drug abuse and alcoholism, juvenile delinquency and committing of crimes, etc.



- In these views, the Government of India has undertaken certain policies to impart proper education to the adolescent groups so that their talents are better channelised and properly utilised. The National Youth Policy is one example which has been designed to look into the overall development of our large youth and adolescent population.



## Key Words

- **Population growth** : It is the change in the number of people living in a particular area between two points of time.
- **Population doubling time** : Population doubling time is the time taken by any population to double itself at its current annual growth

## Topic-3

### Population Composition

**Concepts Covered** • Population Composition: rural, urban, linguistic, religious and composition of Working Population



## Revision Notes

- **Population composition** is a distinct field of study with a vast coverage of analysis of age and sex, place of residence, ethnic characteristics, tribes, language, religion, marital status, literacy and education, occupational characteristics, etc.
- The distribution of rural population is not uniform throughout the country.
- A thorough examination of the pattern of distribution of rural population in India reveals that both at **intra-state** and **inter-state** levels, the relative degree of urbanisation and extent of rural-urban migration regulate the concentration of rural population.
- The proportion of urban population in India is quite low but it is showing a much faster rate of growth over the decades.
- India is a land of linguistic diversity.
- In the context of modern India, there are about 22 scheduled languages and several non-scheduled languages.
- Among the scheduled languages, the speakers of Hindi have the highest percentage.
- Religion is one of the dominant forces affecting the cultural and political life of most of the Indians.
- Hindus are distributed as a major group in many states ranging from 70-90 per cent and above.
- The population of India according to their economic status is divided into three groups, namely: **main workers**, **marginal workers** and non-workers.
- It is observed that in India, the proportion of workers (both main and marginal) is only 39.8% in 2011 leaving a vast majority of above 60% as non-workers.
- The occupational composition of India's population shows a large proportion of primary sector workers as compared to secondary and tertiary sectors.
- The number of female workers is relatively high in primary sector, though in recent years there has been some improvement in work participation of women in secondary and tertiary sectors.



## Key Words

- **Population composition** : It is the description of a population according to characteristics such as age and sex.
- **Intra-state** : It means existing or occurring within a state.
- **Inter-state** : It means connecting or involving different states.
- **Main worker** : Main worker is a person who works for atleast 183 days (or six months) in a year.
- **Marginal worker** : Marginal worker is a person who works for less than 183 days (or six months) in a year.

## UNIT – VII: HUMAN SETTLEMENTS

### CHAPTER-9

## HUMAN SETTLEMENTS

### Topic-1

### Types of Rural Settlement

**Concepts Covered** • *Classification of human settlements in India.*



### Revision Notes

- **Human settlement** means cluster of dwellings of any type or size where human beings live.
- The process of settlement inherently involves grouping of people and apportioning of territory as their resource base.
- Settlements vary in size and type. They range from a hamlet to metropolitan cities. With size, the economic character and social structure of settlements changes and so do its ecology and technology.
- Settlements could be small and sparsely spaced; they may also be large and closely spaced. The sparsely located small settlements are called villages, specialising in agriculture or other primary activities.
- On the other hand, there are fewer but larger settlements which are termed as urban settlements specialising in secondary and tertiary activities.
- Types of the settlement are determined by the extent of the built-up area and inter-house distance.
- In India, compact or clustered village of a few hundred houses is a rather universal feature, particularly in the Northern Plains.
- There are various factors and conditions responsible for having different types of **rural** settlements in India. These include: (i) physical features – nature of terrain, altitude, climate and availability of water (ii) cultural and ethnic factors – social structure, caste and religion (iii) security factors – defence against thefts and robberies.
- The clustered **rural** settlement is a compact or closely built-up area of houses.
- The closely built-up area and its intervening streets present some recognisable pattern or geometric shapes, such as rectangular, radial, linear, etc.
- Sometimes, people live in compact villages for security or defence reasons, such as in the Bundelkhand region of central India and Nagaland.
- Semi-clustered or fragmented settlements may result from tendency of clustering in a restricted area of dispersed settlement. More often such a pattern may also result from segregation or fragmentation of a large compact village.
- Such settlements are widespread in the Gujarat plain and some parts of Rajasthan.
- Sometimes settlement is fragmented into several units physically separated from each other bearing a common name. These units are locally called *panna, para, palli, nagla, dhani*, etc., in various parts of the country.
- Such villages are more frequently found in the middle and lower Ganga plain, Chhattisgarh and lower valleys of the Himalayas.
- Dispersed or isolated settlement pattern in India appears in the form of isolated huts or hamlets of few huts in remote jungles, or on small hills with farms or pasture on the slopes.
- Many areas of Meghalaya, Uttarakhand, Himachal Pradesh and Kerala have this type of settlement.



### Key Words

- **Human Settlement** : It means cluster of dwellings of any type or size where human beings live.
- **Rural** : Located outside city or town.
- **Barns** : Building for storing grains, etc.
- **Pastures** : Land covered with grass, etc., for grazing animals.

**Topic-2****Urban Settlements, Evolution of Towns in India:  
Ancient Towns, Medieval Towns, Modern Towns****Concepts Covered** • Various types of urban settlements found in India, evolution of medieval towns.**Revision Notes**

- Unlike rural settlements, urban settlements are generally compact and larger in size.
- They are engaged in a variety of non-agricultural, economic and administrative functions.
- The cities are functionally linked to rural areas around them. Thus, exchange of goods and services is performed sometimes directly and sometimes through a series of market towns and cities.
- Thus, cities are connected directly as well as indirectly with the villages and also with each other.
- Towns flourished since prehistoric times in India. Even at the time of Indus Valley civilisation, towns like Harappa and Mohenjodaro were in existence.
- It continued with periodic ups and downs until the arrival of Europeans in India in the eighteenth century.
- On the basis of their evolution in different periods, Indian towns may be classified as: Ancient towns, Medieval towns and Modern towns.
- There are number of towns in India having historical background spanning over 2000 years. They are known as ancient towns.
- About 100 of the existing towns have their roots in the medieval period. Most of them developed as headquarters of principalities and kingdoms. These are fort towns which came up on the ruins of ancient towns. They are known as medieval towns.
- The British and other Europeans have developed a number of towns in India. Starting their foothold on coastal locations, they first developed some trading ports such as Surat, Daman, Goa, Puducherry, etc. These are known as modern towns.

**Key Words**

- **Medieval Period** : The Middle Age.
- **Consolidated** : Combined.
- **Town** : Places which have less than one lakh population.
- **City** : Urban centres having population between one lakh to one million.
- **Metropolitan Cities** : Cities having population in between one million to five million.

**Topic-3****Urbanisation in India, Classification of Towns on  
the Basis of Population Size****Concepts Covered** • Level of urbanisation in India, classification of towns on the basis of population size**Revision Notes**

- The level of urbanisation is measured in terms of percentage of urban population to total population.
- The level of urbanisation in India in 2011 was 31.16 per cent, which is quite low in comparison to developed countries.
- Enlargement of urban centres and emergence of new towns have played a significant role in the growth of urban population and urbanisation in the country.
- But the growth rate of urbanisation has slowed down during last two decades.
- Urban centre with population of more than one lakh is called a city or class I town.
- Cities accommodating population size between one to five million are called metropolitan cities and more than five million are **mega cities**.
- Majority of metropolitan and mega cities are **urban agglomerations**.
- More than 60 per cent of urban population in India lives in class I towns.
- Out of 468 cities, 53 cities/ urban agglomerations are metropolitan cities.
- Six of them are mega cities with population over five million each. More than one-fifth (21.0%) of urban population lives in these mega cities.



## Key Words

- **Mega Cities** : Cities having more than 5 million population are known as mega cities.
- **Urban Agglomeration** : It is an extended city or town area comprising the build up area of a central place and any suburbs linked by continuous urban area.
- **Contiguous** : Infectious.

## Topic-4

### Functional Classification of Towns

**Concepts Covered** • *Classification of Indian town on the basis of dominant or specialised functions.*



## Revision Notes

- Apart from their role as central or nodal places, many towns and cities perform specialised services.
- **Administrative towns and cities** : Towns supporting administrative headquarters of higher order are administrative towns, such as Chandigarh and New Delhi.
- **Industrial towns** : Industries constitute prime motive force of these cities such as Mumbai.
- **Transport Cities** : They may be ports primarily engaged in export and import activities such as Kandla and Kozhikode.
- **Commercial towns** : Towns and cities specialising in trade and commerce are kept in this class.
- **Mining towns** : These towns have developed in mineral rich areas such as Raniganj.
- **Garrison/ Cantonment** : These towns emerged as garrison towns such as Ambala.
- **Educational towns** : Starting as centres of education, some of the towns have grown into major campus towns such as Roorkee.
- **Religious and cultural towns** : Varanasi, Mathura, Amritsar, Madurai, Puri, Ajmer, Pushkar, Tirupati, Kurukshetra, Haridwar, Ujjain came to prominence due to their religious/cultural significance.
- **Tourist towns** : Nainital, Mussoorie, Shimla, Pachmarhi, Jodhpur, Jaisalmer, Udagamandalam (Ooty), Mount Abu are some of the tourist destinations.
- The cities are not static in their function. The functions change due to their dynamic nature.



