ON TIPS NOTES

Note-making is a skill that we use in many walks of life : at school, university and in the world of work. However, accurate note-making requires a thorough understanding of concepts. We, at Oswaal, have tried to encapsulate all the chapters from the given syllabus into the following ON TIPS NOTES. These notes will not only facilitate better understanding of concepts, but will also ensure that each and every concept is taken up and every chapter is covered in totality. So go ahead and use these to your advantage... go get the OSWAAL ADVANTAGE!!

CHAPTER 1 : Secondary Activities

- Secondary activities add value to natural resources by transforming raw materials into valuable products.
- To add value, raw materials need to be converted into finished goods. Secondary activities, therefore, are concerned with manufacturing, processing and construction (infrastructure) industries.
- Manufacturing involves the application of power and the 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 is still very primitive.
- Under the 'Craft Method', factories produce only a few made-to-order pieces. So the costs are high. On the other hand, mass production involves the production of large quantities of standardised parts by each worker performing only one task repeatedly.

Modern manufacturing is characterised by:

- A complex machine technology
- Extreme specialisation and division of labour for producing more goods with less effort and low costs
- Vast capital
- Large organisations
- Executive bureaucracy
- The geographical location of manufacturing industries should be decided at points where the production costs are minimal.

Factors that influence the location of industries:

- 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 materials (ores) are located close to the sources of raw materials such as steel, sugar and cement industries.
- Labour supply is an important factor in the location of industries.
- Industries that 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 "agglomeration economies".

Classification of Manufacturing Industries

- The amount of capital invested, the number of workers employed and the volume of production determine the size of the 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 materials, 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 minerals, and some use non-ferrous metallic minerals.
- Chemical-based industries use natural chemical minerals, e.g., mineral-oil (petroleum) is used in the petrochemical industry.
- Chemical industries are also based on raw materials obtained from wood and coal.
- Forest-based raw material using industries use timber for the furniture industry, wood, bamboo and grass for paper industry and lac for lac industries comes from forests.
- Animal-based industries use leather for the leather industry and wool for woollen textiles are obtained from animals.
- There are industries that 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 that 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 the 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 form the base of all other industries; 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.
- The cotton textile industry has three sub-sectors i.e., handloom, power loom and mill sectors.
- Cotton textile manufacturing requires good quality cotton as raw material. India, China, the USA, Pakistan, Uzbekistan, Egypt produce more than half of the world's raw cotton.

CHAPTER 2 : Tertiary and Quaternary Activities

Types of Tertiary Activities

- Many professionals provide their services against the 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.

- The workforce 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 human's basic need for 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 the 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 widespread than high-order services or more specialised ones like those of accountants, consultants and physicians. Personal services are made available to 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% 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 around the year.
- Tourism fosters the growth of infrastructure industries, retail trading and craft industries (souvenirs).

Quaternary Activities, Quinary Activities and the Digital Divide

- Some people 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.
- The 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 policymakers performs 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 manufacturing and engineering activities are also outsourced.
- Outsourcing is coming to those countries where cheap and skilled workers are available. These are also out-migrating countries.

- When medical treatment is combined with international tourism activity, it lends itself to what is commonly known as medical tourism.
- Opportunities emerging from the Information and Communication Technology-based development are unevenly distributed across the globe.
- While developed countries, in general, have surged forward, the developing countries have lagged and this is known as the digital divide.

CHAPTER 3 : Transport and Communication

Mode of Transport: Land Transport, Water Transport, Air Transport and Pipelines

- In the 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 the road construction and maintenance require heavy expenditure.
- The highest road density and the highest number of vehicles are registered in the Asian continent compared to Western Europe.
- Highways are metalled roads connecting distant places. In developed countries, every city and the 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.
- Transcontinental 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 and ports or domestic markets.

Communication: Satellite Communication, Cyberspace—Internet

- 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, made possible by satellites, is important for rural connectivity.
- Today internet is the largest electronic network on the planet connecting about 1,000 million people in more than 100 countries.
- Artificial satellites now are successfully deployed in the earth's orbit to connect even the remote 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.

CHAPTER 4 : Mineral and Energy Resources

- 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.
- Based on chemical and physical properties, minerals may be grouped under two main categories metallic and non-metallic.
- Iron ore, copper, gold produce metal and are included in the metallic category.
- Metallic minerals are further divided into ferrous and non-ferrous metallic minerals.
- Ferrous refers to iron. All those minerals that have iron content are ferrous such as iron ore itself and those that do not have iron content are non-ferrous such as copper, bauxite, etc.
- Non-metallic minerals are either organic in origins such as fossil fuels also known as mineral fuels, which are derived from buried animal and plant life such as coal and petroleum.
- Another type of non-metallic mineral is inorganic in origins 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% of the 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 the smelting of iron ore and is 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 that is used in the 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 that 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.

