Social Science

(Part-I)

(Class X)

Punjab School Education Board

Sahibzada Ajit Singh Nagar

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Foreward

Punjab School Education Board, has been enganged in the endeavour to prepare textbooks for all the classes at school level. The book in hand is one in the series and has been prepared for the students of class X. Punjab Curriculum Framework (PCF) 2013 which is based on National Curriculum Framework (NCF) 2005, recommends that the child's life at school must be linked to their life outside the school. The syllabi and textbook in hand is developed on the basis of the principle which makes a departure from the legacy of bookish learning to activity-based learning in the direction of child-centred system.

The success of this effort depends upon the steps that school principals and teachers will encourage pupils to reflect on their own learning and to pursue imaginative activities which will inculcate creativity. This initiative is possible if we perceive and treat children as participants in learning not as receivers of a fixed body of knowledge. The methodology of teaching and evaluation will also determine how effective this textbook proves for making children's life a happy learning experience at school, rather than a source of stress or boredom.

Geography part of the book will help to develop a balanced perspective related to issues concerning the environment, resources and development at different levels i.e. from local to global. Geography must be taught keepingn in mind the need to inculcate a critical appreciations for conservation and environmental concerns in the child along with developmental issues particularly with special reference to the state they are living in.

The economics component will enable students to observe economic institutions like the family, the market and the state. Economics is being introduced to the child at this level, it is important that the topics should be discussed from the perspective of the people. Board always welcome suggestions for the improvement of the book in future.

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Content

Geography

Resources and Development

1

We all, as human beings, depend on natural resources to live so that life can sustain itself. The role of natural resources on earth is vital one indeed. That is why it's so important for us to all have some accountability and that is why we need to protect and respect our environment best we can. So it should be allowed to continue to replenish itself naturally. Geographically speaking, any matter or energy derived from the environment (nature) and is used by living things, including humans, is called natural resource. In other words, everything available in our environment which can be used to satisfy our needs will be called, Resource. It should be technologically accessible, economically viable, geographically feasible and culturally acceptable to all concerned. Resources may be broadly classified on the basis of their availability and they are: renewable and non-renewable resources. They may also be classified as actual and potential on the basis of state of development and use. The resources can be Biotic and Abiotic on the basis of their origin and on the basis of their distribution, as ubiquitous and localized. Very recently, with an increase in space odysseys, resources can be seen as Terrestrial and Extra-Terrestrial resources. Any animate and inanimate object, presently a neutral stuff, can be a resource with time and change in interface of technology. We can say emphatically, the concept of a resource is dynamic. The process of transformation of things available in our environment involves an inter-dependent relationship between nature, technology, stage of human evolution and institutions. Human beings interact with nature through technology and develop mean and modes for exploitation of resources and accelerate their economic development.

Do you think that resources are free gifts of nature ? Certainly they are not. Earth asks for time for their regeneration. A few resources have reasonable time for their reproduction while others take geological(long) times to replenish themselves. Resources are a function of human activities. Human beings themselves are essential components of resource utilization. They transform material available in our environment into resources and use them. These resources can be classified in the following ways-

(a) On the basis of origin - Biotic and Abiotic

(b) On the basis of exhaustibility - Renewable and Non-renewable

(c) On the basis of ownership - Individual, Community, National and International

(d) On the basis of status of growth - Potential, Developed, Stock and Reserves.

(e) On the basis of their place of availability- Terrestrial and Extra-terrestrial resources

Note : Resources belonging to space, other than earth, may from some other planet, asteroid or comet are called Extra-terrestrial resources.

Kardashev Scale classifies civilizations in five levels:

Level I Civilization uses resources of the planet only.

Level II Civilization uses resources of the entire solar system.

Level III Civilization uses resources of the native galaxy.
Level IV Civilization uses resources of multiple galaxies.
Level V Civilization uses resources of entire universe.

We, the people of the Planet Earth, make Level I Civilization and soon will be Level II for bringing home iron rocks of asteroids found between Mars and Jupiter or Lithium stocks from Moon. This scale has been envisaged by a Russian scientist, Nikolai Kardashev in 1964.

Can you identify and name the various items used in making life comfortable in our villages and towns? List the items and name the material used in their making.

Interdependent relationship between nature, technology and institutions

USABILITY FOR MANKIND Resources satisfy human needs

ECONOMIC VIABILITY Resources should remain within economic reach or have price affordability

GEOGRAPHICAL FEASIBILITY Resources are in reach of human beings. The friction of terrain or tough physiography does not bother its procurement

SOCIALLY ACCEPTABLE Resources comply to society's list of dos and don'ts

RESOURCES ***include all what satisfy human needs and carry worth. Neutral stuff of yesterdays can be a resource today. Resources carry potential and seek right kind of human environment for their development***

MORALLY PERMISSIBLE Resources do satisfy human conscience

ENVIRONMENTALLY JUSTIFIABLE Any thing detrimental to environment cannot be a resource

DURABILITY FOR FUTURE Resources are consumed recurrently or stay with the ecosystem in changed form of matter

DYNAMISM Definition of a resource changes with time

MATHEMATICALLY QUANTIFIABLE Resources can be tabulated and appraisals can be used for future studies and planning purposes

ETHICALLY SENSIBLE Resources satisfy value system of a society

CHRONONOLOGICALLY LOGABLE Harnessing and exploitation of resources can be recorded on time line for conservational purposes and to impart resource consciousness

TECHNOLOGICALLY REACHABLE Resources are reachable if technology permits. Their usage is often redefined by technological excellence over time.

TYPES OF RESOURCES

On the Basis of Origin

Biotic Resources: These are obtained from the biosphere, and have life such as humans, forests and their products, animals, birds and their products, fish and other marine organisms.

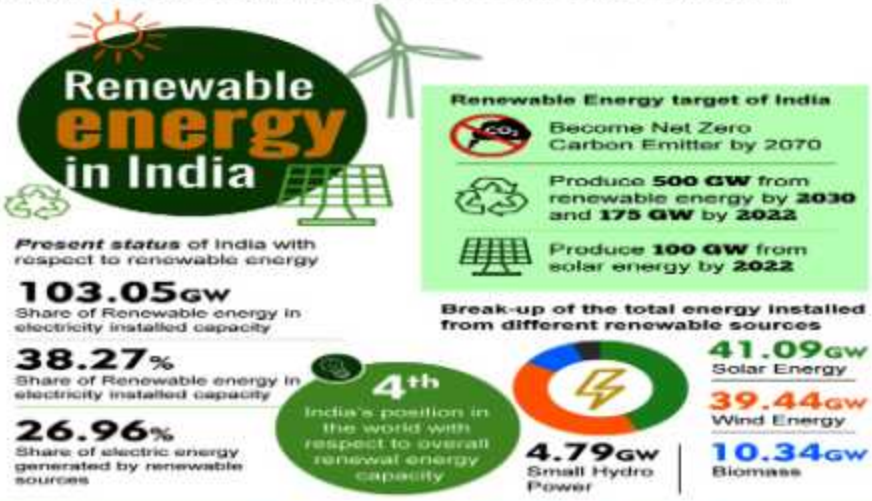
Abiotic Resources: All those things which are composed of non-living things are called abiotic resources. For example; rocks and metals.

These resources in broad sense are also called animate and inanimate or organic and inorganic resources.

On the Basis of Exhaustibility

Renewable Resources: Resources which get renewed or replenished fast in reasonable time, are called renewable resource. Some of these resources are always available (continuous) and do not get affected by human activities, for example; solar, wind and tidal energy. Many resources on the other hand, get depleted after their use. These may however, be replenished without endangering their future use, provided rate of consumption does not exceed the rate of renewal or replenishment. Hence, they maintain a flow. Water, forests and wildlife, etc. India's renewable energy sector is growing at a fast pace. India accounts for 5.8 percent of the world's total wind power generation and is the fourth largest producer of wind power in the world after China, US and Germany. By 2022, share of Renewable energy sources has increased to 26.53%(wind, solar, biomass and small hydro) and 12.3 percent from large hyro projects, India is adding 175 Gigawatt of renewable generation by 2022.

The renewable resource may further be divided into continuous or flow



"One Sun, One World, One Grid"

The International Solar Alliance (ISA) is an alliance of 121 signatory countries, most being sunshine countries, which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn. The primary objective of the alliance is to work for efficient consumption of solar energy to reduce dependence on fossil fuels, similarly, The "One Sun, One World, One Grid" is an initiative for interconnected solar energy infrastructure at a global scale. Taking this vision forward, the United Kingdom and the Government of India, International Solar Alliance

with the support of The World Bank, will jointly launch the global "Green Grids Initiative – One Sun One World One Grid", at COP26. (The UN Climate Change Conference in Glasgow (COP26)

Non-Renewable Resources: These occur over a very long geological time. Minerals and fossil fuels are examples of such resources. These resources take millions of years in their formation. Some of the resources like metals are recyclable and some like fossil fuels cannot be recycled and get exhausted with their use.

On the Basis of Ownership

Individual Resources: These are also owned privately by individuals. Many farmers own land which is allotted to them by government against the payment of revenue. In villages there are people with land ownership but there are many who are landless. Urban people own plots, houses and other property. Plantation, pasture lands, ponds, water in wells etc. are some of the examples of resources owned by individuals.

Make a list of resources owned by your family and comment on their nature.

Community Owned Resources: There are resources which are accessible to all the members of the commune. Village commons (grazing grounds, burial grounds, village ponds, etc.) public parks, picnic spots, playgrounds in urban areas are de facto accessible to all the people living there.

National Resources: Technically, all the resources belong to the nation are natural resources. A country has legal powers to acquire even private property for purpose of public good. You might have seen roads, canals, railways being constructed on fields owned by some individuals. Urban Development Authorities get empowered by the government to acquire land. All the minerals, water resources, forests, wildlife, lands within the political boundaries and oceanic area upto 200 nautical miles(extendable to 350 nautical miles) from the coastline. The waters upto 12 nautical miles towards sea are called territorial water and airfield above it is also owned by the same nation.

Territorial waters - Out of 12 nautical miles (22 kilometers; 13.8miles) from the baseline, the country is free to set laws, regulate use, and exploit any resource. The unprejudiced commercial and cargo vessels are given the freedom of navigation in innocent passages while no consent is required in transit passages of multinational straits.

Exclusive Economic Zone EEZ - This zone extends from the baseline to 200 nautical miles (370 kilometer ; 230 miles). Under conditions, it can extend upto 350 nautical miles(637 km)as Extended Exclusive Economic Zone.

The coastal nation has sovereign rights to its natural resources. Pipelines and communication cables may be laid down at a specific depth anywhere in the oceans. International Seabed Authority can give right to exploit marine resources in open seas if the demand of a country is found genuine. India has got the right to mine manganese nodules from the bed of the Indian Ocean beyond its exclusive economic zone.

Identify some other resources which are international in nature.

International Resources: There are international institutions which regulate some resources. The oceanic resources beyond 200 nautical miles of the Exclusive Economic Zone belong to open ocean and no individual country can utilise these without the concurrence of international institutions. In 1967, Space Treaty had been signed for a prudent use of celestial bodies for the welfare of human beings on planet Earth.

On the Basis of the Status of growth

Potential Resources: Resources which are found in a region, but have not been utilized so far. These are possible resources and wait for their development.

For example, the northern and western parts of India particularly Jammu and Kashmir, Rajasthan and Gujarat have enormous potential for the development of wind and solar energy, but so far these have not been developed properly.

Developed Resources: Resources which are surveyed and their quality and quantity have been determined for utilisation. Presently, are in a state of their exploitation and usage. The development of resources depends on technology and level of their feasibility.

Stock: Materials in the environment which have the potential to satisfy human needs but human beings do not have the appropriate technology to access these resources.

Identify at least two resources from each category. For example, water is a compound of two gases: hydrogen and oxygen. Hydrogen can be used as a rich source of energy. But we do not have advanced technical 'know-how' to use it for this purpose. Hence, it can be considered as stock.

Reserves are the subset of the stock, which can be put into use with the help of existing technical 'know-how' but their use has not been started. These can be used for meeting future requirements. For example, Hydro power is obtained by harnessing the power of moving water in rivers by building dams or small canals to direct the flow of water through a turbine. River water can be used for generating hydroelectric power but presently, it is being utilised only to a limited extent. Thus, the water in the dams, forests etc. is a reserve which can be used in the future.

Terrestrial resources include all animate or inanimate resources available on the Earth. These may be land resources, marine resources, subterranean resources and airborne resources. Extra-terrestrial resources belong to other celestial bodies, solar systems, galaxies and nebulae. Hayabysa, a robotic spacecraft of Japan has brought samples from near earth asteroid back on earth's surface in 2010. Number of asteroids with huge piles of iron and nickel orbiting around sun with their orbits between Mars and Jupiter, are on human radar for exploitation of their riches.

Environmental Possibility resource

Usability for mankind

Geographic feasibility

Temporal feasibility

Reliable for futures

Ethical Sensibility

Economic viability

Socially Justified

Mathamatically quantified

DEVELOPMENT OF RESOURCES

Resources are vital for human survival as well as for maintaining the quality of life. It was believed that resources are free gifts of nature. As a result, human beings used them indiscriminately and this has led to the following major problems.

- Depletion of resources for satisfying the greed of few individuals.
- Accumulation of resources in few hands, which in turn, divided the society into two segments i.e. haves and have nots or rich and poor.
- Indiscriminate exploitation of resources has led to global ecological crises such as, global warming, ozone layer depletion, rise in sea level, environmental pollution and land degradation.

An equitable distribution of resources has become essential for a sustained quality of life and global peace. If the present trend of resource depletion by a few individuals and countries continues, the future of our planet is in danger. Therefore, resource planning is essential for sustainable existence of all forms of life. Sustainable existence is a component of sustainable development.

Prepare a list of stock and reserve, resources that you are familiar with from your local area.

Gandhi Ji said, *" There is enough for everyone's needs but not to everyone's greed"*

Mind it, we do not inherit Earth from our ancestors but borrow it from our children.

1. Imagine, if the oil supply gets exhausted one day, how would this affect our life style?
2. Plan a survey in your colony/village to investigate people's attitude towards recycling of the domestic/agricultural wastes. Ask questions about :
   (a) What is their opinion about the wastes, and its utilisation?
   (b) Collage your results.

Sustainable development Sustainable economic development means 'development should take place without damaging the environment, and development in the present should not compromise with the needs of the future generations.'

RESOURCE PLANNING

Planning can be defined as "thinking in advance what is to be done, when it is to be done, how it is to be done and by whom it should be done". In simple words we can say, planning bridges the gap between where we are standing today and where we want to reach. It is course of action, anticipated or foreseen beforehand to obtain optimum outcomes.

Types of Planning

1. Operational Planning 2. Tactical planning 3. Strategic Planning

Planning is the widely accepted strategy for judicious use of resources. It has importance in a country like India, which holds enormous diversity in the availability of resources. There are regions rich in a category of resources but are deficient in some other resources. There are regions, considered self-sufficient in terms of the availability of resources and there are some regions which have acute shortage of vital resources. For example, the states of Jharkhand, Chhattisgarh and Madhya Pradesh are rich in minerals and coal deposits. The state of Rajasthan is very well endowed with solar and wind energy but lacks in water resources. The cold desert of

Ladakh is relatively isolated from the rest of the country. It has very rich cultural heritage but it is deficient in water, infrastructure and industrial minerals. This calls for balanced resource planning at the national, state, regional and local levels. The availability of resources is a necessary condition for the development of a region, but mere availability of resources in the absence of corresponding changes in technology and institutions may hinder development. There are many regions in our country that are rich in resources but these are included in economically backward regions. On the contrary there are some regions which have a poor resource base but they are economically developed.