## Key Words

- **Hub** : Central place.
- **Garrison** : A military area where the troops are stationed.



## Key Facts

- Cities developed on river banks as early as 3000 BCE, when some of the first well-developed settlements arose in Mesopotamia, on the banks of Egypt's Nile River in the Indus River valley, and along China's rivers.
- Though early "cities" appeared at Jericho and Catal Huyuk around 6000 BCE, the first civilisations did not emerge until around 3000 BCE in Egypt and Mesopotamia.
- The development of agriculture permitted the creation of the first cities.

## UNIT – VIII: RESOURCES AND DEVELOPMENT

### CHAPTER-10

## LAND RESOURCES

### Topic-1

### Land Use Categories, Land-Use Changes in India, Common Property Resources

**Concepts Covered** • *Various Types of land use categories in India.*



### Revision Notes

- Different types of lands are suited to different uses. Human beings thus, use land as a resource for production as well as residence and recreation.
- Land-use records are maintained by Land Revenue Department. The land-use categories add up to reporting area, which is somewhat different from the geographical area.
- The Survey of India is responsible for measuring geographical area of administrative units in India.
- **The land-use categories as maintained in the Land Revenue Records are as follows :**
- (i) **Forests :** It is important to note that area under actual forest cover is different from area classified as forest. The latter is the area which the Government has identified and demarcated for forest growth. The land revenue records are consistent with the latter definition.
- (ii) **Land put to Non-agricultural Uses:** Land under settlements (rural and urban), infrastructure (roads, canals, etc.), industries, shops, etc., are included in this category.
- (iii) **Barren and Wastelands :** The land which may be classified as a wasteland such as barren hilly terrains, desert lands, ravines, etc., normally cannot be brought under cultivation with the available technology.
- (iv) **Area under Permanent Pastures and Grazing Lands :** Most of this type of land is owned by the Village Panchayat or the Government. Only a small proportion of this land is privately owned.
- (v) **Area under Miscellaneous Tree Crops and Groves (not included in net sown area) :** The land under orchards and fruit trees are included in this category.
- (vi) **Culturable Wasteland :** Any land which is left fallow (uncultivated) for more than five years is included in this category.
- (vii) **Current Fallow :** This is the land which is left without cultivation for one or less than one agricultural year.
- (viii) **Fallow other than Current Fallow :** This is also a cultivable land which is left uncultivated for more than a year but less than five years.
- (ix) **Net Area Sown :** The physical extent of land on which crops are sown and harvested is known as Net Sown Area.
  - Land-use in a region, to a large extent, is influenced by the nature of economic activities carried out in that region.
  - One needs to appreciate three types of changes that an economy undergoes, which affect land-use.
  - The size of the economy grows over time as a result of increasing population, change in income levels, available technology and associated factors. As a result, the pressure on land will increase with time.
  - Secondly, the composition of the economy would undergo a change over time. In other words, the secondary and the tertiary sectors usually grow much faster than the primary sector, specifically the agricultural sector.
  - This type of change is common in developing countries like India. This process would result in a gradual shift of land from agricultural uses to non-agricultural uses.
  - Thirdly, though the contribution of the agricultural activities reduces over time, the pressure on land for agricultural activities does not decline.
  - India has undergone major changes within the economy over the past four or five decades, and this has influenced the land-use changes in the country.
  - The rate of increase is the highest in case of area under non-agricultural uses. This is due to the changing structure of Indian economy, which is increasingly depending on the contribution from industrial and service sectors and expansion of related infrastructural facilities.
  - The increase in the share under forest, as explained before, can be accounted for by increase in the demarcated area under forest rather than an actual increase in the forest cover in the country.
  - The four categories that have registered a decline are **barren and wasteland**, culturable wasteland, area under pastures and tree crops and net area sown.



- Land, according to its ownership can broadly be classified under two broad heads – private land and **common property resources** (CPRs).
- While the former is owned by an individual or a group of individuals, the latter is owned by the state meant for the use of the community.
- CPRs provide fodder for the livestock and fuel for the households along with other minor forest products like fruits, nuts, fibre, medicinal plants, etc.
- CPRs are also important for women as most of the fodder and fuel collection is done by them in rural areas. They have to devote long hours in collecting fuel and fodder from a degraded area of CPR.



## Key Words

- **Barren land** : Land which is incapable of producing offspring, seed or fruit.
- **Wasteland** : It is an empty area of land.
- **Fallow land** : A land which is left uncultivated for a time after successive crops.
- **Common Property Resource** : CPRs can be defined as community's natural resource, where every member has the right of access and usage with specified obligations, without anybody having property rights over.

## Topic-2

### Agricultural Land Use in India, Cropping Seasons in India, Types of Farming

**Concepts Covered** • Land used for farming, cropping and harvesting . The three main cropping seasons and classification of types of farming.



## Revision Notes

- Agriculture is a purely land-based activity unlike secondary and tertiary activities. Thus, lack of access to land is directly correlated with incidence of poverty in rural areas.
- Quality of land has a direct bearing on the productivity of agriculture, which is not true for other activities.
- In rural areas, aside from its value as a productive factor, land ownership has a social value and serves as a security for credit, natural hazards or life contingencies, and also adds to the social status.
- An estimation of total stock of agricultural land resources (*i.e.*, total cultivable land can be arrived at by adding up net sown area, all fallow lands and culturable wasteland.
- There has been a greater decline of cultivated land, despite of a corresponding decline of cultivable wasteland.
- There are three distinct crop seasons in the northern and interior parts of country, namely **kharif**, **rabi** and **zaid**.
- The kharif season largely coincides with South-West Monsoon under which the cultivation of tropical crops such as rice, cotton, jute, jowar, bajra and tur is possible.
- The **rabi** season begins with the onset of winter in October-November and ends in March-April.
- **Zaid** is a short duration summer cropping season beginning after harvesting of rabi crops.
- However, this type of distinction in the cropping season does not exist in southern parts of the country.
- Here, the temperature is high enough to grow tropical crops during any period in the year provided the soil moisture is available.
- On the basis of main source of moisture for crops, the farming can be classified as irrigated and rainfed (barani).
- Rainfed farming is further classified on the basis of adequacy of soil moisture during cropping season into dry-land and wetland farming.
- In India, the dryland farming is largely confined to the regions having annual rainfall less than 75 cm.
- In wetland farming, the rainfall is in excess of soil moisture requirement of plants during rainy season. Such regions may face flood and soil erosion hazards.



## Key Words

- **Kharif** : This cropping season is from July-October.
- **Rabi** : This cropping season is from October – March.
- **Dryland Farming** : It is a farming technique used for non-irrigated cultivation of crops. It is practiced in regions of slight or insufficient rainfall.
- **Subsistence Agriculture** : It is self-sufficiency farming in which the farmers focus on growing enough food to feed themselves and their families.