Distribution of Minerals in India

- 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 Chota Nagpur (Jharkhand), Odisha Plateau, West Bengal and parts of Chhattisgarh.
- It has a 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 northeastern belt. Kerala has deposits of monazite, thorium, bauxite and clay.

The North-Western Region:

- This belt extends along Aravalli in Rajasthan and part of Gujarat and minerals are associated with the Dharwar system of rocks.
- Copper and zinc have been major minerals. Rajasthan is rich in building stones, i.e., sandstone, granite and 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).

Types of Energy Resources

- Mineral fuels are essential for the 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 that 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% of the coal deposits in India are of bituminous type and are of non-coking grade.
- Jharia is the largest coalfield followed by Raniganj. The other river valleys associated with coal are the Godavari, Mahanadi and Sone.
- The most important coal mining centres are Singrauli in Madhya Pradesh (part of Singrauli coalfield 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, 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 were 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 in the extreme western and eastern parts of the country.
- The major oil fields of Gujarat are Ankleshwar, 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 Kakarapara (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 a 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 the oil import bill.
- In Rajasthan, Gujarat, Maharashtra and Karnataka, favourable conditions for wind energy exist. The 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 that 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 include 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.

Conservation of Mineral Resources

- Traditional methods of resource use result in generating an enormous quantity of waste as well as creating other environmental problems.
- Hence, sustainable development calls for the protection of resources for future generations. There is an urgent need to conserve resources.
- Alternative energy sources like solar power, wind, wave and geothermal energy are inexhaustible resources.
- In the case of metallic minerals, the use of scrap metals will enable the recycling of metals. The use of scrap is especially significant in metals like copper, lead and zinc in which India's reserves are meagre.
- The 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.

CHAPTER 5 : Planning & Sustainable Development in Indian Context

PLANNING IN INDIA - TARGET GROUP AREA PLANNING

In order to arrest the accentuation of regional and social disparties, the Planning Commission introduced the 'target area' and target group approaches to planning.

Some of the examples of programmes directed towards the development of target areas are:

- Command Area Development Programme,
- Drought Prone Area Development Programme,
- Desert Development Programme,

- Hill Area Development Programme.

  The Small Farmers Development Agency (SFDA) and Marginal Farmers Development Agency (MFDA) which are the examples of target group programme

Case Study – Integrated Tribal Development Project in Bharmaur* Region

- Bharmaur tribal area ,since 21 November 1975 comprises Bharmaur and Holi tehsils of Chamba district of Himachal Pradesh.
- Bharmaur is inhabited by 'Gaddi', a tribal community who have maintained a distinct identity in the Himalayan region as they practised transhumance and conversed through Gaddiali dialect.
- This region has harsh climate conditions, low resource base and fragile environment. These factors have influenced the society and Economy of the region.
- 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 area development plan was aimed at improving the quality of life of the Gaddis and narrowing the gap in the level of development between Bharmaur and other areas of 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.
- Thhe social benefits derived from ITDP include tremendous increase in literacy rate, improvement in sex ratio and decline in child marriage.
- The female literacy rate in the region increased from 1.88 per cent in 1971 to 65 per cent in 2011. Traditionally, the Gaddis had subsistence agricultural-cum-pastoral economy having emphasis on foodgrains and livestock production.
- The declining importance of pastoralism in the economy of the region can be gauged from the fact that at present only about one-tenth of the total households practise transhumance. But the Gaddis are still very mobile as a sizeable section of them migrate to Kangra and surrounding areas during winter to earn their livings from wage labour.

SUSTAINABLE DEVELOPMENT

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.

Case Study --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 project was launched on 31 March, 1958 by Kanwar Sain in 1948.
- 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.
- The total planned length of the system is 9,060 km catering to the irrigation needs of a total culturable command area of 19.63 lakh hectares.
- 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. It has a gently undulating topography and its culturable command area is 5.53 lakh hectares.
- 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 hectares.
- The introduction of canal irrigation in this dry land -
  (i) has transformed its ecology, economy and society. It has influenced the environmental conditions of the region both positively as well as negatively.
  (ii) has brought about a perceptible transformation in the agricultural economy of the region.
- 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 is the result of intensive irrigation.
- This intensive irrigation, no doubt, initially has led to tremendous increase in agricultural and livestock productivity. This has also caused waterlogging and soil salinity, and thus, in the long run, it hampers the sustainability of agriculture.