Can you name some resource rich but economically backward regions and some resource poor but economically developed regions? Give reasons for such a situation.

The continent of Europe exploded demographically and had seen exponential growth in its populations. It was post industrial revolution era. Dearth of resources was felt badly and a relative quest for colonies started for all European powers. The history of colonisation reveals that rich resources in colonies were the main attractions for the foreign traders who had turned invaders to start an unending race for supremacy and hegemony. Therefore, resources can contribute to development only when they are accompanied by appropriate technological development and institutional changes. India has experienced all this in different phases of colonisation. Therefore, in India, development, in general, and resource development in particular does not only involve the availability of resources, but also the technology, quality of human resources and the historical experiences of the people.

Rio de Janeiro (Brazil) Earth Summit, was held in 1992,and In 2012, the United Nations Conference on Sustainable Development was also held in Rio, and is also commonly called Rio+20 or Rio Earth Summit 2012. It was held from 13 to 22 June. The issues addressed included:

- Systematic scrutiny of patterns of production - particularly the production of toxic components, such as lead in gasoline, or poisonous waste including radioactive chemicals.
- Alternative sources of energy to replace the use of fossil fuels which delegates linked to global climate change.
- New reliance on public transportation systems in order to reduce vehicle emissions, congestion in cities and the health problems caused by polluted air and smoke.
- The growing usage and limited supply of water.

Resource Planning in India

Resource planning is a complex process and includes :

(i) Identification and inventory of resources across the regions of the country. This involves surveying, mapping and qualitative and quantitative estimation and measurement of the resources.

(ii) Evolving a planning structure endowed with appropriate technology, skill and institutional set up for implementing resource development plans.

(iii) Matching the resource development plans with overall national development plans. India has made concerted efforts for achieving the goals of resource planning right from the First Five Year Plan launched after Independence.

INDUSTRIAL REVOLUTION 4.0

Cyber-physical systems form the basis of Industry 4.0 (e.g., 'smart machines'). They use modern control systems, have embedded software systems and dispose of an Internet address to connect and be addressed via IoT (the Internet of Things).

In its pursuit to foster best-in-class manufacturing infrastructure in India, the "Make in India" initiative is spearheading wider adoption of 'Industry 4.0', the new buzzword for the combination of industry and the current (IoT) technology, in the country. . The concept of 'Industry 4.0' is going to change the way India manufactures, designs and refurbishes the products. Driven by the power of big data, high computing capacity, artificial intelligence and analytics, Industry 4.0 aims to completely digitise the manufacturing sector.

- ★ **First Industrial Revolution(17th and 18th centuries) Machines replaced manual labour.**
- ★ **Second Industrial Revolution(1920s and 30s) Steel and Electricity added strength & speed.**
- ★ **Third Industrial Revolution(1950s) Digital technology and software automation.**
- ★ **Fourth Industrial Revolution(2000s)Internet of Things and cyber-physical systems.**

Relying on India's strength in field of Information Technology and a large workforce of IT professionals, the transformative journey of manufacturing through Industry 4.0 has already begun in the country. The Indian Institute of Science (IISc) is building India's first smart factory in Bengaluru with a seed funding from the Boeing Company.

Conservation of Resources:

Resources are vital for any developmental activity. But irrational consumption and over-utilisation of resources may lead to socio-economic and environmental problems. To overcome these problems, resource conservation at various levels is important. The Earth's natural resources include air, water, soil, minerals, fuels, plants, and animals. Conservation is the practice of caring for these resources so all living things can earn benefit from them now and in the future.

Tragedy of Commons: Lack of correctness of behaviour leads to negative interfaces with nature. It is a situation in a common resource system where every individual user, acts arbitrarily and serves his or her own interest. The individual denies the common good of all users by exhausting or spoiling the shared resource base. No one bothers for the depleting essentialities and lead to harmful outcomes for all.

People often waste natural resources. Animals are overhunted. Forests are cleared, exposing land to wind and water damages. Fertile soil is exhausted and lost to erosion because of poor farming practices. Fuel supplies are depleted. Subsurface aquifers go dry. Water and air are polluted beyond immediate recovery.

If resources are carelessly managed, many will be used up. If used wisely and efficiently, will last much longer. Through conservation, people can reduce waste and manage natural resources wisely.

The population of human beings has grown enormously in the past two centuries. Billions of people exploit resources quickly as they need food, build houses, manufacture goods, and burn fuel for transportation and electricity. The continuation of life as we know it depends on the careful use of natural resources.

Development and conservation can coexist in harmony. When we use the environment in ways that ensure we have resources for the future, it is called sustainable development. There are many different resources we need to conserve in order to live sustainably.

Prepare a list of resources found in your state and also identify the resources that are important but deficit in your state. What resources are being developed in your surroundings by the community/village panchayats /ward level communities with the help of community participation?

Land Utilisation : Land utilisation means to record the purpose for which land is being used and how. India ranks first, with 179.8 Mha (Million hactare) or 17 crore 98 lakhs hactare (9.6 percent of the global net cropland area) of net cropland area according to United States Geological Survey 2017. The cropping pattern is determined by various factors: Agro-climatic conditions, farm size, prices, profitability and government policies.

Indian economy hinges on agriculture. Over 58 percent of Indian Population is directly or indirectly dependent on agriculture. Agriculture and allied sector contributes nearly 20.2 % (Source: National Statistical Office (NSO), M/o Statistics). of Gross Domestic Product (GDP) of India in 2020-21. The domestication of plants and animals is also known as agriculture. In a strict sense, Agriculture is raising of crops and rearing of animals on a large scale. It includes cultivation of crops. animal husbandry, horticulture, pisciculture, sericulture, silviculture, floriculture, etc. Being located in tropical and subtropical latitudes, the greater part of the agriculture lands of India' can produce two or more than two crops in a year.

Land utilisation statistics are available for about 93% of total geographical area (328.75 million hectares) of the country. The net sown area accounts for about 46.15% of total reporting area of India, against the world average of about 32%. The general land use of country has been given in the following diagram:

Land Use

Land resources are used for the following purposes:

1. Forests
2. Land not available for cultivation : (a) Barren and waste land (b) Land put to non-agricultural uses, e.g. buildings, roads, factories, etc.
3. Other uncultivated land (excluding fallow land)
   (a) Permanent pastures and grazing land,
   (b) Land under miscellaneous tree crops groves (not included in net sown area),
   (c) Cultruable waste land (left uncultivated for more than 5 agricultural years).
4. Fallow lands
   (a) Current fallow-(left without cultivation for one or less than one agricultural year),
   (b) Other than current fallow-(left uncultivated for the past 1 to 5 agricultural years).
5. Net sown area

Note: Area sown more than once in an agricultural year plus net sown area is known as gross cropped area.

LAND RESOURCES

We live on land, we perform our economic activities on it and use in different ways. Thus, land is a natural resource of utmost importance. It supports natural vegetation, wild life, human life, economic activities, and transport and communication systems. However, land is an asset of a finite magnitude, therefore, it is important to use the available land for various purposes with careful planning. India has land under a variety of relief features, namely; mountains, plateaus. plains and islands. About 43 per cent of the land area is plain, which provides facilities for agriculture and industries. Mountains and hills account for 30 per cent of the total surface area of the country and ensure perennial flow of some rivers, provide facilities for tourism and ecological aspects. About 27 per cent of the area of the country is the plateau region. It possesses rich reserves of minerals, fossil fuels and forests.

Try to make a comparison between the two pie charts (Fig.) given for land use and find out why the net sown area and the land under forests have changed from 1960-61 to 2015-16 very marginally.

Find out reasons for the low proportion of net sown area in these states.

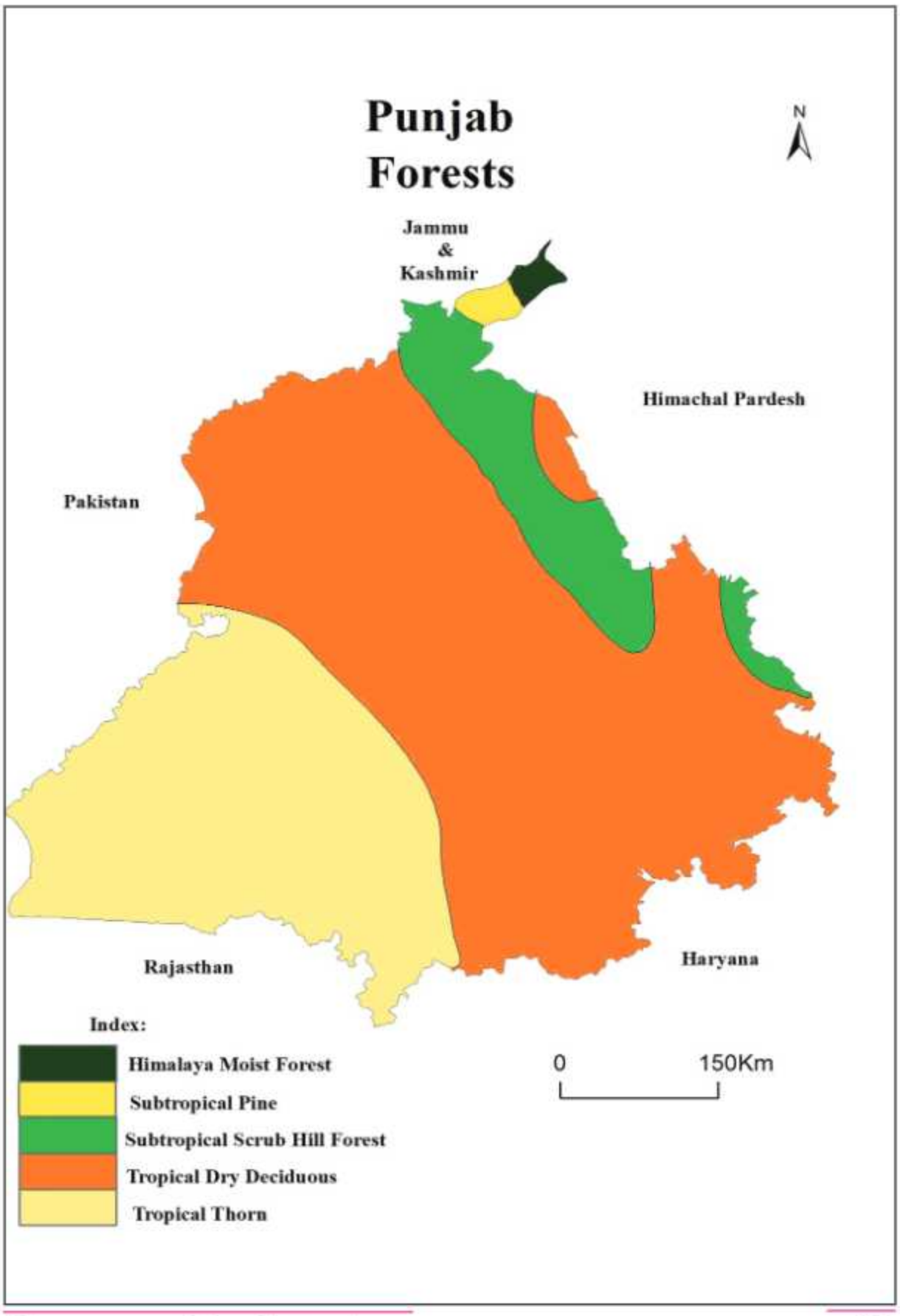
The land under permanent pasture has also decreased. How are we able to feed our huge cattle population on this pasture land and what are the consequences of it? Most of the other than the current fallow lands are either of poor quality or the cost of cultivation of such land is very high. Hence, these lands are cultivated once or twice in about two to three years. The pattern of net sown area varies greatly from one state to another. It is over 80 per cent of the total area in Punjab and Haryana and less than 10 per cent in Arunachal Pradesh, Mizoram, Manipur and Andaman Nicobar Islands.

Land degradation and conservation measures

We have shared our land with the past generations and will have to do so with the future generations too. Ninety-five per cent of our basic needs for food, shelter and clothing are fulfilled through land directly.

Forest area in the country is far lower than the desired 33 per cent of geographical area, as it was outlined in the National Forest Policy (1952, 1988). It was considered essential for maintenance of the ecological balance. The livelihood of millions of people who live on the fringes of these forests depends upon it. A part of the land is termed as waste land and land put to other non-agricultural uses. Waste land includes rocky, arid and desert areas and land put to other non-agricultural uses includes settlements, roads, railways, industries etc. Continuous use of land over a long period of time without taking appropriate measures to conserve and manage it, has resulted in land degradation. This, in turn, has serious repercussions on society and the environment.

As per the National Forest status report 2021, the total forest cover is 7,13,789 sq. km, which is 21.71% of the total geographical area of the country. Forest and tree cover combined is 8,07276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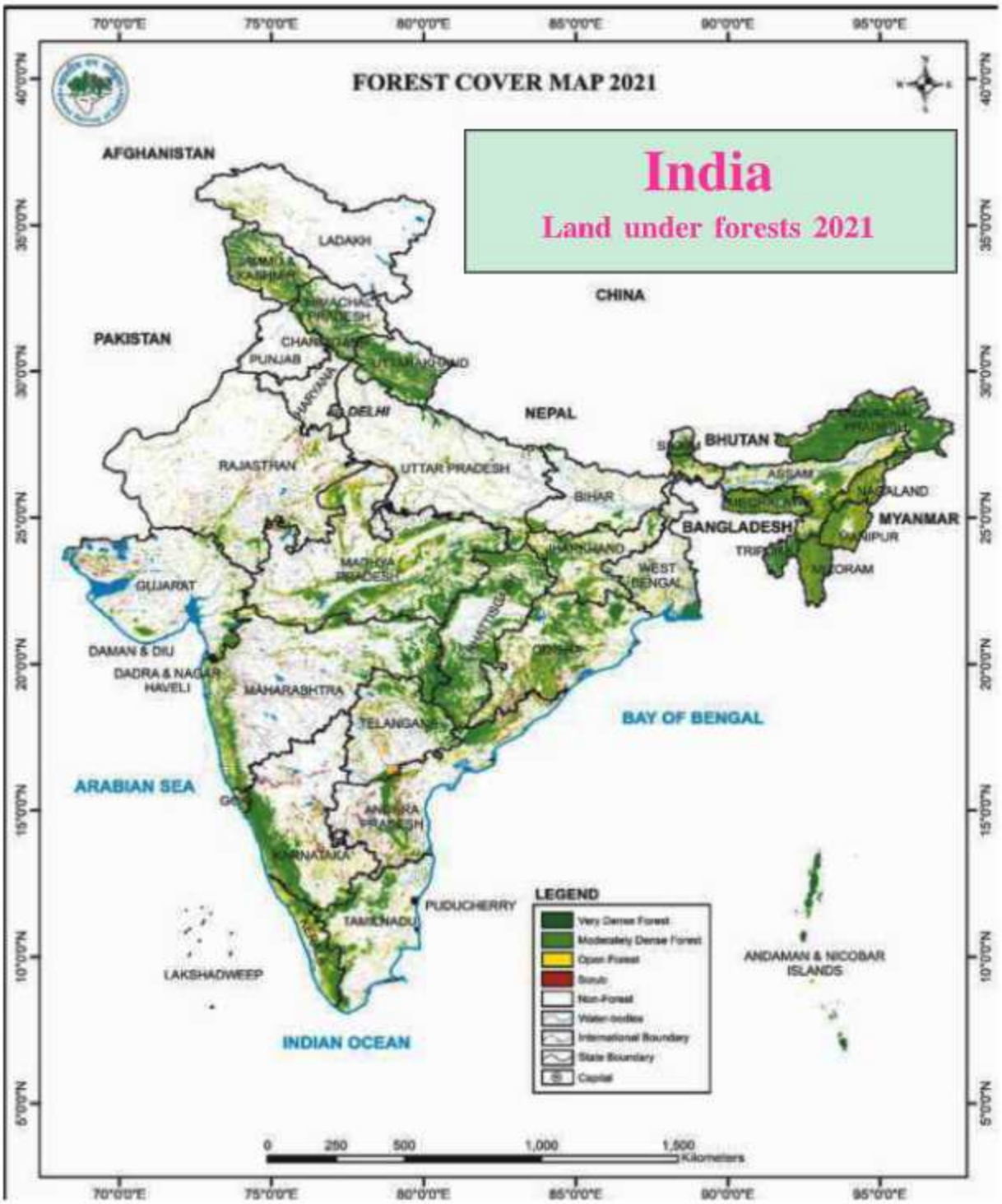
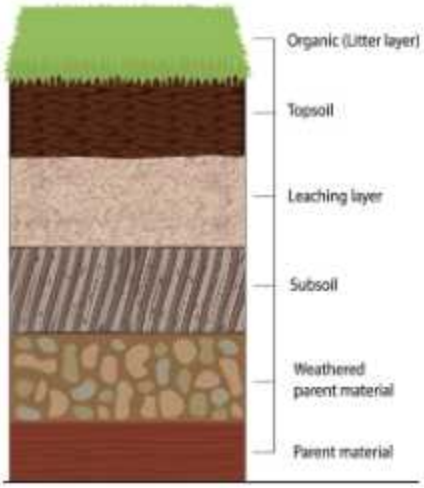