## Topic-3 Cropping Patterns

**Concepts Covered** • Importance of foodgrains in Indian agricultural economy.



### Revision Notes

- Foodgrains are dominant crops in all parts of the country whether they have subsistence or commercial agricultural economy.
- On the basis of structure of grain, the foodgrains are classified as cereals and pulses.
- The cereals occupy about 54 per cent of total cropped area in India. The country produces about 11 per cent cereals of the world and ranks third in production after China and USA
- Rice is a staple food for the overwhelming majority of population in India. Though, it is considered to be a crop of tropical humid areas, it has about 3,000 varieties which are grown in different agro-climatic regions.
- India contributes 22 per cent of rice production in the world and ranks second after China. West Bengal, Punjab, Uttar Pradesh, were the leading rice producing states in the country in 2015-16.
- Wheat is the second most important cereal crop in India after rice. India produces about 13.1 per cent of total wheat production of world (2014). Uttar Pradesh, Punjab, Haryana, Rajasthan and Madhya Pradesh are five leading wheat producing states.
- The coarse cereals together occupy about 16.50 per cent of total cropped area in the country. Maharashtra alone produces more than half of the total jowar production of the country. Other leading producer states of jowar are Karnataka, Madhya Pradesh Andhra Pradesh and Telangana.
- Bajra is sown in hot and dry climatic conditions in north-western and western parts of the country. Leading producers of bajra are the states of Maharashtra, Gujarat, Uttar Pradesh, Rajasthan and Haryana.
- Maize is a food as well as fodder crop grown under semi-arid climatic conditions and over inferior soils. The leading producers of maize are the states of Karnataka, Madhya Pradesh, Bihar, Andhra Pradesh, Telangana, Rajasthan and Uttar Pradesh.
- Pulses are a very important ingredient of vegetarian food as these are rich sources of proteins. Pulses occupy about 11 per cent of the total cropped area in the country. Being the rainfed crops of drylands, the yields of pulses are low and fluctuate from year to year.
- Gram is cultivated in subtropical areas. Just one or two light showers or irrigations are required to grow this crop successfully. Madhya Pradesh, Uttar Pradesh, Maharashtra, Andhra Pradesh, Telangana and Rajasthan are the main producers of this pulse crop.
- Tur (Arhar) is the second important pulse crop in the country. Maharashtra alone contributes about one-third of the total production of tur. Other leading producer states are Uttar Pradesh, Karnataka, Gujarat and Madhya Pradesh.
- The oilseeds are produced for extracting edible oils. Drylands of Malwa Plateau, Marathwada, Gujarat, Rajasthan, Telangana and Rayalaseema region of Andhra Pradesh and Karnataka Plateau are oilseeds growing regions of India.
- India produces about 14.9 per cent of the total groundnut production in the world (2014). Gujarat, Tamil Nadu, Telangana, Andhra Pradesh, Karnataka and Maharashtra are the leading producers.
- Rapeseed and mustard comprise several oilseeds as rai, sarson, toria and taramira. Rajasthan contributes about one-third production while other leading producers are Uttar Pradesh, Haryana, West Bengal and Madhya Pradesh.
- Cotton is a tropical crop grown in kharif season in semi-arid areas of the country. Leading producers of this crop are Maharashtra, Gujarat, Telangana, Andhra Pradesh, Punjab and Haryana.
- Jute is used for making coarse cloth, bags, sacks and decorative items. West Bengal accounts for about three-fourth of the production in the country. Bihar and Assam are other jute growing areas.
- Sugarcane is a crop of tropical areas. In Indo-Gangetic Plain, its cultivation is largely concentrated in Uttar Pradesh. Sugarcane growing area in western India is spread over Maharashtra and Gujarat.
- Tea leaves have rich content of caffeine and tannin. It is an indigenous crop of hills in northeastern area. Tea is cultivated on the lower slopes of Nilgiri and Cardamom hills in Western Ghats.
- Coffee is a tropical plantation crop. Its seeds are roasted, ground and are used for preparing a beverage. Coffee is cultivated in the highlands of Western Ghats in Karnataka, Kerala and Tamil Nadu. Karnataka alone accounts for more than two-thirds of total production of coffee in the country.

**Topic-4****Agricultural Development in India, Growth of Agricultural Output and Technology**

**Concepts Covered** • *The development of agriculture post partition. Green Revolution and the adaptation of new technology.*

**Revision Notes**

- The importance of agricultural sector in India can be gauged from the fact that about 60 per cent of its land is devoted to crop cultivation, whereas, in the world, the corresponding share is only about 12 per cent.
- Despite various constraints, Indian agriculture has marched a long way since Independence.
- During partition about one-third of the irrigated land in undivided India went to Pakistan.
- After Independence, the immediate goal of the Government was to increase foodgrains production by (i) switching over from **cash crops** to **food crops**; (ii) intensification of cropping over already cultivated land; and (iii) increasing cultivated area by bringing cultivable and fallow land under plough.
- New seed varieties of wheat (Mexico) and rice (Philippines) known as high yielding varieties (HYVs) were available for cultivation by mid-1960s.
- India took advantage of this and introduced package technology comprising HYVs, along with chemical fertilizers in irrigated areas of Punjab, Haryana, western Uttar Pradesh, Andhra Pradesh and Gujarat.
- This strategy of agricultural development paid dividends instantly and increased the foodgrains production at very fast rate. This spurt of agricultural growth came to be known as '**Green Revolution.**'
- **Green Revolution** was initially confined to irrigated areas only.
- The Planning Commission of India focused its attention on the problems of agriculture in rainfed areas in 1980s.
- There has been a significant increase in agricultural output and improvement in technology during the last fifty years.
- Production and yield of many crops such as rice and wheat has increased at an impressive rate.
- Expansion of irrigation has played a very crucial role in enhancing agricultural output in the country.
- Modern agricultural technology has diffused very fast in various areas of the country. Consumption of chemical fertilizers has increased by 15 times since mid-sixties.

**Key Words**

- **Cash Crop** : The crops that are grown to be sold rather than for use by the farmer.
- **Food Crop** : The crops that are grown for self-consumption and not for sale in the market is known as food crop.
- **Agro-processing industries** : The industries that transform products originating from agriculture, forestry and fisheries.
- **Green Revolution** : The great increase in the production of foodgrains due to the introduction of high-yielding varieties, use of pesticides, and better management techniques is known as the Green Revolution.

**Topic-5****Problems of Indian Agriculture****Revision Notes**

- The nature of problems faced by Indian agriculture varies according to agro-ecological and historical experiences of its different regions.
- Poor performance of south-west monsoon also adversely affects the supply of canal water for irrigation. On the other hand, the rainfall in Rajasthan and other drought-prone areas is too meagre and highly unreliable.
- Drought is a common phenomenon in low rainfall areas which may also experience occasional floods. The flash floods in drylands of Maharashtra, Gujarat, and Rajasthan in 2006 are examples of this phenomenon. Droughts and floods continue to be twin menace in Indian agriculture.
- Because of the very high pressure on the land resources, the labour productivity in Indian agriculture is also very low in comparison to international level. The vast rainfed areas of the country, particularly drylands which mostly grow coarse cereals, pulses and oilseeds have very low yields.

- The inputs of modern agriculture are very expensive. This resource intensive approach has become unmanageable for marginal and small farmers as they have very meagre or no saving to invest in agriculture.
- Crop failures and low returns from agriculture have forced them to fall in the trap of indebtedness.
- Lack of implementation of land reforms has resulted in continuation of iniquitous distribution of cultivable land which is detrimental to agricultural development.
- In India, the land holdings are mostly fragmented. There are some states where **consolidation** of holding has not been carried out even once. The small size fragmented land holdings are uneconomic.
- A large number of farmers produce crops for self-consumption. These farmers do not have enough land resources to produce more than their requirement.
- There is massive under-employment in the agricultural sector in India, particularly in the unirrigated tracts. In these areas, there is a seasonal unemployment ranging from 4 months to 8 months.
- One of the serious problems that arise out of faulty strategy of irrigation and agricultural development is degradation of land resources. This is serious because it may lead to depletion of soil fertility.
- Excessive use of chemicals such as insecticides and pesticides has led to their concentration in toxic amounts in the soil profile.
- Rainfed areas in humid and semi-arid tropics also experience degradation of several types like soil erosion by water and wind erosion which are often induced by human activities.



### Key Words

- **Hindrance** : A thing that provides resistance or obstruction to something.
- **Erratic** : Something that is not in regular pattern.
- **Consolidation** : The process of making something stronger.



### Key Facts

- India ranks second in agricultural output.
- The main foodgrain of India is rice. India ranks second worldwide in rice cultivation.
- Karnataka is the highest coffee producing state.

## CHAPTER-11

### WATER RESOURCES

#### Topic-1

### Water Resources-Demand and Utilisation

**Concepts Covered** • Availability of various water resources in India.



### Revision Notes

- Water is a cyclic resource with abundant supplies on the globe. Approximately, 71 per cent of the earth's surface is covered with it but freshwater constitutes only about 3 per cent of the total water.
- In fact, a very small proportion of freshwater is effectively available for human use. The availability of freshwater varies over space and time.
- The assessment, efficient use and conservation of water, therefore, become necessary to ensure development.
- India accounts for about 2.45 per cent of world's surface area, 4 per cent of the world's water resources and about 16 per cent of world's population.
- The total water available from precipitation in the country in a year is about 4,000 cubic km. The availability from surface water and replenishable **groundwater** is 1,869 cubic km.
- Out of this only 60 per cent can be put to beneficial uses. Thus, the total utilisable water resource in the country is only 1,122 cubic km.