Measures for Promotion of Sustainable Development

(i) The first requirement is strict implementation of water management policy. The canal project envisages protective irrigation in Stage-I and extensive irrigation of crops and pasture development in Stage-II.
(ii) In general, the cropping pattern shall not include water intensive crops. It shall be adhered to and people shall be encouraged to grow plantation crops such as citrus fruits.
(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 water logging and soil salinity shall be reclaimed.
(v) The eco-development through afforestation, shelterbelt plantation and pasture development is necessary particularly in the fragile environment of Stage-II.
(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 economic sustainability in the region cannot be attained only through development of agriculture and animal husbandry. The agricultural and allied activities have to develop alongwith other sectors of economy. This shall lead to diversification of economic base and establishment of functional linkages between basic villages, agro-service centres and market centres.

CHAPTER 6 : Transport and Communication

Land Transport

- The use of transport and communication depends upon our need to move things from the place of their availability to the place of their use.
- Human beings use various methods to move goods, commodities and ideas from one place to another.
- India has the second-largest road network in the world with a total length of 43.2 lakh km.
- Road transport is relatively suitable for short-distance travel.
- For construction and maintenance, roads are classified as National Highways (NH), State Highways (SH), Major District Roads and Rural Roads.
- The main roads that 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 personnel 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% of the 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% 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 the 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 covers a distance of 34 km.
- Indian Railways is the largest government undertaking in the country. The length of the Indian Railways network was 67,368 km on 31st 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 the Konkan Railway along the western coast providing a direct link between Mumbai and Mangaluru.
- Railways continue 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.

Water Transport

- The waterway 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 materials.
- 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 have special significance in inland waterways. Apart from providing cheap means of transport, they are also attracting a large number of tourists in Kerala.
- India has a vast coastline of approximately 7,517 km, including islands.
- Oceanic routes play an important role in the transport sector of India's economy.
- Approximately 95% of India's foreign trade by volume and 70% by value moves through ocean routes.
- Apart from international trade, these are also used for transportation between the islands and the rest of the country.

Air Transportation

- 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% of the total air traffic was handled only at Mumbai and Delhi airports.
- In addition, Pawan Hans Limited mainly provides helicopter services to the petroleum sector and for tourism.

Communication Networks

- 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.
- The invention of the post office, the telegraph, printing press, the telephone, satellite, etc. has made 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, the 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 was 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 on specific occasions like the session of Parliament and state legislatures.
- Television broadcasting has emerged as the most effective audio-visual medium for transmitting information and educating the masses.
- Satellites are a mode of communication in themselves as well as they regulate the use of other means of communication.
- Based on the configuration and purposes, satellite systems 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 Polar Satellite Launch Vehicle (PSLV).
- The National Remote Sensing Agency (NRSA) at Hyderabad provides facilities for the acquisition of data and its processing. These are very useful in the management of natural resources.

CHAPTER 7 : Geographical Perspective on Selected Issues and Problems

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

- 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 the 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, the industry is the most significant contributor.
- Industries produce several undesirable products such as industrial wastes, polluted wastewater, poisonous gases, chemical residuals, numerous heavy metals, dust, smoke, etc. Most of the industrial wastes are disposed of 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 the 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 humans, 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 sounds 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 aircraft, etc. There may be added periodically 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 out. Industries cause noise pollution but with varying intensity depending upon the type of industry.

- Noise pollution is location-specific, and its intensity declines with an 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 number 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 glassware, plastic containers, polythene bags, ashes, floppies, CDs, etc. dumped at different places.
- Solid wastes cause health hazards through the creation of obnoxious smells and harbouring of flies and rodents, which act as carriers of diseases like typhoid, diphtheria, diarrhoea, malaria, 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 resources and utilised for generating energy and compost. Untreated wastes ferment slowly and release toxic biogas to the atmosphere, including methane.

Rural-Urban Migration, Problems of Slums, Land Degradation

- Population flow from rural to urban areas is caused by many factors like high demand for labour in urban areas, fewer job opportunities in rural areas and an 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 area.
- Slums are residential areas of the least choice with dilapidated houses, houses, poor hygienic conditions, poor ventilation, lack of basic amenities like drinking water, light and toilet facilities, etc.
- These areas are overcrowded having narrow street patterns 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 the deterioration of the 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 the productive capacity of the land.
- Though all degraded land may not be a wasteland, the unchecked process of degradation may lead to the conversion to the wasteland.
- National Remote Sensing Agency (NRSA) has classified wastelands 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 /ravinous land, desertic or coastal sands, barren rocky areas, steeply 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 caused by human activities.

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