sq. km or 24.68% of the total geographical area. Madhya Pradesh (77,492,60 sq. km) has the largest forest cover in the country in terms of area, followed by Arunachal Pradesh (66,430.67 sq. km) and Chhattisgarh (56,220,09 sq. km). In terms of percentage of forest cover with respect to the total geographical area, Lakshadweep with (90.33%) has the highest forest cover, followed by Mizoram (84.53%) and Andaman and Nicobar Islands (81.75%). In Punjab, 1,846,65 Sq. km area area is under forests which account only for 3.67 per cent of the total geographical area of the country.

Types of soil	Definite characteristics	Areas (Regions)	Crops
Alluvial	Carry adequate potash, phosphoric acid but lacks phosphorous and lime, pH value increases away from foot hill plains and east to west	Riverine alluvium Indo-gangetic-brahmaputra plains, Punjab,Haryana,Uttar Pradesh, Bihar, West Bengal, Assam etc.Coastal alluvium: western and eastern coastal plains	Wheat on coarser soils and rice on fine alluvium
Black	Rich in iron, aluminium, calcium carbonates, potash, magnesium but poor in phosphorous, nitrogen and organic matter	Maharashtra, Saurashtra, parts of Madya Pradesh, Karnataka. Telengana, Jharkhand, and Tamilnadu.	Cotton and sugarcane
Red	Poor in nitrogen, phosphorous and humus	Tamilnadu, Karnataka, Andhra Pradesh. Telangana, Chhattis-garh basin, Odisha and north eastern states	Tobacco and groundnuts
Laterite	Brick Coloured heavily leached soils, rich in iron oxides, potash and aluminium, poor in organic matter, nitrogen, phosphates and calcium	Karnataka, Kerala, Tamil nadu, hilly areas of Assam and Meghalaya, Odisha and Madhya Pradesh	Plantation crops
Mountain/ forest	Coarse grained soils with inadequate profile development, rich organic matter and nitrogen,	Jammu and Kashmir, Himachal Pradesh, Uttarakhand, Sikkim and north eastern states	Temperate orchard
Sandy/ desert	Lack moisture and organic matter, nitrogen and phosphates	Rajasthan, western Haryana, south west Punjab and north Gujarat	Millets, ground-nut, pulses and oilseeds
Saline soils	Usara soils have large pro-portions of sodium, potassium and magnesium. Lack in nitrogen and calcium,	Coastal areas of Sunderbans, Rann of Kachchh and heavily irrigated lands of Punjab, Haryana and western UP	Barley, cotton, oilseeds after recurrent alluvial wash
Peaty soils	High organic contents and nitrogen	Northern Bihar, Uttarakhand, coastal areas of Bengal, Odisha and Tamilnadu	Rice and jute


Human activities have not only brought about degradation of land but have also aggravated the pace of natural forces to cause damage to land. At present, there are about 130 million hectares of degraded land in India. Approximately, 28 per cent of it belongs to the category of forest degraded area, 56 per cent of it is water eroded area and the rest is affected by saline and alkaline deposits. Some human activities such as deforestation, over grazing, mining and quarrying too have contributed significantly in land degradation, alkalinity in the soil. The mineral processing like grinding of limestone for cement industry and calcite and soapstone for ceramic industry generate huge quantity of dust in the atmosphere. It retards the process of infiltration of water into the soil after it settles down on the land. In recent years, industrial effluents as waste have become a major source of land and water pollution in many parts of the country. There are many ways to solve the problems of land degradation. Afforestation and proper management of grazing can help to some extent. Planting of shelter belts of plants, control on over grazing, stabilisation of sand dunes by growing thorny bushes are some of the methods to check land degradation. Proper management of waste lands, control of mining activities, proper discharge and disposal of industrial effluents and wastes after treatment can reduce land and water degradation in industrial and suburban areas.



SOIL AS A RESOURCE

Soil is the most important renewable natural resource. It is the medium of plant growth and supports different types of living organisms. Mining sites are abandoned after excavation work is complete leaving deep scars and traces of over-burdening on soil.

In states like Jharkhand, Chhattisgarh, Madhya Pradesh and Odisha deforestation due to mining have caused severe land degradation. In states like Gujarat, Rajasthan, Madhya Pradesh and Maharashtra overgrazing is one of the main reasons for land degradation. In the states of Punjab, Haryana, western Uttar Pradesh, over irrigation is responsible for land degradation due to water logging leading to increase in salinity and Subsoil weathered rocks sand and silt clay Substratum weathered parent rock material unweathered parent bed rock top soil the upper soil layer the earth.

The soil is a living system. It takes millions of years to form soil upto a few cm in depth. Relief, parent rock or bed rock, climate, vegetation and other forms of life and time are important factors in the formation of soil. Various forces of nature such as change in temperature, actions of running water, wind and glaciers, activities of decomposers etc. contribute to the formation of soil. Chemical

and organic changes which take place in the soil are equally important. Soil also consists of organic (humus) and inorganic materials. On the basis of texture, structure, colour, pH value and porosity. The Indian Council of Agricultural Research has divided India into the following soil groups:

The various agents of weathering and gradation act upon the parent rock material to produce a



thin layer of soil. In ancient times, soils had been classified into two groups: The Urvara or the fertile one and Usara or the sterile. Lithology or type of rocks, arrangement of rocks and their characteristic determine the formation and type of soil. Climatic factors determine the Intensity of exogenetic forces and genesis of soil. One foot thick layer of soil takes 20,000 years in formation by natural processes.

Topographical factors, the slope gradient determines mass movement and pedogenesis. The degree of slope is directly proportional to soil erosion. Transformation (change of chemical composition, texture or structure) and translocation (migration of geomaterial) play an important role in soil formation. Soil structure refers to the way in which soil particles, both primary and secondary are grouped together in larger pieces.

Calcification is a soil forming process in which calcium carbonate accumulates in B horizon, particularly in arid and semi-arid regions. The process of salt accumulation in soils or in water is called salinization, and rapid weathering of soil and decomposition and quick leaching, lessiviation and cheluviation is called laterisation.

pH is the concentration of hydrogen ions in the soil solution with respect to negatively charged hydroxyl ions. The positively charged hydrogen ions in the soil solution make for an acidic conditions. Neutral soils have pH value ranging between 6.5 and 7.5. Alkaline soils take time to dissolve nutrient and plant growth is hampered. Acidic soils dissolve nutrients quickly and hasten the process of leaching and plants are deprived of nutrients. Water and wind are the major geomorphic agent and erode soils by abrasion, attrition, saltation, sandblasting, deflation and deposition. Shifting agriculture, slope misjudgement, wrong irrigation techniques, exhaustive crop cover, and dereliction of mining areas, deforestation, exotic tree species and excessive use of chemical damage soils. Thar and Thali desert are extending centrifugally and eating away the alluvial tracts of Indus and gangetic plains in Punjab, Haryana and Uttar Pradesh. Soil pollution is the introduction of substances, biological organisms and energy into the soils resulting in a change of the soil quality which is likely to effect the normal use of the soils. Spills of hazardous liquids, agricultural chemicals, solid waste and mining waste are responsible for degradation of soils.

Soil conservation is the protection and management of soil resources and includes all efforts to protect soils against their physical loss by erosion, chemical deterioration and man induced inroads.

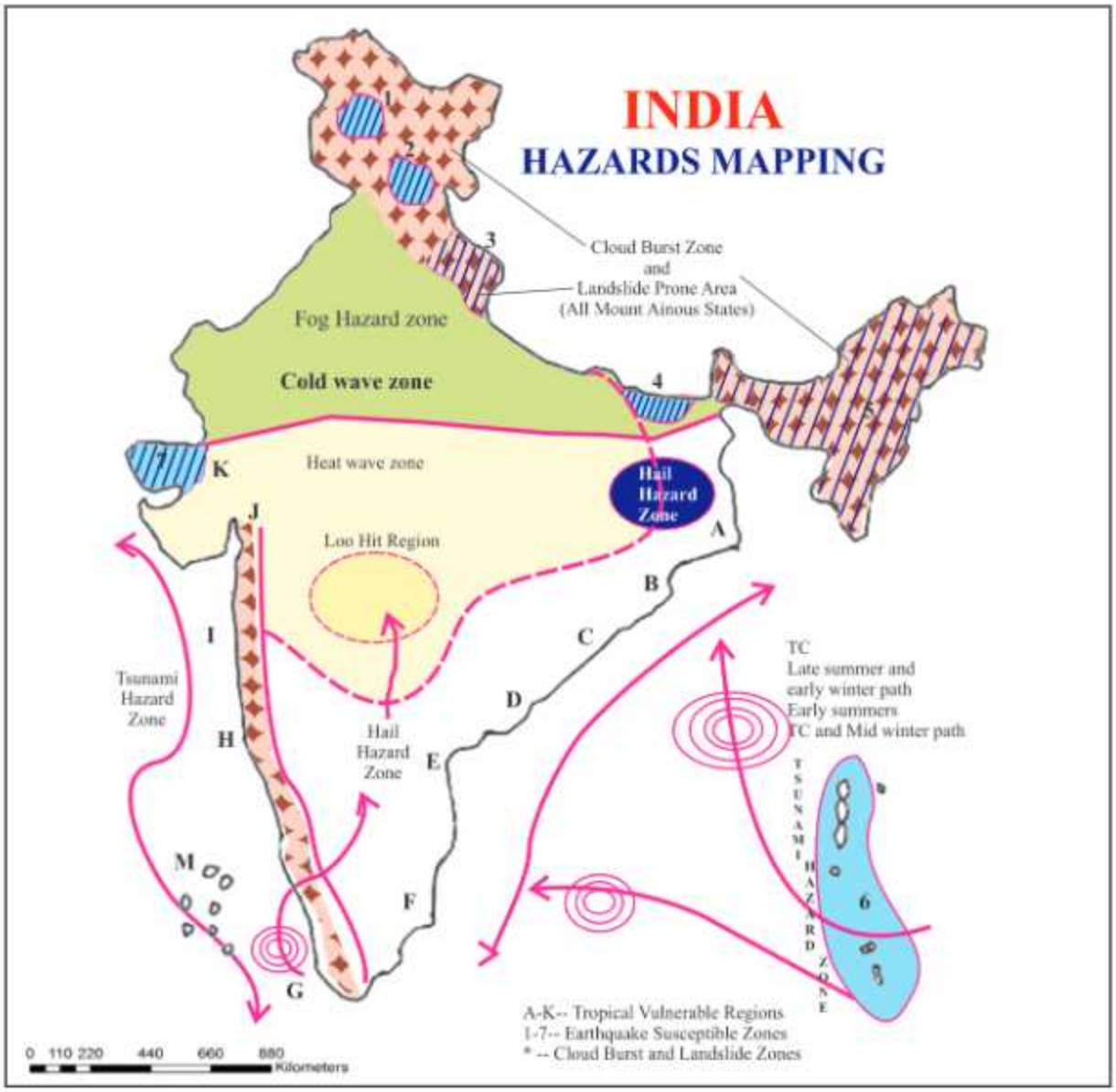
Soil Erosion and Soil Conservation

The denudation of the soil cover and subsequent washing down is described as soil erosion. Natural forces like wind, glacier and water lead to soil erosion. The running water cuts through the clayey soils and makes deep channels as gullies. The land becomes unfit for cultivation and is known as bad land. In the Chambal basin such lands are called ravines. Sometimes Water flows as a sheet over large areas down a slope. In such cases the top soil is washed away. This is known as sheet erosion. Wind blows loose soil off flat or sloping land known as wind Erosion. Steps can be cut out on the slopes making terraces. Terrace Cultivation restricts erosion. Western and central Himalayas have well developed terrace farming. This breaks up the force of the wind. This method is known as strip cropping. Planting lines of trees to create shelter also works in a similar way. These shelter belts have contributed significantly to the stabilisation of sand dunes and in stabilising the desert in western India.

In short Common measures to conserve soils:

a. fencing and plugging of gullies,
b. Construction of check dams across the ravines
c. Planting of soil binding vegetation
d. Contour ploughing
e. Stabilisation of sand dunes
f. Shelter belts
g. Micro wind breaks
h. Ploughing at the right angle to wind direction
i. Leaving residue of the previous crop in soil for green manuring
j. Strip farming, organic farming and zero tillage
k. Afforestation and reforestation of native plants
l. Protective grass covers and crop covers

2. In-situ bio remediation includes
   a. Stimulation of biological activities or bio stimulation
   b. Insertion of nutrient or air into saturated or unsaturated zone or biosparging
   c. Induction of soil with microbes or bio augmentation



DISASTER MANAGEMENT

Disaster Management refers to manage disaster response in the country. India has been traditionally vulnerable to the natural disasters on the account of its unique geo-climatic conditions.

The disasters can be classified into 8 categories:

1. Water and Climate related Disasters
2. Geological Disasters
3. Industrial, Chemical and Nuclear Disasters
4. Biological Disasters
5. Accident Related Disasters
6. Maritime Disasters
7. Military Disasters
8. Ethnic genocidal Disasters

Disasters in India

2.26 percent land in the world is annually destroyed by disasters

12 percent land of India is flood prone

14 percent land of India is prone to landslides

16 percent land of India is prone to cloudburst and flash floods

26 million people of the world are made riches to rags annually by disasters

28 percent land of India is prone to tropical cyclones

30 percent of land of india suffers from desertification

34 percent of total districts of India fall under high risk of multiple natural disasters

39 percent of the deaths by natural disasters occurring in India are caused by lightning, thunder storms, squall, twisters and hailfall

40 percent of India comes under the impact of cold wave during winters

58 percent of India is vulnerable to earthquakes

60 percent of India is exposed to Heat wave (Heat wave: 4.9 to 6.4 deg Celsius increase over LPA long period averages or temp above 45 degrees; severe heat wave: temps 6.4 degree Celsius above Long Period Averages or above 47 degrees)

64 percent of the forest area is prone to forest fires

68 percent of Lands of India are water deficient

77 percent of the total global damages by disasters are related to weather and climate related disasters (United nations reports)

90 percent of the natural disasters visit developing countries.