- There are four major sources of surface water. These are rivers, lakes, ponds, and tanks.
- However, due to topographical, hydrological and other constraints, only about 690 cubic km (32 per cent) of the available surface water can be utilised.
- Water flow in a river depends on size of its **catchment area** or **river basin** and rainfall within its catchment area.
- Much of the annual water flow in south Indian rivers like the Godavari, the Krishna, and the Kaveri has been harnessed, but it is yet to be done in the Brahmaputra and the Ganga basins.
- The total replenishable **groundwater** resources in the country are about 432 cubic km.
- The level of **groundwater** utilisation is relatively high in the river basins lying in north-western region and parts of south India.
- The **groundwater** utilisation is very high in the states of Punjab, Haryana, Rajasthan, and Tamil Nadu. However, there are states like Chhattisgarh, Odisha, Kerala, etc., which utilise only a small proportion of their **groundwater** potentials.
- India has a vast coastline and the coast is very indented in some states. Due to this, a number of lagoons and lakes have formed. The states like Kerala, Odisha and West Bengal have vast surface water resources in these **lagoons** and lakes.
- India has traditionally been an **agrarian economy**, and about two-thirds of its population has been dependent on agriculture. Hence, development of **irrigation** to increase agricultural production has been assigned a very high priority in the Five Year Plans, and multipurpose river valleys projects like the Bhakra-Nangal, Hirakud, Damodar Valley, Nagarjuna Sagar, Indira Gandhi Canal Project, etc., have been taken up.
- Agriculture accounts for most of the surface and groundwater utilisation, it accounts for 89 per cent of the surface water and 92 per cent of the groundwater utilisation.
- While the share of industrial sector is limited to 2 per cent of the surface water utilisation and 5 per cent of the groundwater, the share of domestic sector is higher (9 per cent) in surface water utilisation as compared to groundwater.
- **Irrigation** is needed because of spatio-temporal variability in rainfall in the country.
- The large tracts of the country are deficient in rainfall and are drought prone. North-western India and Deccan Plateau constitute such areas.
- Provision of **irrigation** makes multiple cropping possible. It has also been found that irrigated lands have higher agricultural productivity than unirrigated land.
- Further, the high-yielding varieties of crops need regular moisture supply, which is made possible only by a developed **irrigation** system.
- In Punjab, Haryana and western Uttar Pradesh more than 85 per cent of their net sown area is under **irrigation**.
- Of the total net irrigated area 76.1 per cent in Punjab and 51.3 per cent in Haryana are irrigated through wells and tube-wells. This shows that these states utilise large proportion of their groundwater potential which has resulted in groundwater depletion in these states.



## Key Words

- **Abundant** : Existing in or available in large quantities.
- **Replenishable Resources** : Resources that can be renewed.
- **Tributary** : A river stream flowing into a larger river or lake.
- **River drainage basin** : A river basin is an area drained by a river and all of its tributaries.
- **Catchment area** : The area from which rainfall flows into a river, lake or reservoir.
- **Groundwater** : Water held underground in the soil or in pores and crevices in rocks.
- **Lagoons** : An area of shallow body of water separated from the sea by barrier islands or reefs.
- **Backwater** : A part of the river in which there is little or no current. It refers to a branch of a main river which lies alongside it and then rejoins it backed by the tides or by an obstruction such as a dam.
- **Brackish water** : Water that has more salinity than fresh water but not as much as seawater.
- **Agrarian economy** : Type of economy that relies primarily on agricultural industry including livestock farming or crop production.
- **Irrigation** : The supply of water to land or crops to promote growth, typically by means of channels.
- **Deficient** : It means not having enough of a specified quality or ingredient.



**Topic-2****Deterioration of Water Quality, Water Conservation and Management, Prevention of Water Pollution, Recycle and Reuse of Water.****Revision Notes**

- The per capita availability of water is dwindling day by day due to increase in population.
- When toxic substances enter lakes, streams, rivers, ocean and other water bodies, they get dissolved or lie suspended in water. This results in pollution of water whereby quality of water deteriorates affecting aquatic systems.
- Sometimes, these pollutants also seep down and pollute groundwater. The Ganga and the Yamuna are the two highly polluted rivers in the country.
- Given that water availability from sea/ocean, due to high cost of desalinisation, is considered negligible, India has to take quick steps and make effective policies and laws, and adopt effective measures for its conservation.
- There is need to encourage watershed development, rainwater harvesting, water recycling and reuse, and conjunctive use of water for sustaining water supply in long run.
- The drains carrying agricultural (fertilisers and insecticides), domestic (solid and liquid wastes), and industrial effluents join the rivers. The concentration of pollutants in rivers, especially remains very high during the summer season when flow of water is low.
- The Central Pollution Control Board (CPCB) in collaboration with State Pollution Control Boards has been monitoring water quality of national aquatic resources at 507 stations.
- There is a strong need to generate public awareness about importance of water and impacts of water pollution.
- The public awareness and action can be very effective in reducing the pollutants from agricultural activities, domestic and industrial discharges.
- Another way through which we can improve freshwater availability is by recycle and reuse.
- Use of water of lesser quality such as **reclaimed waste water** would be an attractive option for industries for cooling and fire fighting to reduce their water cost.
- Similarly, in urban areas water after bathing and washing utensils can be used for gardening. Water used for washing vehicles can also be used for gardening.
- Currently, recycling of water is practised on a limited scale. However, there is enormous scope for replenishing water through recycling.

**Key Words**

- **Toxic substances** : A substance that can be poisonous or cause health effects.
- **Desalinisation** : It can be defined as a process that extracts minerals from saline water.
- **Reclaimed waste water** : It means using treated waste water for other purposes.

**Topic-3****Watershed Management: Rainwater Harvesting**

**Concepts Covered** • Various ways and policies taken up for the conservation of surface and groundwater resources

**Revision Notes**

- **Watershed management** refers to efficient management and conservation of surface and groundwater resources.
- It involves prevention of runoff and storage and recharge of groundwater through various methods like percolation tanks, recharge wells, etc.
- However, in broad sense **watershed management** includes conservation, regeneration and judicious use of all resources – natural (like land, water, plants and animals) and human with in a watershed.
- **Watershed management** aims at bringing about balance between natural resources on the one hand and society on the other.
- The Central and State Governments have initiated many watershed development and management programmes in the country.

- Haryali is a watershed development project sponsored by the Central Government which aims at enabling the rural population to conserve water for drinking, irrigation, fisheries and afforestation.
- Neeru-Meeru (Water and You) programme (in Andhra Pradesh) and Arvary Pani Sansad (in Alwar, Rajasthan) have taken up constructions of various water-harvesting structures such as percolation tanks, dug out ponds (Johad), check dams, etc., through people's participation.
- Watershed development projects in some areas have been successful in rejuvenating environment and economy.
- There is a need to generate awareness regarding benefits of watershed development and management among people in the country.
- Rainwater harvesting is a method to capture and store rainwater for various uses.
- Rainwater harvesting has been practised through various methods by different communities in the country for a long time.
- Traditional rainwater harvesting in rural areas is done by using surface storage bodies like lakes, ponds, irrigation tanks, etc.
- There is a wide scope to use rainwater harvesting technique to conserve precious water resources.
- It can be done by harvesting rainwater on rooftops and open spaces.
- These days rainwater harvesting is being taken up on massive scale in many states in the country.
- Urban areas can specially benefit from rainwater harvesting as water demand has already outstripped supply in most of the cities and towns.



### Key Words

- **Watershed Management** : It refers to efficient management and conservation of surface and groundwater resources.
- **Afforestation** : It is the process of planting trees or sowing trees in a barren land devoid of any trees to create a forest.
- **Rejuvenating** : To make something look better.
- **Nascent stage** : Starting or growing stage.



### Key Facts

- 68.7% of the fresh water on Earth is trapped in glaciers.
- The total amount of water on Earth is about 326 million cubic miles of water.

## CHAPTER-12

# MINERAL AND ENERGY RESOURCES

### Topic-1

### Types of Mineral Resources

**Concepts Covered** • Availability of various water resources in India.



### Revision Notes

- India is endowed with a rich variety of mineral resources due to its varied geological structure.
- The vast alluvial plain tract of North India is devoid of minerals of economic use. The **mineral resources** provide the country with the necessary base for industrial development.
- On the basis of chemical and physical properties, minerals may be grouped under two main categories of **metallic** and **non-metallic**.
- Iron ore, copper, gold produce metal and are included in metallic category.
- **Metallic minerals** are further divided into ferrous and **non-ferrous metallic minerals**.
- Ferrous refers to iron. All those minerals which have iron content are ferrous such as iron ore itself and those which do not have iron content are non-ferrous such as copper, bauxite, etc.

- **Non-metallic minerals** are either organic in origin such as fossil fuels also known as mineral fuels which are derived from the buried animal and plant life such as coal and petroleum.
- Other type of non-metallic minerals is inorganic in origin such as mica, limestone and graphite, etc.
- India is endowed with fairly abundant resources of iron ore. It has the largest reserve of iron ore in Asia.
- About 95 per cent of total reserves of iron ore is located in the states of Odisha, Jharkhand, Chhattisgarh, Karnataka, Goa, Andhra Pradesh and Tamil Nadu.
- Manganese is an important raw material for smelting of iron ore and also used for manufacturing ferrous alloys.
- Odisha is the leading producer of manganese. Major mines in Odisha are located in the central part of the iron ore belt of India, particularly in Bonai, Kendujhar, Sundergarh, Gangpur, Koraput, Kalahandi and Bolangir.
- India is poorly endowed with **non-ferrous** metallic minerals except bauxite.
- Bauxite is the ore which is used in manufacturing of aluminium. Bauxite is found mainly in tertiary deposits and is associated with laterite rocks occurring extensively either on the plateau or hill ranges of peninsular India and also in the coastal tracts of the country.
- Copper is an indispensable metal in the electrical industry for making wires, electric motors, transformers and generators. It is malleable and ductile. As it forms alloy, it is also mixed with gold to provide strength to jewellery.
- The copper deposits mainly occur in Singhbhum district in Jharkhand, Balaghat district in Madhya Pradesh and Jhunjhunu and Alwar districts in Rajasthan.
- Among the **non-metallic minerals** produced in India, mica is the important one. The other minerals extracted for local consumption are limestone, dolomite and phosphate.
- Mica is mainly used in the electrical and electronic industries. It can be split into very thin sheets which are tough and flexible.
- Mica in India is mainly found in Jharkhand, Andhra Pradesh and Rajasthan followed by Tamil Nadu, West Bengal and Madhya Pradesh.