India's first disaster management plan in history hopes to "make India disaster resilient, achieve substantial disaster risk reduction and significantly decrease the loss of life, livelihoods and assets." Prepared by the National Disaster Management Authority, the plan spells out the roles of all tiers of the government, including panchayats and urban local bodies. It identifies crucial parts of disaster management such as early warning, information dissemination, medical care, fuel, transportation, search and rescue, evacuation, among others. The Sendai Framework 2015-30 is a non-binding agreement endorsed by the UN General Assembly after the World Conference on Disaster Risk Reduction.

The plan ensures that all phases of disaster management-preparedness, mitigation. response and recovery-are covered by a horizontal and vertical integration among all agencies and departments of the government. The plan also states that six areas, namely the Himalayas, coastal tracts, riverine areas, the northeast, arid and semi-arid regions, islands and marine assets located in one or more state or union territory, require special attention vis-a-vis disaster management.

In the Himalayan region, human activities are

the prime cause of environmental degradation. Coastal areas are constantly at risk of geological shoreline changes, cyclones, sea level rise, coastal flooding and tsunamis. Riverine regions, which are primarily dependent on agriculture, are subject to extremes of rainfall conditions. Therefore, they are most vulnerable to riverine flooding and food shocks during droughts.

Disaster is an outcome of adaptation to the hazardous conditions for a long period of time. The earth is going wild and disasters touch new Heights every time. There wrath is going unbound. A society overshooting the carrying capacity of the land, experience and immediate disaster. National disaster is nature's efforts to adjust itself and mitigates ecological footprints and ecotage. The disaster becoming costlier in terms of economic losses and disaster response measures. The number and intensity of disasters are on a surge. Manmade (anthropogenic) disasters are matching natural disasters in terms of intensity and areal extent.

Disaster	year	loss
Tohaku earthquake and Tsunami	2011-	300 billion US Dollars
Sichuan - China earthquake	2008-	148 billion US dollars
Hanshin Japan-	1995 -	102 billion US dollar
Gulf of Mexico- oil spill	2010	60-100 billion us dollars
Thailand floods	2011	5 billion US dollars
Twin Tower collapse	2001	20.1 billion US dollars
Chernobyl nuclear disaster Ukraine	1996-	5 billion US dollars

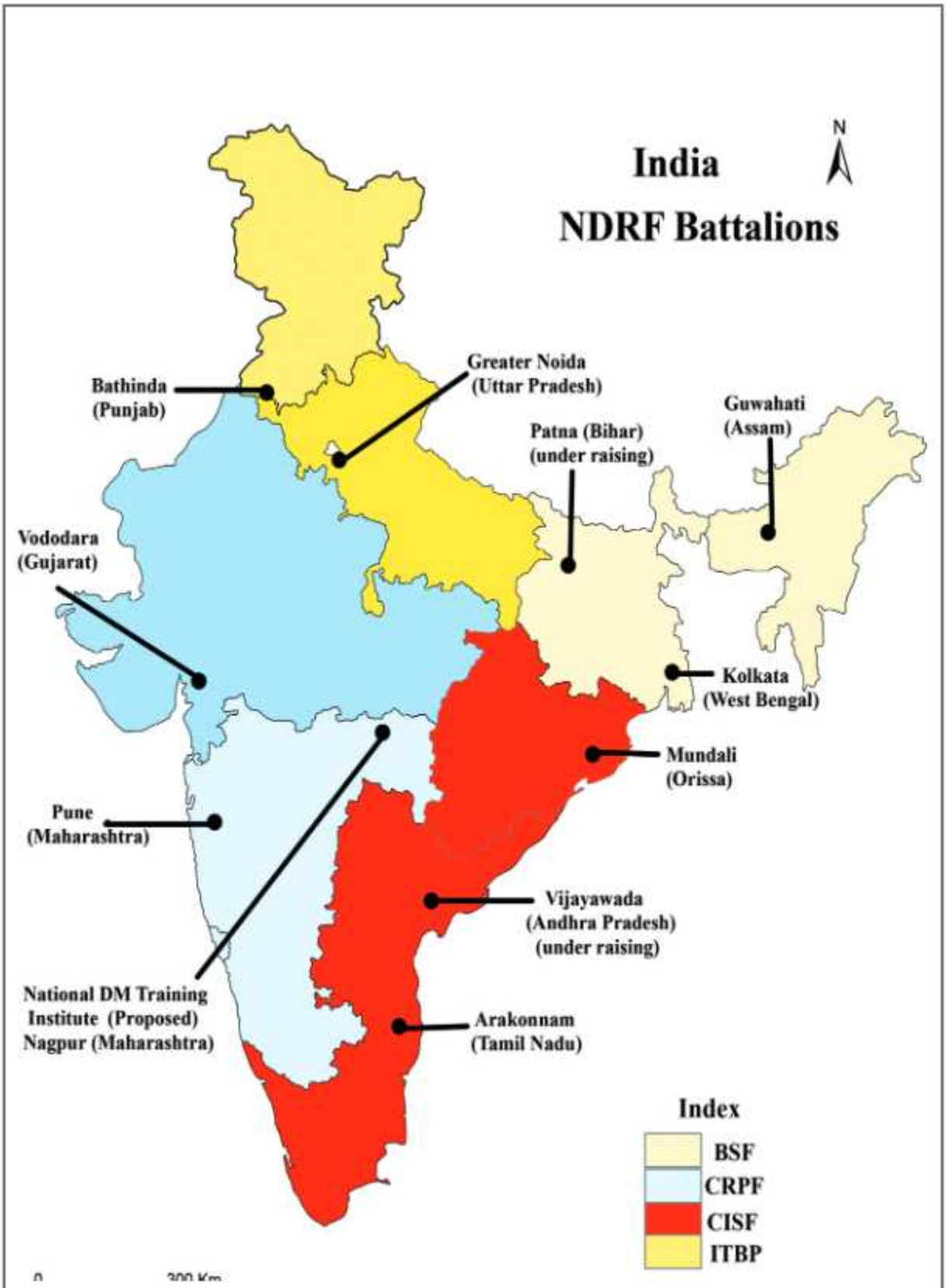
Manmade disasters hit the developed Nations while natural disaster bother more the developing Nations. Earthquake, floods, oil spills. Wildfire, ethnic genocide, and industrial disasters are more frequent among all.

The National Disaster Response Force (NDRF) is a specialised force constituted "for the purpose of specialist response to a threatening disaster situation or disaster" under the Disaster Management Act, 2005. The responsibility for disaster management in India's federal system is that of the State Government. The 'nodal Ministry' in the central government for management of natural disasters is the Ministry of Home Affairs (MHA). The first batch of over 100 women disaster combatants and rescuers has been inducted into the country's federal calamity force NDRF.

National Disaster Response Force (NDRF)

At present, National Disaster Response Force consist of 16 battalions from the BSF, CISF, CRPF, ITBP, SSB and Assam Rifles. Each battalion have 18 self-contained specialist search and rescue teams of 45 personnel each including engineers, technicians, electricians, dog squads and medical/paramedics. The total strength of each battalion is 1,149.

Name of Paramilitary Group	No. of Battalions
Border Security Force (BSF)	4
Indo-Tibetan Border Police (ITBP)	4


India
NDRF Battalions
N
Bathinda
(Punjab)
Greater Noida
(Uttar Pradesh)
Guwahati
(Assam)
Patna (Bihar)
(under raising)
Vododara
(Gujarat)
Kolkata
(West Bengal)
Mundali
(Orissa)
Pune
(Maharashtra)
Vijayawada
(Andhra Pradesh)
(under raising)
National DM Training
Institute (Proposed)
Nagpur (Maharashtra)
Arakonnam
(Tamil Nadu)
Index
BSF
CRPF
CISF
ITBP
0
300 Km

Central Reserve Police Force (CRPF)	3
Central Industrial Security Force (CISF)	2
Sashastra Seema Bal (SSB)	2
Assam Rifles (AR)	1

In case of any disaster happening in Punjab, ITBP will be in action from its Bathinda Centre to save lives of the people.

Risk assessment is indispensable. Prevention and preparedness reduce the cost of crisis management. Risk management and development planning and policy go concomitantly, and capacity building is the most important aspect. Disaster if understand purposely, is half controlled; local participation is more important to mass participation. Infrastructure must commensurate to the geology, Geomorphology, and Geography of the land. Liberal International sharing of Logistics is must. Sustainable development and poverty alleviation are imperative to deny wrath of disasters.More than 100 women personnel have joined the NDRF over the last few months and the number is expected to go over 200 in the time to come.

Sendai Framework for Disaster Risk Reduction

The Sendai Framework for Disaster Risk Reduction (2015-2030) is an international document which was adopted by UN member states between 14th and 18th of March 2015 at the World Conference on Disaster Risk Reduction held in Sendai, Japan and endorsed by the UN General Assembly in June 2015. It is the successor agreement to the Hyogo Framework for Action (2005-2015), which had been the most encompassing international accord to date on disaster risk reduction. Sendai Framework has 4 priorities, 7 targets and 13 principles to fight against all natural and manmade disasters.

The Sendai Framework sets four specific priorities for action:

1. Understanding disaster risk;
2. Strengthening disaster risk governance to manage disaster risk;
3. Investing in disaster risk reduction for resilience;
4. Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction.

Climate change

Our world is changing. This change was slow earlier but not anymore. Today, you practically see the changes with your eyes. Dussehra and Deewali in North India used to signal the onset of winters. Blankets were brought out from the cupboards and set out in the sun. Not anymore. The chilly winters are almost thing of the past now with cold weather actually setting in mid-December. One of the most important reasons of the gradual increase in the global temperature. This in turn,

leads to other changes that affects climate such as rise in ocean temperature, melting of glaciers, difference in rainfall patterns and so on.

Let us be an investigative weather reporter!

Weatherman in India were baffled! There were unusual rainfalls had taken place in India on the dates mentioned below. World around people were surprised. Suggest the places against dates where such events had happened.

July 5, 2005 .....

June 13-16, 2013 .....

October 14, 2020 .....

. Such processes include permafrost thaw; the loss of methane hydrates from the ocean floor; weaker land and ocean carbon sinks; the loss of Arctic summer sea ice and the reduction of Antarctic sea ice and polar ice sheets.

Calculate:

Between 1850 to 2006, 488 billion tonnes of carbon was released into the atmosphere by human activities.

1 billion tonne of carbon= 3.67 billion tones of CO_2

Climate refugees

Climate refugees are people who must leave their homes and communities because of the effects of climate change and global warming.

Climate change is caused by natural events, such as volcanic eruptions, as well as human activities. Climate change has happened many times since Earth was formed billions of years ago. Rising temperatures associated with global warming cause glaciers and ice caps to melt. This can cause flooding and make sea levels rise. Rising temperatures also lead to droughts and desertification-the transformation of arable land to desert. Some of these effects, such as sea level rise, can put land completely underwater, making it uninhabitable. Others effects, such as drought, make it impossible for people in the region to support themselves.

Climate refugees belong to a larger group of immigrants known as environmental refugees. Environmental refugees include immigrants forced to flee because of natural disasters, such as volcanoes and tsunamis.

The International Red Cross estimates that there are more environmental refugees than political refugees fleeing from wars and other conflicts. The United Nations High Commissioner for Refugees (UNHCR) says 36 million people were displaced by natural disasters in 2009, the last year

such a report was taken. Scientists predict this number will rise to at least 50 million by 2050. Some say it could be as high as 200 million.

Sea Level Rise (Eustatic Changes)

The Intergovernmental Panel on Climate Change (IPCC) predicts that sea levels will rise a total of 0.18 to 0.6 meters (7 inches to 2 feet) between 1990 and 2100. Rising sea levels already cause problems in low-lying coastal areas of the world.

For instance, about half the population of Bangladesh lives less than 5 meters (16.5 feet) above sea level. In 1995, Bangladesh's Bhola Island was half-submerged by rising sea levels, leaving 500,000 people homeless. Scientists predict Bangladesh will lose 17 percent of its land by 2050 due to flooding caused by climate change. The loss of land could lead to as many as 20 million climate refugees from Bangladesh.

PROJECTS/ACTIVITIES

1. Make a project showing consumption and conservation of resources in your locality.
2. Have a discussion in the class- how to conserve various resources used in your school.
3. Imagine if oil supplies get exhausted, how will this affect our life style?
4. Discuss how characteristics of soil at any place depict public attitude towards the nature of the region.

Exercise

(i) Which one of the following types of resource is iron ore?

(a) Renewable (c) Flow

(b) Biotic (d) Non-renewable

(ii) Under which of the following types of resource can tidal energy be put?

(a) Replenishable (c) Abiotic

(b) Human-made (d) Non-recyclable

(iii) Which one of the following is the main cause of land degradation in Punjab?

(a) Intensive cultivation (c) Over irrigation

(b) Deforestation (d) Overgrazing

(iv) which of the following disaster a Punjab often face?

(a) Droughts (b) Cyclones

(c) Earthquakes (d) Floods

(v) In which one of the following states is terrace cultivation practised?

(a) Punjab (c) Haryana

(b) Plains of Uttar Pradesh (d) Uttarakhand

(vi) In which of the following states is black soil found?

(a) Jammu and Kashmir (c) Rajasthan

(b) Gujarat (d) Jharkhand

(vii) Irrational consumption and over utilisation of resources way lead to :

(a) Socio-economic and environmental problems

(c) Boom in economy

(b) Replenish the resources

(d) Decrease in population

(viii) The land that becomes unfit for cultivation is known as :

(a) Fallow land (c) Barren land

(b) Bad land (d) Net sown area.

(ix) Chernobyl nuclear disaster happened in :

(a) America (c) Ukrain

(b) India (d) Japan

(x) Who said, "There is enough for everyone's needs but not for everyone's greed."

(a) J. L. Nehru (c) B.B. Ghali

(b) Barak Obama (d) Mahatma Gandhi

2. Make one word substitutions for the following statements :

(i) Natural endowments in the form of land, water, vegetation and minerals.

(ii) A type of non-renewable resource.

(iii) Soil with high water retaining capacity.

(iv) Intensively leached soils of the monsoon climate.

(v) Plantation of trees on a large scale to check soil erosion.

(vi) The Great Plains of India are made up of these soils.

3. Answer the following questions in about 30 words.

(i) Name three states having black soil and name the crops which are mainly grown there.

(ii) What type of soil is found in the river deltas of the eastern coast? Give three main features of this type of soil.

(iii) What steps can be taken to control soil erosion in the hilly areas?

(iv) What are the biotic and abiotic resources? Give some examples.

(v) Differentiate : Current fallow and other than current fallow lands.

(v) What do you mean by disaster management ?

(vi) Describe soil erosion. Give examples too.

(vii) Write notes on following :-

(a) Zonal and Azonal soils

(b) Constitution of soil

(c) Resources

(d) Economic importance of soil

(e) Soil erosion and conserration

4. Answer the following questions in about 120 words.

(i) Explain land use pattern in India and why has the land under forest not increased much since 1960-61?

(ii) How has technical and economic development led to more consumption of resources?

(iii) What is global warming?

(iv) How climate changes shall impact refugees?

(v) Explain in short the Sendai Framework on Disaster management?

(vi) Define 'Resource' classify resources. Explain any two types of resources.

(vii) What do you understand by resource planning ? Write a detailed note on types of planning.

(viii) What does Land use mean ? Draw a diagram showing land under various uses and explain it.

2

Biogeography

Biogeography is the comprehensive study of the living and pulsating entities. It includes the biotic or animate world and its spatial distributional patterns. Biogeography can be defined as a descriptive study of flora and fauna in all physical domains of land, water and air as a part of food chains and complex food webs.

> Biogeography is the study of plant distributions and animal distributions together with the geographical relationships with their environment over time…. John Wittow, Penguin Dict.

Conservation and sustainable use of biodiversity have been an integral part of Indian culture and way of living. With only 2.4% of world's geographical area, India accounts for 7-8% of recorded species of the world. At least 40 per cent of the world's economy and 80 per cent of the needs of the poor are derived from biological resources. A few mathematical propositions can be adduced here.

Biodiversity is directly proportional to economic development is true but sounds absurdly wrong. It is not happening so far the excessive interference and consequential changes by teeming populations of human beings. Their greed has not only violated energy flow among various trophic levels but has brought alarming changes in climatic, terrestrial and maritime parameters.

The term biodiversity refers to the totality of species, populations, communities and ecosystems, both wild and domesticated that constitute the life of any one area or of the entire planet. It may also be defined as the variety and variability among living organisms and their habitats in which they live.

Biorights:

> The rights of endangered species or unique landscape to remain unhindered.

Biodiversity includes genetic differences within each species- for example, between varieties of crops and breeds of livestock. Chromosomes, genes and DNA -the building blocks of life- determine the uniqueness of each individual and each species. The diversity can be seen with in species over time or across distances in the variety of ecosystems occurring in deserts, forests, wetlands, mountains, lakes, river and agricultural landscapes.

In nature, many species share common Habitat requirements, and hundreds of species coexist in close proximity.

The habitats get worsened when they can no longer support associations of plants and animals in a natural condition. Erosion of native biodiversity is manifested as species extinction. Nearly total absence of sparrows and alarmingly diminished number of cats in Punjab are its glaring example.

Note: The leaves of acacia trees protect themselves from being eaten by producing a cyanogenic poison when attacked by desert animals like camel.

Environment Impact Assessment (EIA) and Social Impact Assessment (SIA) have become reality in the wake of increasing pressure of human activities on biosphere. Rigorous protocols escort our ecology from being exploited by profiters. The impact is assessed before the development of infrastructural projects on environment and society, resultantly approvals are affirmed.

Reversing erosion of biodiversity is an extremely difficult and long process. Since all manner of human existence is dependent on environmental health, maintenance of natural habitats and native biodiversity are unavoidably link to human health and welfare. Biodiversity is usually considered at three different levels:

Types	Definition
Genetic Diversity	Genetic diversity refers to the variation of genes within species. This covers genetic variation between distinct populations of the same species,
Species Diversity	Species diversity is measured in relation to a given area. It can be assessed in terms of the number of species are the range of different types of species an area contains.
Ecosystem Diversity	Ecosystem diversity encompasses the broad differences between ecosystem types, and the diversity of habitats and ecological processes occurring with an ecosystem type.

The enormous range of Terrestrial and aquatic environments on earth has been classified into a number of ecosystems and following are few examples.

1. Tropical rainforest
2. Grasslands
3. Wetlands
4. Coral reefs and mangroves

Important Definitions

1. **Ecotone:** A transition zone marking an overlap between two plant communities. Alpine Grasslands between temperate forests and high-altitude cold deserts make an ecotone.
2. **The biogeographic zone -** A biogeographic zone is a large distinctive unit of similar ecology, biome representation, community and species, e.g. The Himalayas, The Western Ghats.
3. **The Biotic Province:** A Biotic Province is secondary units with in a biogeographic zone, giving weight to particular community separated by dispersal barriers or gradual change in environmental factors, e.g. North West and Western Himalayas, either side of the Satluj River.
4. **The land Region:** A land region is a territory set of units within a province, indicating different landforms e.g. Aravalli Mountains, and Malwa plateau in Gujarat Rajwada province.
5. **The biome-** A biome is an ecological unit, not a biogeographic unit. A biome such as swamp/ wetland or temperate broad leaved forest could be found in several biogeographic zones or provinces.

India is classified into 10 biogeographic zones and is further divided into 26 biotic provinces. The Indian bio geographical zones are given below:

Biogeographic zones of India and their spatial extent

Zone Number	Name of Zone	Area of Zone (in kilometer square)	% of India
1.	Trans Himalaya	1,84,823	5.62
2.	Himalayas	2,10, 662	6.41
3.	Deserts	2,15, 757	6.56
4.	Semi-arid	5.45. 850	16. 60
5.	Western Ghats	1,32, 606	4.03
6.	Deccan Peninsula	13,80, 380	41.99
7.	Gangetic plain	3,54,782	10.79
8.	Coasts	82,813	2.52
9.	North East	1,71, 341	5.21
10.	Islands	8,249	0.25
	Grand total	32,87,263	100.00

Mega diversity Nations

The term mega diverse country harbours the majority of Earth's species and high numbers of endemic species. Conservation International (CI) has identified 17 mega diverse countries in 1998. Majority of mega diverse nations lie across tropical and subtropical latitudes.

Criterion: A mega diverse country must hold at least 5,000 species of endemic plants and border marine ecosystems.

India is a mega diverse nation, falls at number 7 of the 17 mega diverse countries of the world and unfortunately it contains 4 out of 36 biodiversity hotspots of the world too. It has More than 350 species of mammals, around 8% of all mammals, 13% of birds, 8% of reptiles, 6% of amphibians and 6% of all plant species population. Most of them are found in tropical rain forests, Western Ghats and forests of the Himalaya. India hosts 106 National Parks, 565 wildlife sanctuaries and 18 biosphere reserves.

Biodiversity varies with latitude and altitude. India has latitudinal expanse of nearly 30 degrees. Its altitude ranges between Kuttanad of Kerala with -2.2 m height and Godwin Austen(K2) with 8611 meter height above mean sea level. Natural vegetation and forms of life are equally diverse along the heights of Himalayas. Tropical deciduous forests, temperate mountain forests, temperate grasslands. Alpine forests, Alpine grasslands and Tundra vegetation are found in its different altitude zones. India contains about 8% of the world's biodiversity on 2.5 % of Earth's surface. It is also a member nation of Group of Mega Diverse Nations. Adding to this is a very high diversity of Human-influenced ecosystems, including agricultural and pasture lands, and an impressive range of domesticated plants and animals. India is also considered one of the world's 8 Gene Centres of origin of cultivated plants. Hence India is a repository of genetic resources of several life supporting plants of food and medicinal values that form a base for future crop improvement. As of 2022, there are 40 World Heritage Sites located in India. Out of these, 32 are cultural, 7 are natural, and one, the Khangchendzonga National Park, is of mixed type. India has the sixth largest number of sites in the world.

The following is a list of important facts about the Indian biodiversity.

1. India is home of 33% of the life forms found in the world and is one among the 17 mega diverse countries of the world.
2. India comprises 2% of world's land mass but is home of 8% of the biodiversity of the world.
3. India can be divided into 10 biogeographic zones and 26 biotic provinces, which represent all the major ecosystems of the world
4. There are 41 botanical gardens, 120 national parks, 275 zoos, 504 Wildlife sanctuaries, 18 Biosphere Reserves
5. There are 50,000 species of plants and 81,000 species of animals identified in the country.
6. Around 60% of biodiversity wealth can be found in Western Ghats which is one of the hotspots of diversity in India.
7. Of the 81,000 species of animals recorded. 372 are mammals, 1266 species as of 2016,

are birds, 428 reptiles, 204 amphibians, 2546 fishes, 57245 insects, 5042 mollusces and several other species of invertebrates.

8. India is a signatory to the international conventions like convention of International Trade on endangered species (CITES) and convention of migratory species (CME) which aim at conserving biodiversity.
9. India is home to 40 world heritage sites and 75 Ramsar wetlands, sites (2022) amongst the protected areas.

Bio Diversity Hotspots

To qualify as a biodiversity hotspot, a region must meet two strict criteria:

- It must have at least 1,500 vascular plants as endemics - which is to say, it must have a high percentage of plant life found nowhere else on the planet. A hotspot, in other words, is irreplaceable.
- It must have 30% or less of its original natural vegetation. In other words, it must be threatened

There are six Biodiversity hotspots in India

1. Himalaya Region comprised of western and central ranges falling in India, Nepal and Bhutan.
2. Indo-Burma: Includes entire North-eastern India and mountainous parts of Myanmar.
3. Andaman & Nicobar group of Islands and Indonesian archipelago.
4. Western Ghats and Sri Lanka.
5. Terrai-duar Savannah
6. Sundaland

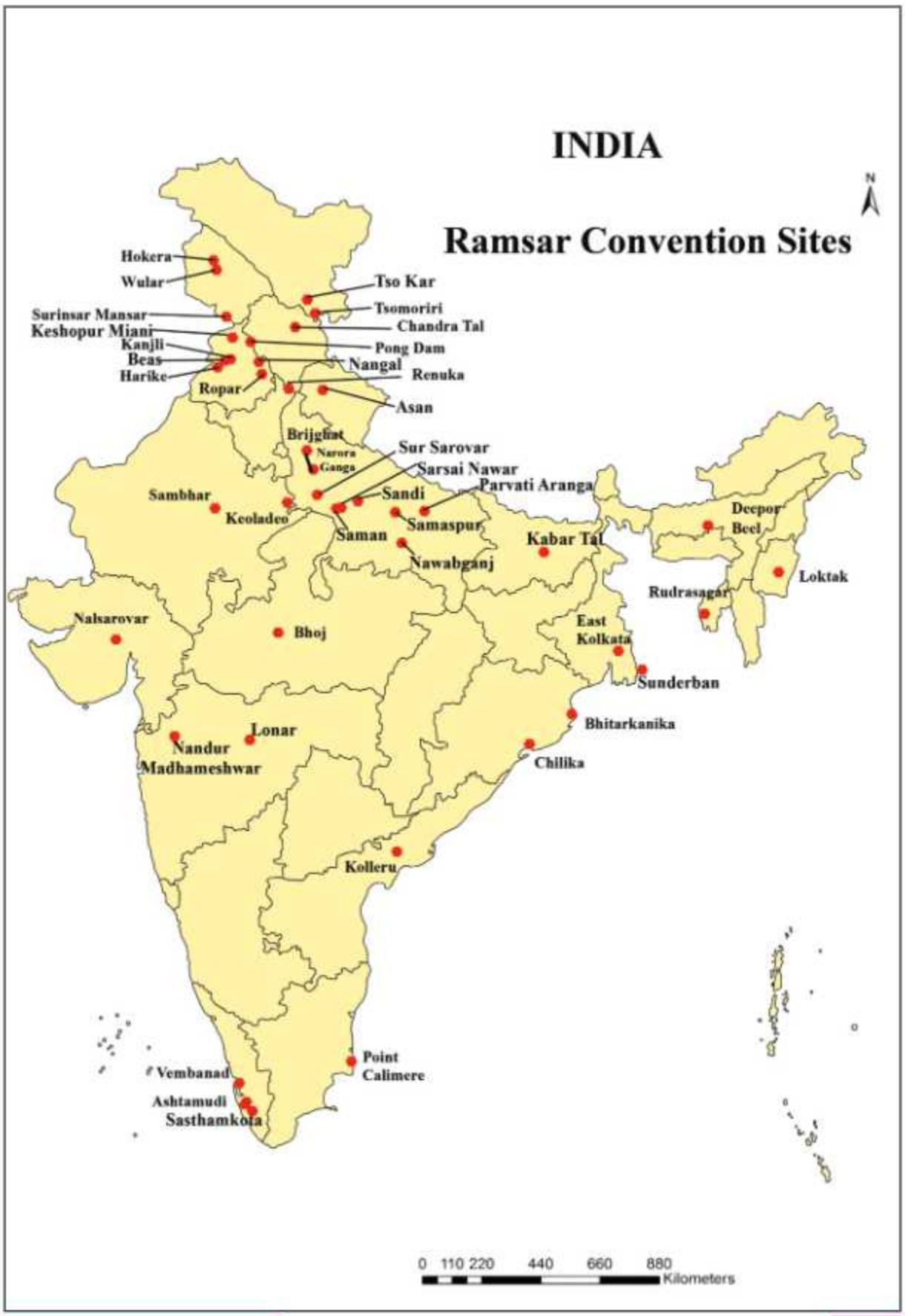
Ramsar sites in India

The Convention on Wetlands, called the Ramsar Convention, is the intergovernmental treaty that provides the framework for the conservation and wise use of wetlands and their resources. The Convention was adopted in the Iranian city of Ramsar in 1971 and came into force in 1975.

Definition of a wetland as: "areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters".

Wetlands, natural and manmade, freshwater or brackish, provide numerous ecological services. The density of birds, in particular, is an accurate indication of the ecological health of a particular wetland. However, unsustainable use of wetland without reckoning of their assimilative capacity constitutes major threat to the conservation and management of these vital biodiversity rich areas.

There are 75 Ramsar Convention sites in India and India adds 11 more wetlands to the list of Ramsar sites to make total 75 Ramsar sites covering an area of 13,26,677 ha in the country in the 75th year of Independence, 2471 sites have been identified world wide.