## Key Words

- **Metamorphic rocks** : They are the rocks form from the existing igneous or metamorphic rocks in a process called metamorphism, which mean 'Change in form.'
- **Minerals resources** : Homogenous, naturally occurring, inorganic materials in or on the crust of the Earth that have economic importance.
- **Metallic minerals** : The minerals which contain metal and can be melted to obtain new product.
- **Non-metallic minerals** : Minerals that have no metallic lustre and break easily. They are inorganic in origin and are derived from the buried animal and plant life.
- **Ferrous minerals** : Minerals which contain iron. They have very small amount of other metals added.
- **Non-ferrous minerals** : Non-ferrous metals are those which do not contain iron.
- **Metallurgical industry** : Industry which is involved in the production of metal from ore.
- **Smelting** : It means extracting metal from its ore by a process involving heating and melting.
- **Ore** : Naturally occurring solid material from which a metal or valuable mineral can be extracted.
- **Indispensable** : It means something which is absolutely necessary.

## Topic-2

## Distribution of Minerals in India and Types of Energy Resources

**Concepts Covered** • Various places in India which are rich in mineral resources. Various types of energy resources available.



## Revision Notes

- Minerals are generally concentrated in three broad belts in India. There may be some sporadic occurrences here and there in isolated pockets.
- **The North- Eastern Plateau Region** :
  - This belt covers Chotanagpur (Jharkhand), Odisha Plateau, West Bengal and parts of Chhattisgarh.
  - It has variety of minerals, viz. iron ore, coal, manganese, bauxite, mica.
- **The South-Western Plateau Region** :
  - This belt extends over Karnataka, Goa and contiguous Tamil Nadu uplands and Kerala.
  - This belt is rich in ferrous metals and bauxite. It also contains high-grade iron ore, manganese and limestone.

- This belt does not have as diversified mineral deposits as the north-eastern belt. Kerala has deposits of monazite and thorium, bauxite clay. Goa has iron ore deposits.
- **The North-Western Region :**
  - This belt extends along Aravali in Rajasthan and part of Gujarat and minerals are associated with Dharwar system of rocks.
  - Copper, zinc have been major minerals. Rajasthan is rich in building stones, *i.e.*, sandstone, granite, marble.
  - Gujarat is known for its petroleum deposits. Gujarat and Rajasthan both have rich sources of salt.
- The Himalayan belt is another mineral belt where copper, lead, zinc, cobalt and tungsten are known to occur.
- Assam valley has mineral oil deposits.
- Besides oil resources are also found in off-shore-areas near Mumbai Coast (Mumbai High).
- Mineral fuels are essential for generation of power, required by agriculture, industry, transport and other sectors of the economy.
- Mineral resources can be divided into: conventional and non-conventional resources.
- Coal is one of the important minerals which is mainly used in the generation of thermal power and smelting of iron ore.
- Coal occurs in rock sequences mainly of two geological ages, namely Gondwana and tertiary deposits.
- About 80 per cent of the coal deposits in India is of bituminous type and is of non-coking grade.
- Jharia is the largest coal field followed by Raniganj. The other river valleys associated with coal are Godavari, Mahanadi and Sone.
- The most important coal mining centres are Singrauli in Madhya Pradesh (part of Singrauli coal field lies in Uttar Pradesh), Korba in Chhattisgarh, Talcher and Rampur in Odisha, Chanda–Wardha, Kamptee and Bander in Maharashtra and Singareni and Pandur in Andhra Pradesh.
- Besides, the brown coal or lignite occur in the coastal areas of Tamil Nadu, Pondicherry and Gujarat. Some of the regions of Jammu and Kashmir are also rich in lignite.
- Petroleum is an essential source of energy for all internal combustion engines in automobiles, railways and aircraft.
- Its numerous by-products are processed in petrochemical industries such as fertiliser, synthetic rubber, synthetic fibre, medicines, vaseline, lubricants, wax, soap and cosmetics.
- Oil exploration and production was systematically taken up after the Oil and Natural Gas Commission was set up in 1956.
- Digboi in Assam was the only oil producing region but the scenario has changed after 1956.
- In recent years, new oil deposits have been found at the extreme western and eastern parts of the country.
- The major oil fields of Gujarat are Ankaleshwar, Kalol, Mehsana, Nawagam, Kosamba and Lunej. Mumbai High which lies 160 km off Mumbai was discovered in 1973 and production commenced in 1976.
- The Gas Authority of India Limited was set up in 1984 as a public sector undertaking to transport and market natural gas.
- Exclusive reserves of natural gas have been located along the eastern coast (Tamil Nadu, Odisha and Andhra Pradesh), as well as Tripura, Rajasthan and off-shore wells in Gujarat and Maharashtra.
- **Nuclear energy** has emerged as a viable source in recent times. Important minerals used for the generation of nuclear energy are uranium and thorium.
- Uranium deposits occur in the Dharwar rocks. The important nuclear power projects are Tarapur (Maharashtra), Rawatbhata near Kota (Rajasthan), Kalpakkam (Tamil Nadu), Narora (Uttar Pradesh), Kaiga (Karnataka) and Kakrapar (Gujarat).
- Sun rays tapped in photovoltaic cells can be converted into energy, known as solar energy.
- Solar thermal technology has some relative advantages over all other non-renewable energy sources.
- The western part of India mainly in Gujarat and Rajasthan has greater potential for the development of solar energy.
- Wind energy is absolutely pollution free, **inexhaustible source of energy**.
- The kinetic energy of wind, through turbines is converted into electrical energy.
- India, already has started generating wind energy. The Ministry of Non-Conventional Sources of Energy is developing wind energy in India to lessen the burden of oil import bill.
- In Rajasthan, Gujarat, Maharashtra and Karnataka, favourable conditions for wind energy exist. Wind power plant at Lamba in Gujarat in Kachchh is the largest in Asia. Another, wind power plant is located at Tuticorin in Tamil Nadu.
- **Geothermal energy** is now considered to be one of the key energy sources which can be developed as an alternate source.
- In India, a geothermal energy plant has been commissioned at Manikaran in Himachal Pradesh.
- **Bio-energy** refers to energy derived from biological products which includes agricultural residues, municipal, industrial and other wastes.



- **Bio-energy** is a potential source of energy conversion. It can be converted into electrical energy, heat energy or gas for cooking. It can also process the waste and garbage and produce energy.
- One such project converting municipal waste into energy is Okhla in Delhi.



## Key Words

- **Peninsular Plateau** : The Peninsular Plateau is a tableland. It is composed of the old crystalline, igneous and metamorphic rocks.
- **Crystalline rocks** : It can be defined as a rock made up clearly of crystals that grew together in an interlocking manner.
- **Sedimentary basin** : It is a low area in the Earth's crust. It is of tectonic origin.
- **Limestone** : It can be defined as a hard sedimentary rock, composed mainly of calcium carbonate and is used as building material.
- **Crude petroleum** : Unrefined petroleum product.
- **Nuclear energy** : The energy released during a nuclear reaction as a result of fission or fusion.
- **Inexhaustible source of energy** : It is a source of energy which will never get depleted.
- **Geothermal energy** : It is the heat energy generated and stored in Earth.
- **Bio-energy** : Energy derived from biological products which includes agricultural residues, municipal, industrial and other wastes.

## Topic-3

### Conservation of Mineral Resources

**Concepts Covered** • *Various ways of conserving the mineral resources.*



## Revision Notes

- Traditional methods of resource use result into generating enormous quantity of waste as well as create other environmental problems.
- Hence, for sustainable development calls for the protection of resources for the future generations. There is an urgent need to **conserve** the resources.
- The alternative energy sources like solar power, wind, wave, geothermal energy are inexhaustible resource.
- In case of metallic minerals, use of scrap metals will enable recycling of metals. Use of scrap is specially significant in metals like copper, lead and zinc in which India's reserves are meagre.
- Use of substitutes for scarce metals may also reduce their consumption.
- **Export** of strategic and scarce minerals must be reduced, so that the existing reserve may be used for a longer period.



## Key Words

- **Conserve** : To preserve.
- **Export** : To be sold abroad.