INDIA
Ramsar Convention Sites
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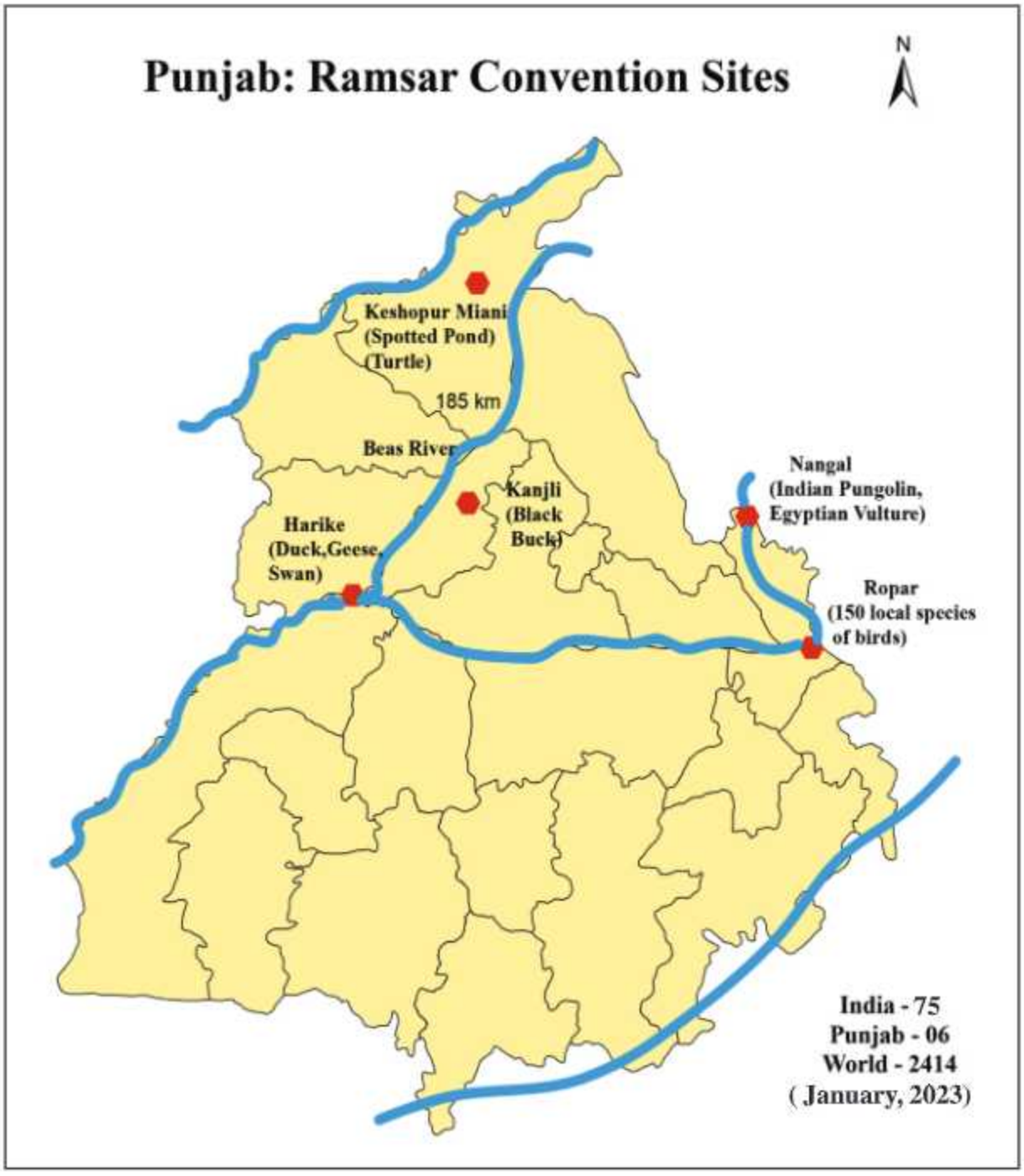


75 (January, 2023)

Ramsar Convention Sites of Punjab

Sr. No.	Name of the Site
1.	Beas Conservation Reserve, 185 km stretch from Shiwaliks foot hills to Harike
2.	Harike Wetlands, a confluence point of Satluj and Beas
3.	Kanjli Wetlands, Kali Vein wetlands
4.	Nangal Wildlife Sanctuary, stretches of Satluj in Shiwaliks foothill zone
5.	Manmade Ropar wetlands of Satluj
6.	Keshopur- Miani community reserves in Bari Doab
	(Source: Ministry of Environment & Forests, Government of India)

Note:	
Days of Concern	**Importance**
February 2	World Wetland Day
April 22	World Earth Day
June 5	World Environment Day
July 26	World Mangrove Conservation Day

Indus Dolphin

Indus river dolphins are believed to have originated in the ancient Tethys Sea. When the sea dried up approximately 50 million years ago, the dolphins were forced to adapt to its only remaining habitat-rivers. Today, they can only be found in the lower parts of the Indus River in Pakistan and in River Beas, a tributary of the Indus River in Punjab, India. In Pakistan, their numbers declined dramatically after the construction of an irrigation system, and most dolphins are confined to a 750 mile stretch of the river and divided into isolated populations by six barrages. They have adapted to life in the muddy river and are functionally blind. They rely on echolocation to navigate, communicate

IUCN CONSERVATION
CRITERIA OF BIODIVERSITY

and hunt prey including prawns, catfish, and carp

National Wildlife Action Plan (NWAP) for 2017-31.

The NWAP 2017-31, under which there are 250 projects, is India's roadmap to conserving wildlife for the next 15 years. The plan has been divided into five components, which are further

divided into 17 themes carrying 103 conservation actions. Each theme has a set of conservation actions and projects - totaling to 250, in all.

Man-animal conflict mitigation, adapting to climate change, managing eco-tourism, ensuring public participation in the conservation, developing human resources, strengthening research and monitoring through modern technology such as radio collars and drones, and ensuring fundings for the wildlife sector have been given a thrust in the planning. Of all the 250 projects, the government has fixed 26 projects under the conservation outreach theme and 16 to ensure public participation. Besides, 14 projects will be taken to control poaching, 11 to mitigate man-animal conflict and 17 projects for research and monitoring.

What is The IUCN Red List?

Established in 1964, The International Union for Conservation of Nature's Red List of Threatened Species has evolved to become the world's most comprehensive information source on the global conservation status of animal, fungi and plant species.

The IUCN Red List is a critical indicator of the health of the world's biodiversity. Far more than a list of species and their status, it is a powerful tool to inform and catalyze action for biodiversity conservation and policy change, critical to protecting the natural resources we need to survive. It provides information about range, population size, habitat and ecology, use and/or trade, threats, and conservation actions that will help inform necessary conservation decisions.

UNESCO Heritage sites

The World Heritage Convention

The most significant feature of the 1972 World Heritage Convention is that it links together in a single document the concepts of nature conservation and the preservation of cultural properties. The Convention recognizes the way in which people interact with nature, and the fundamental need to preserve the balance between the two.

The Convention sets out the duties of States Parties in identifying potential sites and their role in protecting and preserving them. By signing the Convention, each country pledges to conserve not only the World Heritage sites situated on its territory, but also to protect its national heritage. The States Parties are encouraged to integrate the protection of the cultural and natural heritage into regional planning programmes, set up staff and services at their sites, undertake scientific and technical conservation research and adopt measures which give this heritage a function in the day-to-day life of the community. It explains how the World Heritage Fund is to be used and managed and under what conditions international financial assistance may be provided.

Total World Heritage Sites :	1154
Natural Heritage sites :	218
Cultural Heritage sites :	897
Mixed Heritage sites:	39

China and Italy lead with maximum no. of UNESCO Heritage Sites of 58 each. As of 2022, there are 40 World Heritage Sites located in India. Out of these, 32 are cultural, 7 are natural, and one, the Khangchendzonga National Park, is of mixed type.

Chandigarh Capital Complex is a government compound designed by the architect Le Corbusier and is a UNESCO World Heritage Site It is spread over an area of around 100 acres and is a prime manifestation of Chandigarh's architecture. It comprises three buildings: the Palace of Assembly or Legislative Assembly, Secretariat Building and the High Court plus four monuments (Open Hand Monument, Geometric Hill, Tower of Shadows and the Martyrs Monument) and a lake. It was added to the UNESCO World Heritage Site List in 2016.

UNESCO Intangible heritage sites in India

The importance of intangible cultural heritage is not the cultural manifestation itself but rather the wealth of knowledge and skills that is transmitted through it from one generation to the next. The social and economic value of this transmission of knowledge is relevant for minority groups and for mainstream social groups within a state, and is as important for developing states as for developed one. Intangible cultural heritage contributes to social cohesion, encouraging a sense of identity and responsibility which helps individuals to feel part of one or different communities and to feel part of society at large : A total of 13 Intangible cultural heritage (ICH) elements from India have been inscribed till date on the UNESCO's Representative List of the Intangible Cultural Heritage of Humanity.

For inclusion of an element in the UNESCO's Representative List of Intangible Cultural Heritage, the state parties are required to submit nomination dossier on the relevant element for evaluation and examination of the UNESCO Committee.

Following UNESCO's 2003 Convention for Safeguarding of Intangible Cultural Heritage, this list has been classified into five broad domains in which intangible cultural heritage is manifested:

1. Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage;
2. Performing arts;
3. Social practices, rituals and festive events;
4. Knowledge and practices concerning nature and the universe;
5. Traditional craftsmanship.

S.No.	ICH Element	Year of Inscription
1.	Tradition of Vedic chanting	2008
2.	Ramlila, the traditional performance of the Ramayana	2008
3.	Kutiyattam, Sanskrit theatre	2008
4.	Ramman, religious festival and ritual theatre of the Garhwal Himalayas, India	2009
5.	Mudiyettu, ritual theatre and dance drama of Kerala	2010
6.	Kalbelia folk songs and dances of Rajasthan	2010
7.	Chhau dance	2010
8.	Buddhist chanting of Ladakh: recitation of sacred Buddhist texts in the trans-Himalayan Ladakh region, Jammu and Kashmir, India	2012
9.	Sankirtana, ritual singing, drumming and dancing of Manipur	2013
10.	Traditional brass and copper craft of utensil making among the Thatheras of Jandiala Guru, Punjab, India	2014
11.	Yoga	2016
12.	Nawrouz	2016
13.	Kumbh Mela	2017

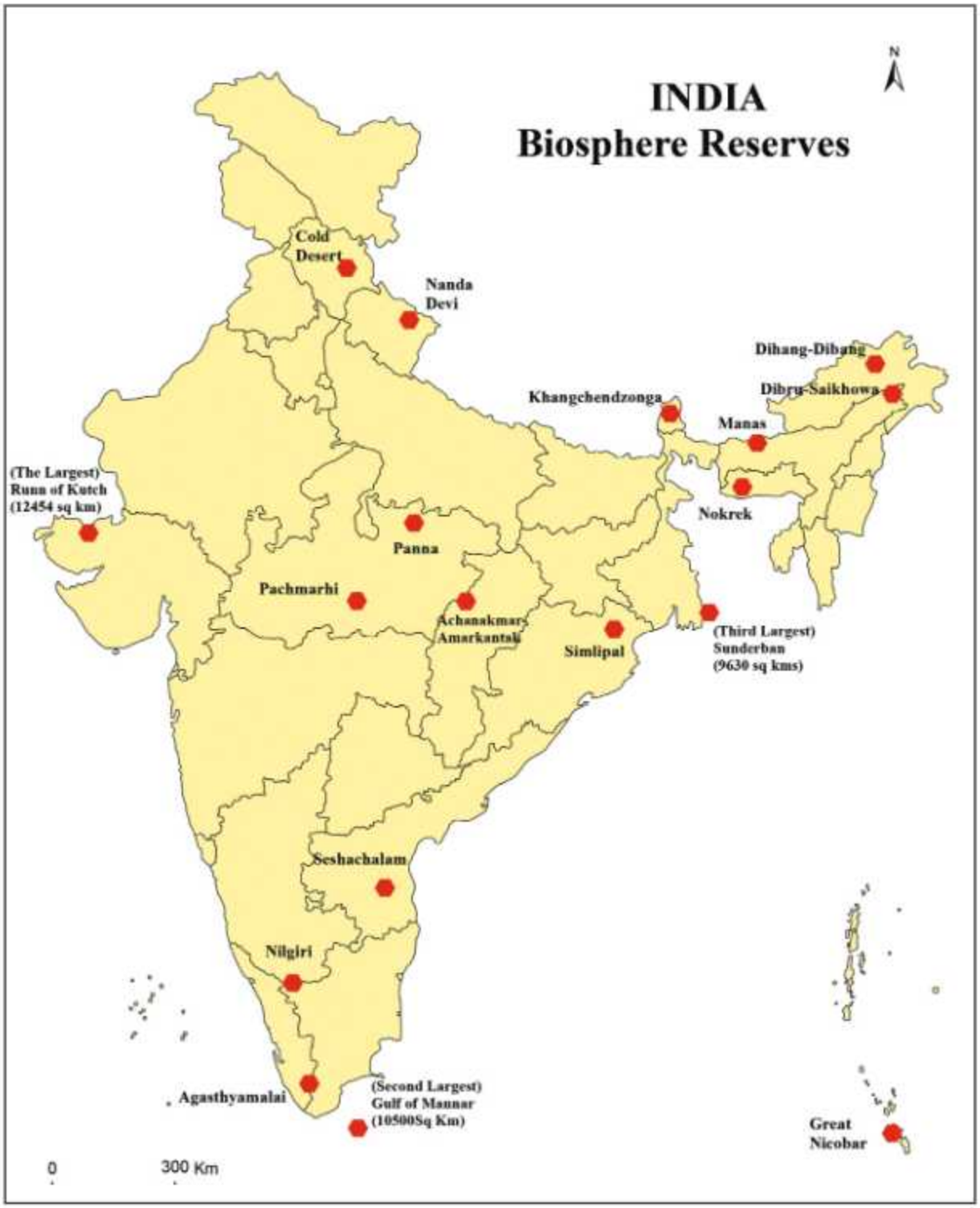
Biosphere reserves in India

The Indian government has established 18 Biosphere Reserves in India, which protect larger areas of natural habitat (than a National Park or Animal Sanctuary) and often include one or more National Parks or reserves. Protection is granted not only to the flora and fauna of the protected region, but also to the human communities who inhabit these regions, and their ways of life. Animals are protected and saved here. The Khangchendzonga Biosphere Reserve (KBR) of Sikkim, the highest biosphere reserve in the country that includes the third highest mountain peak in the world, Kanchenjunga (8,586 m), has been included in the UNESCO's World Network of Biosphere Reserve (WHBR).

BIOSPHERE RESERVES OF INDIA

	Year	Name	Location	State	Type Key fauna	Area (km)
1	1986	Nilgiri Biosphere Reserve	Part of Waynad, Nagarhole, Bandipur and Mudumalai, Nilambur, Silent Valley	Tamil Nadu, Kerala and Karnataka	Nilgiri tahr, tiger, lion-tailed macaque	5,520
2	1988	Nanda Devi Biosphere Reserve	Parts of Chamoli Dist., Pithoragarh District & Bageshwar District	Uttarakhand	Snow leopard, Himalayan black bear	5,860
3	1989	Gulf of Mannar	Indian part of Gulf of Mannar extending from Rameswaram island in the north to Kanyakumari in the south of Tamilnadu and Sri Lanka	Tamil Nadu	Dugong	10,500
4	1988	Nokrek	In west Garo Hills	Meghalaya	Red panda	820
5	1989	Sundarbans	Ganges and Part of delta of Brahmaputra river system	West Bangal	Royal Bengal Tiger	9,630
6	1989	Manas	Part of Kokrajhar. Bongaigaon, Barpeta, Nalbari, Kamrup and Darrang Districts	Assam	Asiatic elephant, tiger, Assam roofed turtle, hispid hare, golden langur, pygmy hog	2,837
7	1994	Simlipal	Part of Mayurbhanj district	Odisha	Gaur, royal Bengal tiger, Asian elephant	4,374
8	1998	Dihang-Dibang	Part of Siang and Dibang Valley	Arunachal Pradesh	Mishmi takin, musk deer	5,112

	Year	Name	Location	State	Type Key fauna	Area (km)
9	1999	Pachmarhi Biosphere Reserve	Parts of Betul District, Hoshangabad District and Chhindwara District	Madhya Pradesh	Giant squirrel, flying squirrel	4,981.72
10	2005	Achanakmar-Amarkantak Biosphere Reserve	Part of Annupur, Dindori and Bilaspur districts	Madhya Pradesh, Chhattisgarh	Four-horned antelope, Indian wild dog, sarus crane, white-rumped vulture, sacred grove biobush frog	3,835
11	2008	Great Rann of Kutch	Part of Kutch, Morbi, Surendranagar and Patan districts; the largest biosphere reserve in India.	Gujarat	Indian wild ass	12,454
12	2009	Cold Desert	Pin Valley National Park and surroundings; Chandratal and Sarchu & Kibber Wildlife Sanctuary	Himachal Pradesh	Snow leopard	7,770
13	2000	Khangch-endzonga	Parts of Kangchenjunga	Sikkim	Snow leopard, red panda	2,620
14	2001	Agasthyam-alai Biosph-ere Reserve	Neyyar, Peppara and Shenduruny Wild-life Sanctuary and their adjoining areas	Kerala, Tamil Nadu	Nilgiri tahr, Asian elephant	3,500.08
15	1989	Great Nicobar	Southernmost of the Andaman and Nicobar Islands	Andaman & Nicobar Islands	Saltwater crocodile	885
16	1997	Dibru-Saikhowa	Part of Dibrugarh and Tinsukia districts	Assam	White-winged wood duck, water buffalo black-breasted parrotbill, tiger, capped langur	765
17	2010	Seshachalam Hills	Seshachalam Hill Ranges covering parts of Chittoor and Kadapa districts	Andhra Pradesh		
18	2011	Panna	Part of Panna and Chhattarpur districts in Madhya Pradesh	Madhya Pradesh		



The following is a list of potential sites for Biosphere Reserves as selected by Ministry of Forests and Environment.