## Key Facts

- Petroleum is extracted from the earth and in its original form, it is thick and black liquid.
- Saudi Arabia is the largest producer of oil in the world.
- Solar energy is a completely free source of energy and it is found in abundance.
- Agriculture and horticulture make maximum use of solar energy.
- Wind energy is one of the cleanest and safest method of generating renewable energy.
- According to 2010 survey, 24 countries around the world are using geothermal energy to generate electricity .
- In some parts of Iceland, hot water runs from geothermal power plants under pavements and roads to help melt ice.
- The top producers of bauxite have enough reserves for many years of continued production, with some having reserves lasting 100 years.



# CHAPTER-13

## PLANNING AND SUSTAINABLE DEVELOPMENT IN INDIAN CONTEXT

### Topic-1

### Target Area Planning: Hill Areas Development Programme, Drought-Prone Area Programme

**Concepts Covered** • *Various approaches to planning.*



### Revision Notes

- Generally, there are two approaches to **planning**, i.e., **sectoral planning** and **regional planning**.
- The sectoral planning means formulation and implementation of the sets of schemes or programmes aimed at development of various sectors of the economy such as agriculture, irrigation, manufacturing, power, construction, transport, communication, social infrastructure and services.
- The uneven pattern of development over space necessitates that the planners have a spatial perspective and draw the plans to reduce regional imbalance in development. This type of planning is termed as **regional planning**.
- The planning process has to take special care of those areas which have remained economically backward.
- But sometimes resource-rich region also remains backward. The economic development also requires technology as well as investment besides the resource. With the planning experience of about one and half decades, it was realised that regional imbalances in economic development were getting accentuated.
- In order to arrest the accentuation of regional and social disparities, the Planning Commission introduced the 'target area' and target group approaches to planning.
- In the 8<sup>th</sup> Five Year Plan special area programmes were designed to develop infrastructure in hill areas, north-eastern states, tribal areas and backward areas.
- Hill Area Development Programmes were initiated during the Fifth Five Year Plan covering 15 districts comprising all the hilly districts of Uttar Pradesh (present Uttarakhand), Mikir Hill and North Cachar hills of Assam, Darjeeling district of West Bengal and Nilgiri district of Tamil Nadu.
- These programmes aimed at harnessing the indigenous resources of the hill areas through development of horticulture, plantation agriculture, animal husbandry, poultry, forestry and small-scale and village industry.
- Drought-Prone Area Programme : This programme was initiated during the Fourth Five Year Plan with the objectives of providing employment to the people in drought-prone areas and creating productive assets.
- It emphasised on irrigation projects, land development programmes, afforestation, grassland development and creation of basic rural infrastructures such as electricity, roads, market, credit and services.
- Planning Commission of India (1967) identified 67 districts (entire or partly) of the country prone to drought. Irrigation Commission (1972) introduced the criterion of 30 percent irrigated area and demarcated the drought-prone areas.



### Key Words

- **Planning** : It means the process of thinking, formulation of a scheme or programme and implementation of a set of actions to achieve some goal.
- **Sectoral planning** : The sectoral planning means formulation and implementation of the sets of schemes or programmes aimed at development of various sectors of the economy.
- **Regional planning** : The regional planning means making the plans to reduce development imbalance in a particular region.
- **Implementation** : It means the process of putting a decision or plan into effect and execution.
- **Infrastructure** : It means the basic physical and organisational structures and facilities.
- **Topography** : It is the study of shape and features of the surface of the land such as the mountains, hills, creeks, etc.

**Topic-2****Case study: Integrated Tribal Development Project in Bharmaur Region, Indira Gandhi Canal (Nahar) Command Area****Concepts Covered** • *The process of development of tribal area of Bharmaur.***Revision Notes**

- **Case Study–Integrated Tribal Development Project in Bharmaur Region** : Bharmaur tribal area comprises Bharmaur and Holi tehsils of Chamba district of Himachal Pradesh.
- Bharmaur is inhabited by ‘Gaddi’, a tribal community that has maintained a distinct identity in the Himalayan region as they practised **transhumance** and conversed through Gaddiali dialect.
- It is one of the most (economically and socially) backward areas of Himachal Pradesh.
- The economy of this area is largely based on agriculture and allied activities such as sheep and goat rearing.
- The process of development of tribal area of Bharmaur started in 1970s when Gaddis were included among ‘scheduled tribes.’ Under the Fifth Five Year Plan, the tribal sub-plan was introduced in 1974 and Bharmaur was designated as one of the five Integrated Tribal Development Projects (ITDP) in Himachal Pradesh.
- This plan laid the highest priority on development of transport and communications, agriculture and allied activities, and social and community services.
- The most significant contribution of tribal sub-plan in Bharmaur region is the development of infrastructure in terms of schools, healthcare facilities, potable water, roads, communications and electricity.
- The social benefits derived from ITDP include tremendous increase in literacy rate, improvement in sex ratio and decline in child marriage.
- Traditionally, the Gaddis had **subsistence agricultural**-cum pastoral economy having emphasis on foodgrains and livestock production. But during the last three decades of twentieth century, the cultivation of pulses and other cash crops has increased in Bharmaur region. But the crop cultivation is still done with traditional technology.
- **Indira Gandhi Canal (Nahar) Command Area** : Indira Gandhi Canal, previously known as the Rajasthan Canal, is one of the largest canal systems in India.
- The canal originates at Harike barrage in Punjab and runs parallel to Pakistan border at an average distance of 40 km in Thar Desert (Marusthali) of Rajasthan.
- Out of the total command area, about 70 per cent was envisaged to be irrigated by flow system and the rest by lift system.
- The construction work of the canal system has been carried out through two stages. The command area of Stage-I lies in Ganganagar, Hanumangarh and northern part of Bikaner districts.
- The command area of Stage-II is spread over Bikaner, Jaisalmer, Barmer, Jodhpur, Nagaur and Churu districts covering culturable command area of 14.10 lakh ha.
- The introduction of canal irrigation in this dry land has transformed its ecology, economy and society. It has influenced the environmental conditions of the region both positively as well as negatively.
- The availability of soil moisture for a longer period of time and various afforestation and pasture development programmes under CAD have resulted in greening the land.
- Spread of canal irrigation has led to increase in cultivated area and intensity of cropping. The traditional crops sown in the area, gram, bajra and jowar have been replaced by wheat, cotton, groundnut and rice.
- This has also caused waterlogging and soil salinity, and thus, in the long run, it hampers the sustainability of agriculture.

**Key Words**

- **Transhumance** : It means moving livestock from one grazing ground to another in a seasonal cycle, typically to lowlands in winter and highlands in summer.
- **Fragile** : Delicate.
- **Subsistence agricultural** : It is the form of farming whose products are intended to provide for the basic needs of the farmer, with little surplus for sale. It brings little or no profit to the farmer, allowing only for a marginal livelihood.
- **Pastoralism** : It is the practice of rearing livestock.

**Topic-3****Sustainable Development, Measures for Promotion of Sustainable Development****Concepts Covered** • *Emergence of awareness of sustainable development***Revision Notes**

- The concept of **development** is dynamic and has evolved during the second half of twentieth century.
- The notion of sustainable development emerged in the wake of general rise in the awareness of environmental issues in the late 1960s in Western World.
- It reflected the concern of people about undesirable effects of industrial development on environment.
- Concerned with the growing opinion of world community on the environmental issues, the United Nations established a World Commission on Environment and Development, (WCED) headed by the Norwegian Prime Minister Gro Harlem Brundtland.
- The report defines sustainable development as a “development that meets the needs of the present without compromising the ability of future generations to meet their own needs.”
- Sustainable development takes care of ecological, social and economic aspects of development during the present times and pleads for conservation of resources to enable the future generations to use these resources. It takes into account the development of whole human kind which have common future.
- The ecological sustainability of Indira Gandhi Canal Project has been questioned by various scholars.
- It is a hard fact that attaining sustainable development in the command area requires major thrust upon the measures to achieve ecological sustainability.
- Hence, five of the seven measures proposed are meant to restore ecological balance.
  - (i) The first requirement is strict implementation of water management policy.
  - (ii) In general, the cropping pattern shall not include water intensive crops.
  - (iii) The CAD programmes such as lining of water courses, land development and levelling and **Warabandi System** (equal distribution of canal water in the command area of outlet) shall be effectively implemented to reduce the conveyance loss of water.
  - (iv) The areas affected by **waterlogging** and **soil salinity** shall be reclaimed.
  - (v) The eco-development through afforestation, shelterbelt plantation and pasture development is necessary.
  - (vi) The social sustainability in the region can be achieved only if the land allottees having poor economic background are provided adequate financial and institutional support for cultivation of land.
  - (vii) The agricultural and allied activities have to develop along with other sectors of the economy.

**Key Words**

- **Development** : It is an act or process of growing or becoming larger and more advanced.
- **Bio-physical environment** : The living and non-living features of an environment in which an organism lives is called bio-physical environment.
- **Gross National Product** : It is an estimate of market value of all the final products and services produced in a given period by the means of production owned by a country's citizens.
- **Encapsulate** : It means to show the most important facts about something.
- **Waterlogging** : It means saturation of ground with water.
- **Soil salinity** : It refers to the salt content in the soil.
- **Warabandi System** : 'Waranbandi' system means equal distribution of canal water in the command area of outlet.

**Key Facts**

- Indira Gandhi Canal is the largest canal in India.
- The Indira Gandhi Canal serves as a strategic line of defence as well. This is because it runs parallel to the border of Pakistan and acts as a barrier in case of conventional warfare.
- Indira Gandhi Canal uses water released from Pong Dam.
- Bharmaur is the ancient capital of Chamba district.
- During winters the temperature in Bharmaur can drop to freezing point.

## UNIT – IX: TRANSPORT, COMMUNICATION AND INTERNATIONAL TRADE

### CHAPTER-14 TRANSPORT, COMMUNICATION AND INTERNATIONAL TRADE

#### Topic-1

#### Land Transport

**Concepts Covered** • *Various types of land transport used in India.*



#### Revision Notes

- The use of transport and communication depends upon our need to move things from place of their availability to the place of their use.
- Human-beings use various methods to move goods, commodities, ideas from one place to another.
- India has the second largest road network in the world with a total length of 42.6 lakh km.
- Road transport is relatively suitable for shorter distance travel.
- For the purpose of construction and maintenance, roads are classified as **National Highways (NH)**, **State Highways (SH)**, **Major District Roads** and **Rural Roads**.
- The main roads which are constructed and maintained by the Central Government are known as **National Highways**.
- These roads are meant for inter-state transport and movement of defence personal and material in strategic areas. These roads also connect the state capitals, major cities, important ports, railway junctions, etc.
- The National Highways Authority of India (NHAI) was operationalised in 1995. It is an autonomous body under the Ministry of Road Transport and Highways.
- **State Highways** are constructed and maintained by state governments. They join the state capitals with district headquarters and other important towns.
- These roads are connected to the National Highways. They constitute 4 per cent of total road length in the country.
- **District Roads** are the connecting link between district headquarters and other important nodes in the district. They account for 14 per cent of the total road length of the country.
- Other roads include Border Roads and International Highways.
- The Border Road Organisation has constructed roads in high altitude mountainous terrain joining Chandigarh with Manali (Himachal Pradesh) and Leh (Ladakh). This road runs at an average altitude of 4, 270 metres above the mean sea level.
- The **international highways** are meant to promote a harmonious relationship with the neighbouring countries by providing effective links with India.
- The distribution of roads is not uniform in the country. The density of roads varies from state to state.
- The density of roads is high in most of the northern states and major southern states. It is low in the Himalayan region, north-eastern region, Madhya Pradesh and Rajasthan.
- Construction of roads is easy and cheaper in the plain areas while it is difficult and costly in hilly and plateau areas. Therefore, not only the density but also the quality of roads is relatively better in plains as compared to roads in high altitude areas, rainy and forested regions.
- Indian Railways network is one of the longest in the world.
- Indian Railway was introduced in 1853, when a railway track was constructed from Bombay to Thane covering a distance of 34 km.



- Indian Railways is the largest government undertaking in the country. The length of Indian Railways network was 67,368 km on 31<sup>st</sup> March 2017.
- After the Independence of the country, railway routes have been extended to other areas too. The most significant development has been the development of Konkan Railway along the western coast providing a direct link between Mumbai and Mangaluru.
- Railway continues to remain the main means of transport for the masses.
- Pipelines are the most convenient and efficient mode of transporting liquids and gases over long distances.
- Oil India Limited (OIL) under the administrative set up of the Ministry of Petroleum and Natural Gas is engaged in the exploration, production and transportation of crude oil and natural gas.
- OIL is in the process of constructing of 660 km long pipeline from Numaligarh to Siliguri.



## Key Words

- **National Highways:** The main roads which are constructed and maintained by the Central Government are known as the National Highways. These roads are meant for inter-state transport and movement of defence personnel and material in strategic areas.
- **State Highways:** These are constructed and maintained by state governments. They join the state capitals with district headquarters and other important towns. These roads are connected to the National Highways.
- **District Roads:** These roads are the connecting link between district headquarters and the other important nodes in the district.
- **International Highways:** The international highways are meant to promote the harmonious relationship with the neighbouring countries by providing effective links with India.

## Topic-2

### Water Transport

**Concepts Covered** • *Importance of waterways in India*



## Revision Notes

- Waterways is an important mode of transport for both passenger and **cargo** traffic in India.
- It is the cheapest means of transport and is most suitable for carrying heavy and **bulky** material.
- The water transport is of two types– (a) inland waterways, and (b) oceanic waterways.
- **Inland Waterways** : It was the chief mode of transport before the **advent** of railways.
- India has 14,500 km of navigable waterways, contributing about 1% to the country's transportation.
- For the development, maintenance and regulation of national waterways in the country, the Inland Waterways Authority was set up in 1986.
- The **backwaters** (Kadal) of Kerala has special significance in Inland Waterway. Apart from providing cheap means of transport, they are also attracting large number of tourists in Kerala.
- India has a vast coastline of approximate 7,517 km, including islands.
- Oceanic routes play an important role in the transport sector of India's economy.
- Approximately 95 per cent of India's foreign trade by volume and 70 per cent by value moves through ocean routes.
- Apart from international trade, these are also used for the purpose of transportation between the islands and the rest of the country.



## Key Words

- **Cargo** : Goods carried on a ship, aircraft or motor vehicles.
- **Bulky** : Large and heavy difficult to carry.
- **Advent** : It means invention of something.
- **Backwaters** : It is a part of a river not reached by the current, where the water is stagnant.
- **Creek** : It means narrow, sheltered waterway, especially an inlet in a shoreline of a channel in a marsh.



## Topic-3 Air Transportation

**Concepts Covered** • Importance and various types of air transport available in India.



### Revision Notes

- Air transport is the fastest means of movement from one place to the other.
- It is very essential for a vast country like India, where distances are large and the terrain and climatic conditions are diverse.
- Air transport in India made a beginning in 1911.
- The Airport Authority of India is responsible for providing safe, efficient air traffic and aeronautical communication services in the Indian Air Space.
- The air transport in India is managed by Air India
- Now many private companies have also started passenger services.
- Air India provides international air services for both passengers and cargo traffic.
- About 52 per cent of the total air traffic was handled only at Mumbai and Delhi airports.
- In addition, **Pawan Hans** Limited mainly provides helicopter services to petroleum sector and for tourism.



### Key Words

- **Airmail** : A system of transporting mail by aircraft, typically overseas.
- **Pawan Hans** : Pawan Hans is the helicopter service operating in hilly areas and is widely used by tourists in north-eastern sector.

## Topic-4 Communication Networks

**Concepts Covered** • Various means of communication used in India



### Revision Notes

- In earlier times, the messages were delivered by beating the drum or hollow tree trunks, giving indications through smoke or fire or with the help of fast runners.
- Invention of post office, telegraph, printing press, telephone, satellite, etc., has made the communication much faster and easier.
- People use different modes of communication to convey their messages.
- Means of communication can be divided into **personal and mass communication**.
- Among all the **personal communication** systems, internet is the most effective and advanced one. It is widely used in urban areas.
- The internet is like a huge central warehouse of data, with detailed information on various items.
- It enables us with the basic facilities of direct communication.
- **Mass communication system**: Radio broadcasting started in India in 1923 by the Radio Club of Bombay. Since then, it gained immense popularity and changed the socio-cultural life of people.
- All India Radio broadcasts a variety of programmes related to information, education and entertainment. Special news bulletins are also broadcasted at specific occasions like session of Parliament and state legislatures.
- Television broadcasting has emerged as the most effective audio-visual medium for transmitting information and educating masses.
- Satellites are mode of communication in themselves as well as they regulate the use of other means of communication.
- On the basis of configuration and purposes, satellite system in India can be grouped into two: Indian National Satellite System (INSAT) and Indian Remote Sensing Satellite System (IRS).
- India has also developed its own Launching Vehicle PSLV (Polar Satellite Launch Vehicle).
- The National Remote Sensing Agency (NRSA) at Hyderabad provides facilities for acquisition of data and its processing. These are very useful in the management of natural resources.



## Key Words

- **Personal communication** : Communication at individual level.
- **Mass communication** : It means imparting or exchange of information on a large scale to a wide range of people.