- Abujmarh, Chhattisgarh
- Andaman and Nicobar. North Islands
- Chintapalli, Visakhapatnam Andhra Pradesh

- Kanha, Madhya Pradesh
- Kovalam, Kerala
- Lakshadweep Islands, Lakshadweep
- Little Rann of Kutch, Gujarat
- Phawngpui (Blue Mountain), Mizoram
- Namdapha, Arunachal Pradesh
- Singhbhum, Jharkhand
- Tawang and West Kameng, Arunachal Pradesh
- Thar Desert, Rajasthan
- Tadoba National Park and Sanjay Gandhi National Park, Maharashtra

The Seven Natural Wonders of the World

What we consider as Seven Wonders of the World are all human-made. But what most people don't know is that Mother Nature has its wonders to offer even before humans existed. With a lot of stunning beaches and mountains around the world, it's undeniable that no man can ever beat the works of nature.

The Seven Natural Wonders of the World are the naturally occurring Aurora Borealis or Northern Lights, the Victoria Falls, Mount Everest, Paricutin Volcano, Grand Canyon, the Great Barrier Reef, and Rio de Janeiro etc.

Natural Wonders of the India

One of the world's most varied countries in terms of geographical diversity, India has an astonishing array of natural wonders. Some are pretty well-known and undeniably spectacular, while others are less-discovered gems. However, they have one thing in common - they will all take your breath away!

1. Lonar Lake

Lonar Lake, also known as Lonar crater, is a notified National Geo-heritage Monument, saline, soda lake, located at Lonar in Buldhana district, Maharashtra, India. Lonar Lake was created by an asteroid collision with earth impact during the Pleistocene Epoch. Incredibly old at 50,000 years, the Lonar crater is the youngest and best-preserved impact crater formed in basalt rock and is the only of its kind on earth.

2. Borra Caves

The Borra Caves, also called Borra Guhalu, are located on the East Coast of India, in the Ananthagiri hills of the Araku Valley (with hill ranges' elevation varying from 800 to 1,300 m (2,600 to 4,300 ft)) of the Visakhapatnam district in Andhra Pradesh. The caves, one of the largest in the country, at an elevation of about 705 m (2,313 ft), distinctly exhibit a variety of speleothems ranging in size and irregularly shaped stalactites and stalagmites

3. Riverine Potholes of Nighoj

Nighoj is a village in Ahmednagar District, Maharashtra, India, is famous for the naturally created potholes (tinajas) on the riverbed of the Kukadi River. Experts from all over the world come here every year to study the phenomenon of their formation.

4. Gandikota Canyon

With striking grandeur reminiscent of USA's majestic Grand Canyon, Gandikota is a 300-feet-deep valley located in Cuddapah district of Andhra Pradesh. Believed to be more than a thousand

years old, the canyon is also known for the 13th-century Gandikota Fort - an intricately-carved citadel made of red sandstone.

5. Loktak Lake

Loktak Lake is the largest freshwater lake in North East India and is famous for the phumdis (heterogeneous mass of vegetation, soil and organic matter at various stages of decomposition) floating over it, resembling miniature islands, these phumdis are found in various forms, floating on the picturesque freshwater lake that serves as a lifeline for the communities living around it. Keibul Lamjao National Park located at the south western part of the lake. It is the world's only floating national park and is home to the endangered Manipuri brow-antlered deer, Sangai. The biodiversity hotspot is also home to 233 species of aquatic plants, more than 100 species of birds, and 425 species of animals!

6. Dudhsagar Falls

Dudhsagar is a four-tiered waterfall located on the Mandovi River in the Indian state of Goa. It is 60 km from Panaji by road and is located on the Madgaon-Belagavi rail route. Dudhsagar Falls is amongst India's tallest waterfalls with a height of 310 m (1017 feet) and an average width of 30

metres (100 feet).The falls is located in the Bhagwan Mahaveer Sanctuary and Mollem National Park among the Western Ghats The waterfall gives us an allusion of the white spray and foam that the great waterfall creates, as it gushes into the waters of the lake.

7. Magnetic Hill

Magnetic Hill is a "gravity hill" (a gravity hill is a place where the layout of the surrounding land produces an optical illusion, making a slight downhill slope appear to be an uphill slope.) located near Leh in Ladakh UT in , India. The layout of the surrounding slopes creates an optical illusion that the downhill road is actually an uphill road. Objects and cars on the hill may appear to roll "uphill" in defiance of gravity when they are, in fact, rolling downhill.

Biodiversity Conservation

Biodiversity is being depleted by the loss of habitat, fragmentation of habitat, over exploitation of resources, human sponsored ecosystems, climatic changes, pollution invasive exotic spices, diseases, shifting cultivation, poaching of wild life etc.

Since the human beings are enjoying all the benefits from biodiversity, they should take proper care for the preservation of biodiversity in all its form and good health for the future generation i.e., the human being should prevent the degradation and destruction of the habitats thereby maintaining the biodiversity at its optimum level.

PROJECTS/ACTIVITIES

1. Make a project showing man and biosphere reserves in India.
2. Have a discussion in the class- how to control Global warming.
3. Visit 'Thatheras' of Jandiala Guru (Amritsar) to see the importance of intangible world heritage site
4. India is a country with rich biodivessity. Prepare a report on it.

Exercise

1. Multiple choice questions.

(i) Biogeography :

(a) Is comprehensive study of living things.

(c) Includes Abotic World

(b) Includes Biotic World.

(d) a & c both

(ii) How many Biogeographtic zones does India here ?

(a) 7 (c) 10

(b) 9 (d) 11

(iii) A Mega diverse country must hold at least ..... species of endemic plants and border marive ecosystems.

(a) 5,500 (c) 4500

(b) 5000 (d) 6000

(iv) There are ..... Biodiversity hotspots is India :

(a) 4 (b) 5

(c) 6 (d) 7

(v) IUCN stands for :

(a) International Union of Capital Nations.

(c) International Union for Conservation of Nature.

(b) Interntional Unity for Cancer and Nutrition.

(d) International Unity for Causes of Necular Power.

(vi) Indian govt. has established ..... Bioshpere resurves in India :

(a) 12 (c) 14

(b) 18 (d) 16

(vii) Lonar Lake is located in :

(a) Punjab (c) Madhy Pradesh

(b) Uttar Pradesh (d) Maharastra

(viii) Which pair among the following is least found in Punjab presently ?

(a) Pigeon and Monkey (c) Parrot and Horse

(b) Sparrow and Cat (d) Crow and Dog

2. Answer the following questions in about 30 words.

(i) Define Biogeography.

(ii) Name the types of Biodeiversity.

(iii) Define :

(a) The Biotic Province

(b) Ecotone

(c) Biome

(iv) Name the Biodiverstiy Hotspots of India.

(v) Write a short note on 'Sundarbans'.

(vi) Write a note about location of 'Gulf of Mannar.'

(vii) How Biodiversity and economic development are helpful to one another ?

(viii) What is importance of Himalayas as biodivessity region of India ?

(iv) Write a note on UNESCO Intangible heritage sites in India.

(v) Disscuss regional biodivessity and ecological regious of Punjab.

(vi) Introdance any four natural wondes found in India.

3. Answer the following questions in about 120 words.

(i) List some important facts about Indian Biodiversity.

(ii) Write a detailed account on Biosphere reserves in India.

(iii) Write notes on :

(a) Borra Caves (b) Gandikota Canyon

(c) Natural Wonders of the World (d) Biodiversity Conservation

3

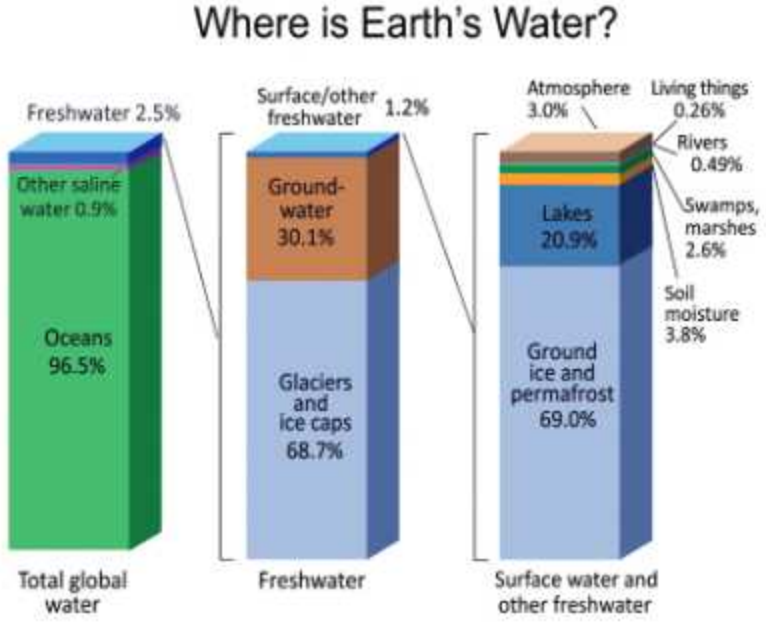
Water Resources

Water, like religion and ideology. has the power to move millions of people. Since the very birth of human civilisation, people have moved to settle close to it. People move when there is too little to it. People move when there is too much of it. People journey down it. People write, sing and dance about it. And all people, everywhere and every day need it.
LATE MIKHAIL GORBACHEV. (1931 – 2022) Former president erstwhile USSR)

India has only about 4 per cent of the world's renewable water resources but is home to nearly 18 per cent of the world's population. It receives an average annual precipitation of 4,000 billion cubic metres (BCM) which is the principle source of fresh water in the country.

4000 BCM (100 percent) = 2350 BCM (58.75 %) + 700 BCM (17.5 %) + 1150 BCM (28.75%)

Total Indian water resources = Soil Infiltration + Evaporation + Runoff to the Sea/Oceans



Water is one of the most important substances on earth. All plants and animals must have water to survive. If there was no water there would be no life on earth. Apart from drinking it to survive, people have many other uses for water. These include: cooking, washing their bodies, washing clothes, washing cooking and eating utensils, keeping houses and communities clean, recreation; such as swimming pools, keeping plants alive in gardens and parks. Water is also essential for the healthy growth of farm crops and farm stock and is used in the manufacture of many products. Water resources are natural resources of water that are potentially useful.

97% of the water on the Earth is salt water and only three percent is fresh water; slightly over two thirds of this is frozen in glaciers and polar ice caps. The remaining unfrozen freshwater is found mainly as groundwater, with only a small fraction present above ground or in the air.

Fresh water is a renewable resource, yet the world's supply of groundwater is steadily decreasing, with depletion occurring most prominently in Asia in general and India in particular. Although it is still

unclear how much natural renewal balances this usage, and whether ecosystems are threatened. The world's water exists naturally in different forms and locations: in the air, on the surface, below the ground and in the oceans. Just 2.5% of the Earth's water is freshwater. and most is frozen in glaciers and ice sheets. About 96% of all liquid freshwater can be found underground. The remaining small fraction is on the surface or in the air.

Knowing how water cycles through the environment can help in determining how much water is available in different parts of the world. The Earth's water cycle is the global mechanism by which water moves from the air to the Earth (precipitation) and eventually back to the atmosphere (evaporation). The principal natural components of this cycle are precipitation, infiltration into the soil, runoff on the surface, groundwater discharge to surface waters and the oceans, and evapotranspiration from water bodies, the soil, and plants.

"Blue water"- the water in rivers, lakes, and aquifers- can be distinguished from "green water" - which feeds plants and crops, and which is subsequently released into the air. This distinction may help managers focus on those areas which green water feeds and passes through, such as farms, forests, and wetlands.

Waters on Planet Earth

Oceans have brackish waters and it makes 97.5 percent of total waters	2.5 percent is Fresh water on Lands but distributed in varied forms
The five Oceans holding brackish waters:	Glaciers have 68.7 percent of total fresh waters
Pacific Ocean 49.6%	Ground waters hold 30.1 percent share
Atlantic Ocean 22.9%	Permanently frozen lands hold 0.8 percent of fresh waters
Indian Ocean 2.4%	The remaining 0.4 percent runs as surface waters and atmospheric moisture.
Southern Ocean 6.1%	
Arctic Ocean 4.2%	

Let us assume 0.4 percent of surface waters and atmospheric moisture equivalent to 100 percent

Surface Lakes hold 67.5 percent of total

Soil moisture makes 12.2 percent

Atmospheric moisture makes 9.5 percent share

Wetlands constitute 8.5 percent

Rivers make 1.6 percent

Remaining 0.8 percent is held by plants and animals.

India leads the world in annual agricultural water withdrawals. China and the US are also among the 10 countries with the largest agricultural withdrawals. Interestingly, these are the countries with the largest areas equipped for irrigation and also responsible for the largest total

withdrawals. Globally, the area equipped for irrigation almost doubled from 164 million hectares to 324 million hectares in 50 years (1962-2012). Among the regions, the largest expansion in irrigation area since 1962 occurred in South Asia, followed by East Asia and the Pacific, according to a recent report by the World Bank titled 'Beyond Crop per Drop'. Only Europe and Central Asia region have witnessed a decline in the area equipped for irrigation since around the mid-1990s.

Globally, the largest water use happens in agriculture sector, primarily for irrigation. It accounts for an estimated 70 per cent of total freshwater withdrawals. In many drier countries, agricultural water use accounts for more than 90 per cent of total withdrawals. Vietnam water withdrawal for agricultural purposes is 95 percent. India uses 90 percent and USA uses 40 percent of withdrawn waters for agricultural purposes.

Countries with the largest water withdrawals

Country	Agricultural water withdrawal in percentage to total water withdrawal	Total water withdrawal Billion Cubic Meters
India	90	761
China	65	554
USA	40	486
Pakistan	94	184
Indonesia	82	113
Iran	92	93
Vietnam	95	82
Philippines	82	82
Egypt	86	78
Mexico	77	80

Where is then water scarcity likely to occur? As you may have read in the hydrological cycle, freshwater can be obtained directly from precipitation, surface run off and groundwater. Is it possible that an area or region may have ample water resources but is still facing water scarcity? Many of our cities are such examples. Thus, water scarcity may be an outcome of large and growing population and consequent greater demands for water, and unequal access to it. A large population means more water not only for domestic use but also to produce more food. Hence, to facilitate higher food-grain production, water resources are being over-exploited to expand irrigated areas and dry-season agriculture. You may have seen that most farmers have their own wells and tube-wells in their farms for irrigation to increase their produce. But have you ever wondered what this could result in? That it may lead to falling groundwater levels, adversely affecting water availability and food security of the people. Post-independent India witnessed intensive industrialisation and urbanisation, creating

vast opportunities for us. Today, large industrial houses are as commonplace as the industrial units of many MNCs (Multinational Corporations). The ever-increasing number of industries has made matters worse by exerting pressure on existing freshwater resources. Industries, apart from being heavy users of water, also require power to run them. Much of this energy comes from hydroelectric power. Today, in India hydroelectric power contributes approximately 12.3 per cent (large hydro power projects) and 1.2 percent (small hydro power projects) of the total electricity produced (409.1 agawatt as on 30 Nov. 2022). Moreover, multiplying urban centres with large and dense populations and urban lifestyles have not only added to water and energy.