## Topic-5

### International Trade

**Concepts Covered** • *Changing pattern of India's foreign trade; sea ports and their hinterland and airports.*



## Revision Notes

- India's contribution in the world trade is as low as one per cent of the total volume, yet it plays a significant role in the world economy.
- In 1950-51, India's external trade was worth Rs.1,214 crore, which rose to Rs. 44,29,762 crore in 2016-17
- There has been an increase in the total volume of import and export, the value of import continued to be higher than that of exports.
- Composition of commodities in India's international trade has been undergoing a change over the years. The share of agriculture and allied products has declined, whereas, shares of petroleum and crude products and other commodities have increased.
- The decline in traditional items is largely due to the tough international competition. China and other East Asian countries are our major competitors
- India has trade relations with most of the countries and major trading blocks of the world
- Most of India's foreign trade is carried through sea and air route. However, a small portion is also carried through land route to neighbouring countries like Nepal, Bhutan, Bangladesh and Pakistan.
- India is surrounded by sea from three sides and is bestowed with a long coastline. At present, India has 12 major ports and 200 minor or intermediate ports.
- The capacity of Indian ports increased from 20 million tonnes of cargo handling in 1951 to more than 837 million tonnes in 2016.
- Kandla Port situated at the head of Gulf of Kutch has been developed as a major port to cater to the needs of western and north western parts of the country. The port is specially designed to receive large quantities of petroleum and petroleum products and fertilizer.
- Mumbai is a **natural harbour** and the biggest port of the country. The port has the country's largest oil terminal. M.P., Maharashtra, Gujarat, U.P. and parts of Rajasthan constitute the main **hinterlands** of Mumbai port.
- Jawaharlal Nehru Port at Nhava Sheva was developed as a satellite port to relieve the pressure at the Mumbai port. It is the largest container port in India.
- Kochi Port, situated at the head of Vembanad Kayal, popularly known as the 'Queen of the Arabian Sea', is also a **natural harbor**.
- Kolkata Port is located on the Hugli river, 128 km inland from the Bay of Bengal The port has lost its significance considerably on account of the diversion of exports to the other ports such as Vishakhapatnam,
- Air transport plays an important role in the international trade.
- It has the advantage of taking the least time for carriage and handling high value or perishable goods over long distances.
- This ultimately reduces the participation of this sector in the international trade as compared to the oceanic routes.
- There were 25 major airports functioning in the country.



## Key Words

- **Natural harbour**: a landform where a section of a body of water is protected and deep enough to allow anchorage.
- **Hinterlands**: the area of a country that are away from the coast.



## Key Facts

- The total distance covered by the 14,300 trains on the Indian Railways everyday, equals three and half times the distance to the Moon.
- The longest platform in the world is at Gorakhpur and is about 4,483 ft in length.
- The Indian road network is second largest road network in the world.
- On April 19, 1975, India entered the space age by launching their first ever satellite, the Aryabhata.
- The longest national highway will be NH-44, running from Srinagar to Kanyakumari.
- Internet sends approximately 204 million e-mails per minute and 70% of all the e-mails sent are spam

## UNIT – X: GEOGRAPHICAL PERSPECTIVE ON SELECTED ISSUES AND PROBLEMS

### CHAPTER-15

## GEOGRAPHICAL PERSPECTIVE ON SELECTED ISSUES AND PROBLEMS

### Topic-1

### Environmental Pollution: Water Pollution, Air Pollution, Noise Pollution, Urban Waste Disposal

**Concepts Covered** • *Different types of pollution and its sources*



## Revision Notes

- **Environmental pollution** results from the release of substances and energy from waste products of human activities.
- Pollution can be classified into (i) air pollution, (ii) water pollution, (iii) land pollution and (iv) noise pollution.
- **Water Pollution:** Indiscriminate use of water by increasing population and industrial expansion has led to degradation of the quality of water considerably.
- Though water pollutants are also created from natural sources (erosion, landslides, decay and decomposition of plants and animals, etc.) human sources are the real causes of concern. Human beings pollute the water through industrial, agricultural and cultural activities. Among these activities, industry is the most significant contributor.
- Industries produce several undesirable products such as industrial wastes, polluted waste water, poisonous gases, chemical residuals, numerous heavy metals, dust, smoke, etc. Most of the industrial wastes are disposed off in running water or lakes.
- Major water polluting industries are leather, pulp and paper, textiles and chemicals.
- Cultural activities such as pilgrimage, religious fairs, tourism, etc., also cause water pollution.
- Air pollution is addition of contaminants like dust, fumes, gas, fog, odour, smoke or vapour to the air in substantial proportion and duration that may be harmful to human, flora and fauna and property. Combustion of fossil fuels, mining and industries are the main sources of air pollution.
- Noise pollution refers to the state of unbearable and uncomfortable to human beings which is caused by noise from different sources.
- The main sources of noise pollution are various factories, mechanised construction and demolition works, automobiles and aircrafts, etc. There may be added periodical but polluting noise from sirens, loudspeakers used in various festivals, programmes associated with community activities.
- In sea traffic, noise pollution is confined to the harbour due to loading and unloading activities being carried. Industries cause noise pollution but with varying intensity depending upon the type of industry.
- Noise pollution is location specific and its intensity declines with increase in distance from the source of pollution, *i.e.*, industrial areas, arteries of transportation, airport, etc.

- **Environmental pollution** by solid wastes has now got significance because of enormous growth in the quantity of wastes generated from various sources.
- **Solid waste** refers to a variety of old and used articles, For example, stained small pieces of metals, broken glasswares, plastic containers, polythene bags, ashes, floppies, CDs, etc., dumped at different places.
- **Solid wastes** cause health hazard through creation of obnoxious smell, and harbouring of flies and rodents, which act as carriers of diseases like typhoid, diphtheria, diarrhoea, malaria and cholera, etc.
- The dumping of industrial waste into rivers leads to water pollution. River pollution from city-based industries and untreated sewage leads to serious health problems downstream.
- These wastes should be treated as resource and utilised for generating energy and compost. Untreated wastes ferment slowly and release toxic biogas to the atmosphere, including methane.



## Key Words

- **Environmental pollution** : Pollution resulting from the release of substances and energy from waste products of human activities.
- **Reservoirs** : A large natural or artificial lake used as a source of water supply.
- **Fertilisers** : The chemical or natural substance added to soil or land to increase its fertility.
- **Pesticides** : The substance used for destroying insects or other organisms harmful for cultivated plants .
- **Water borne disease** : It refers to water-related diseases.
- **Smog** : The mixture of smoke and fog in the air.
- **Acid rain** : Rainfall that is made so acidic by atmospheric pollution that it causes environmental harm.
- **Solid waste** : A variety of old and used articles such as stained small pieces of metals, broken glassware, plastic containers, polythene bags, etc.

## Topic-2

### Rural -Urban Migration, Problems of Slums, Land Degradation

**Concepts Covered** • *Reasons for migration in India, problems caused by over crowding slums and land degradation.*



## Revision Notes

- **Population** flow from rural to urban areas is caused by many factors like high demand for labour in urban areas, less job opportunities in rural areas and unbalanced pattern of development between urban and rural areas.
- Urban centres in India are more differentiated in terms of the socio-economic, politico-cultural and other indicators of development than any other areas.
- **Slums** are residential areas of the least choice, dilapidated houses, poor hygienic conditions, poor ventilation, lack of basic amenities like drinking water, light and toilet facilities, etc.
- These areas are over-crowded having narrow street pattern prone to serious hazards from fire.
- Moreover, most of the **slum** population works in low paid, high risk-prone, unorganised sectors of the urban economy.
- Poverty makes them vulnerable to drug abuse, alcoholism, crime, vandalism, escapism, apathy and ultimately social exclusion.
- The pressure on agricultural land increases not only due to the limited availability but also by deterioration of quality of agricultural land. Soil erosion, waterlogging, salinisation and alkalinisation of land lead to land degradation.
- Land degradation is generally understood either as a temporary or a permanent decline in productive capacity of the land.
- Though all degraded land may not be wasteland, but unchecked process of degradation may lead to the conversion to wasteland.
- National Remote Sensing Agency (NRSA) has classified wastelands by using remote sensing techniques and it is possible to categorise these wastelands according to the processes that have created them. There are a few types of wastelands such as gullied /ravineous land, desertic or coastal sands, barren rocky areas, steep sloping land, and glacial areas, which are primarily caused by natural agents.
- There are some other types of wastelands such as degraded shifting cultivation area, degraded land under plantation crops, degraded forests, degraded pastures, and mining and industrial wastelands, are caused by human activities.



## Key Words

- **Population** : All the inhabitants of a particular place.
- **Slums**: Slums are residential areas of the least choice, dilapidated houses, poor hygienic conditions, poor ventilation, lack of basic amenities like drinking water, light and toilet facilities, etc.
- **Social exclusion** : It refers to exclusion from the prevailing social system and its rights and privileges, typically as a result of poverty.
- **Waterlogging** : It means saturation of soil with water.
- **Marshy areas** : It is a type of wetland, an area of land where water covers ground for long periods of time.



## Key Facts

- Dharavi, the slum of Mumbai is the third largest slum in the world.
- The slum of Dharavi is a major tourist attraction.
- Nearly one lakh premature deaths in India happen annually due to air pollution.
- According to WHO, Delhi has surpassed Beijing and is currently the most polluted city in the world.
- The Ganges is one of the most polluted river in the world.
- In India, water-borne diseases like diarrhoea alone cause more than 1,600 deaths daily.