You may have already realised that the need of the hour is to conserve and manage our water resources, to safeguard ourselves from health hazards, to ensure food security, continuation of our livelihoods and productive activities and also to prevent degradation of our natural ecosystems. Over exploitation and mismanagement of water resources will impoverish this resource and cause ecological crisis that may have profound impact on our lives.

Earth Hour:

Switch lights were made off for 60 minutes to register our conservative initiations on march 27 to show unanimity for the cause. The purpose for such efforts was to observe many more such hours in a year for real contribution and understand a living without such to learn living without such cultured endowments.

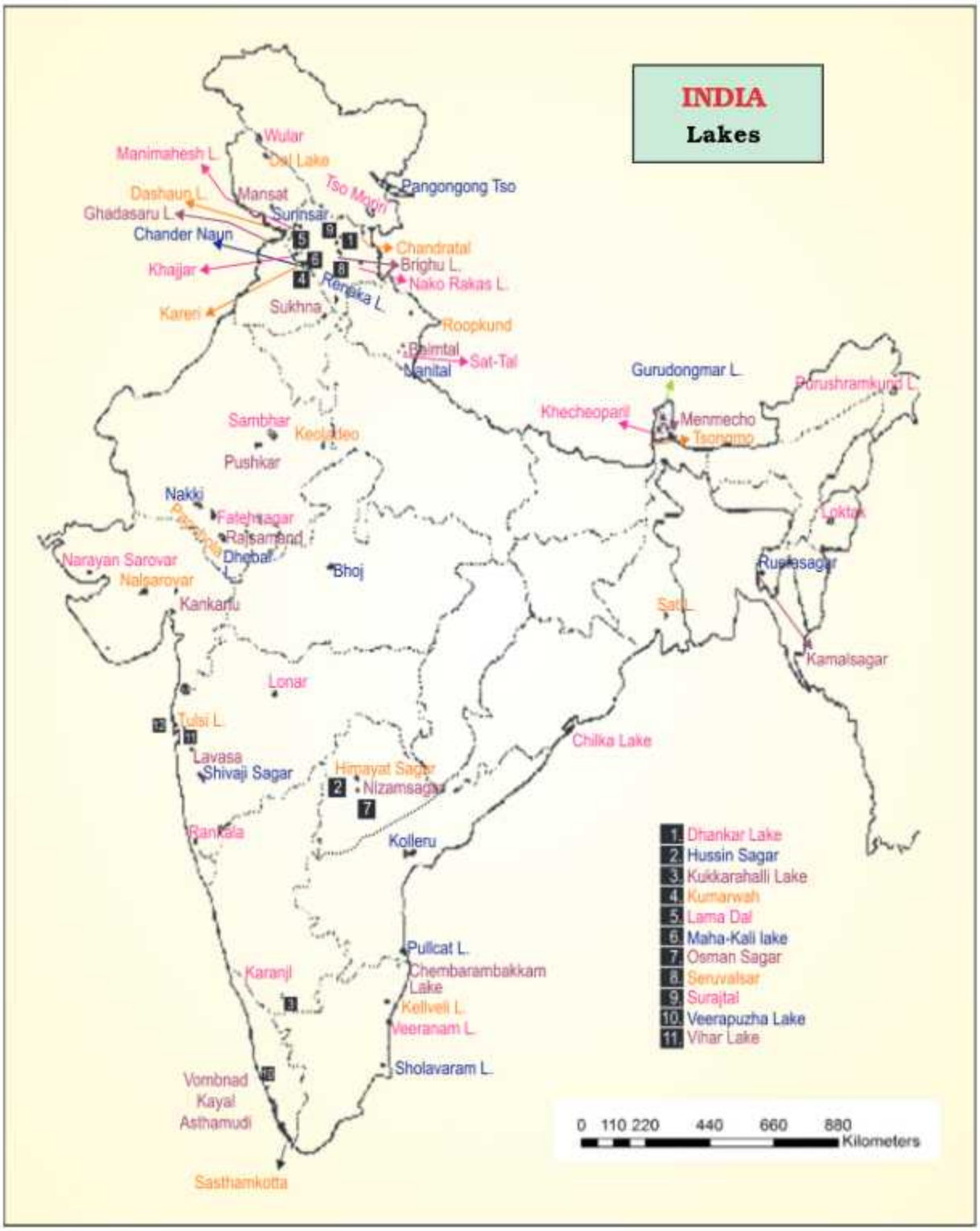
Project Activity

From your everyday experiences, write a short proposal on how you can conserve water in your urban/rural settlement.

Multiple River Valley Projects and Integrated Water Resources Management

There is always a need to understand that how do we conserve and manage water? Archaeological and historical records show that from ancient times we have been constructing sophisticated hydraulic structures like dams built of stone rubble, reservoirs or lakes, embankments and canals for irrigation. Not surprisingly, we have continued this tradition in modern India by building dams in most of our river basins. What are dams and how do they help us in conserving and managing water? Dams were traditionally built to impound rivers and rainwater that could be used later to irrigate agricultural fields. Today, dams are built not just for irrigation but for electricity generation, water supply for domestic and industrial uses, flood control, recreation, inland navigation and fish breeding. Hence, dams are now referred to as multi-purpose projects where the many uses of the impounded water are integrated with one another. For example, in the Sutluj-Beas river basin, the Bhakra - Nangal project water is being used both for hydel power production and irrigation. Similarly, the Hirakud project in the Mahanadi basin integrates conservation of water with flood control.


INDIA
MAJOR RIVERS AND DAMS
68°E
72°
76°
80°
84°
88°
92°
96°E
36°N
32°
28°
24°
20°
16°
12°
8°N
PAKISTAN
CHINA (TIBET)
NEPAL
BHUTAN
BANGLADESH
MYANMAR
SRI LANKA
ARABIAN SEA
BAY OF BENGAL
INDIAN OCEAN
LAKSHADWEEP (INDIA)
ANDAMAN & NICOBAR ISLANDS (INDIA)
Tropic of Cancer
Indus R.
Jhelum R.
Chenab R.
Ravi R.
Satluj R.
Beas R.
Salal Project
Bhakra Nangal
Tehri
Tsangpo R.
Ganga R.
Narauta
Sarda R.
Yamuna R.
Ghaghara R.
Gandak R.
Kosi R.
Brahmaputra R.
Chambal R.
Kota Barrage
Rana Pratap Sagar
Gandhi Sagar
Betwa R.
Son R.
Ganga R.
Rihand
Tilaiya
Konar
Maithon
Panchet
Damodar R.
Sardar Sarovar
Narmada R.
Tapi R.
Hirakud
Mahanadi R.
Penganga R.
Godavari R.
Pravara
Koyna
Krishna R.
Nagarjuna Sagar
Tungabhadra
Tungabhadra R.
Mettur
Ponnaiyar
Kaveri R.
Periyar
0 200 400 600 km


INDIA
Lakes
Wular
Manimahesh L.
Dal Lake
Tso Moriri
Pangongong Tso
Dashaun L.
Mansat
Ghadasaru L.
Surinsar
Chander Nayn
Chandratal
Khajjar
Brighu L.
Renuka L.
Nako Rakas L.
Kareri
Sukhna
Roopkund
Bhimtal
Sat-Tal
Nainital
Gurudongmar L.
Parushramkund L.
Khecheopari
Menmecho
Tsongmo
Sambhar
Keoladeo
Pushkar
Nakki
Fatehsagar
Rajsamand L.
Dhebar L.
Narayan Sarovar
Nalsarovar
Bhoj
Kankaria
Loktak
Rudasagar
Sasi L.
Kamalsagar
Lonar
Tulsi L.
Lavasa
Shivaji Sagar
Chilka Lake
Himayat Sagar
Nizamsagar
Ranikala
Kolleru
Pulicat L.
Karanji
Chembarambakkam Lake
Kelliveli L.
Veeranam L.
Sholavaram L.
Vombnad
Kayal
Asthamudi
Sasthamkotta
1. Dhankar Lake
2. Hussin Sagar
3. Kukkarahalli Lake
4. Kumarwah
5. Lama Dal
6. Maha-Kali lake
7. Osman Sagar
8. Seruvalsar
9. Surajtal
10. Veerapuzha Lake
11. Vihar Lake
0 110 220 440 660 880
Kilometers

Note: India has 5334 operational dams and 447 under construction. Maharashtra has the largest no of 2069 dams in work and 285 under construction. Still 19 percent of its area is net irrigated. National net irrigated area in India is 49 percent. Punjab has 100 percent of its net sown area under irrigation while Haryana has 84 percent net irrigated area.

Hydraulic Structures in Ancient India

- In the first century B.C., Sringaverapura near Allahabad had sophisticated water harvesting system channelling the flood water of the river Ganga.
- During the time of Chandragupta Maurya, dams, lakes and irrigation systems were extensively built.
- Evidences of sophisticated irrigation works have also been found in Kalinga, (Odisha), Nagarjunakonda (Andhra Pradesh), Bennur (Karnataka), Kolhapur (Maharashtra), etc.
- In the 11th Century, Bhopal Lake, one of the largest artificial lakes of its time was built.
- In the 14th Century, the tank in Hauz Khas, Delhi was constructed by Iltutmish for supplying water to Siri Fort area.

Source: Dying Wisdom, CSE, 1997.

Note: The Indira Sagar Dam, Madhya Pradesh is a multipurpose project has been developed across Narmada River. It is a part of larger Narmada valley project. It has India's largest water reservoir with 12.12 Billion Cubic Meters of water in Khandwa district. Nagarjuna project is the second largest with a storage capacity of 11.23 Billion Cubic Meters and Bhakra Dam as the third largest with 9.83 BCM impounded waters.

Tehri Dam on Bhagirathi River in Uttarakhand is the highest dam with 261 m height from local grounds in India while Hirakud dam across Mahanadi in Odisha is the longest one with 4.8 km stretch.

Three Gorges River Valley Project on Yangtze river of China with 38000 MW power is the largest one in the world.

A dam is a barrier across flowing water that obstructs, directs or retards the flow, often creating a reservoir, lake or impoundment. "Dam" refers to the reservoir rather than the structure. Most dams have a section called a spillway or weir over which or through which it is intended that water will flow either intermittently or continuously. Dams are classified according to structure, intended purpose or height. Based on structure and the materials used, dams are classified as timber dams, embankment dams or masonry dams, with several subtypes. According to the height, dams can be categorised as large dams and major dams or alternatively as low dams, medium height dams and high dams.

Multi-purpose projects, launched after Independence with their integrated water resources management approach, were thought of as the vehicle that would lead the nation to development and progress, overcoming the handicap of its colonial past. Jawaharlal Nehru proudly proclaimed the

Indira Sagar

Nagarjuna Sagar,

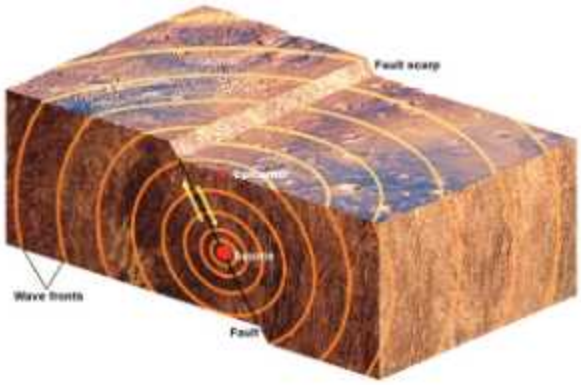
Bhakra Dam

Hirakud Dam

Three Gorges Project

dams as the 'temples of modern India'; the reason being that it would integrate development of agriculture and the village economy with rapid industrialisation and growth of the urban economy. In recent years, multi-purpose projects and large dams have come under great scrutiny and opposition for a variety of reasons.

RIS is Reservoir Induced Seismicity. The areas under large reservoirs of waters develop geological strains and experience frequent earthquakes. The weight of the column of water and sediment deposited in reservoirs mount pressure and lead to development of crack or widening of existing faults. Water infiltrated acts as a lubricant and further destabilise alignment of rocks.



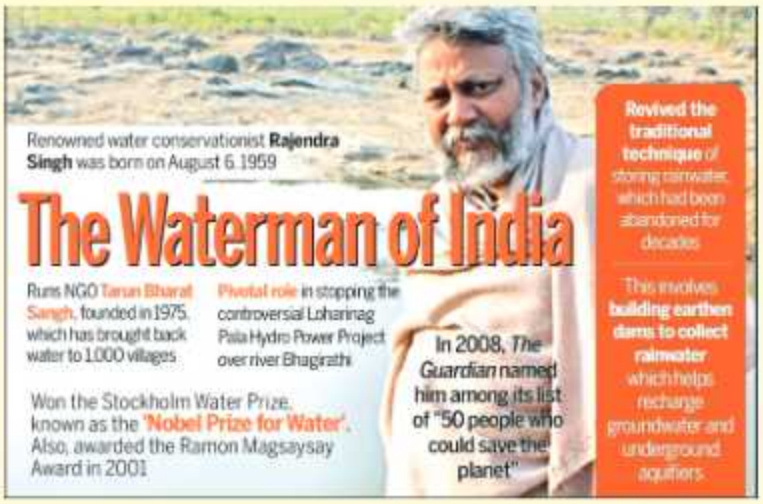
Regulating and damming of rivers affect their natural flow causing poor sediment flow and excessive sedimentation at the bottom of the reservoir, resulting in rockier stream beds and poorer habitats for the rivers' aquatic life. Dams also fragment rivers making it difficult for aquatic fauna to migrate, especially for spawning. The reservoirs that are created on the floodplains also submerge the existing vegetation and soil leading to its decomposition over a period of time. Multi-purpose projects and large dams have also been the cause of many social movements like the 'Narmada Bachao Andolan' and the 'Tehri Dam Andolan' etc. Resistance to these projects has primarily been due to the large-scale displacement of local communities. Local people often had to give up their land, livelihood and their meagre access and control over resources for the greater good of the nation. So, if the local people are not benefiting from such projects then who is benefited? Perhaps,

the landowners and large farmers, industrialists and few urban centres. Take the case of the landless in a village - does he really gain from such a project? Irrigation has also changed the cropping pattern of many regions with farmers shifting to water intensive and commercial crops. This has great ecological consequences like salinisation of the soil. At the same time, it has transformed the social landscape i.e. increasing the social gap between the richer landowners and the landless poor. As we can see, the dams did create conflicts between people wanting different uses and benefits from the same water resources. The Inter-state water disputes are also becoming common with regard to sharing the costs and benefits of the multi-purpose project. The Kaveri river dispute among Karnataka and Tamilnadu is an example. Find out more about any one traditional method of building dams and irrigation works.

Most of the objections to the projects arose due to their failure to achieve the purposes for which they were built. Ironically, the dams that were constructed to control floods have triggered floods due to sedimentation in the reservoir. Moreover, the big dams have mostly been unsuccessful in controlling floods at the time of excessive rainfall. You may have seen or read how the release of water from dams during heavy rains aggravated the flood situation in Kerala's devastating floods in 2018 (see case study of Kerala floods in chapter 1). Bihar has seen in 2020, all of its lower Shiwaliks barrages overflowing and widespread flooding of its northern districts in Gandak Basin. The floods have not only devastated life and property but also caused extensive soil erosion.

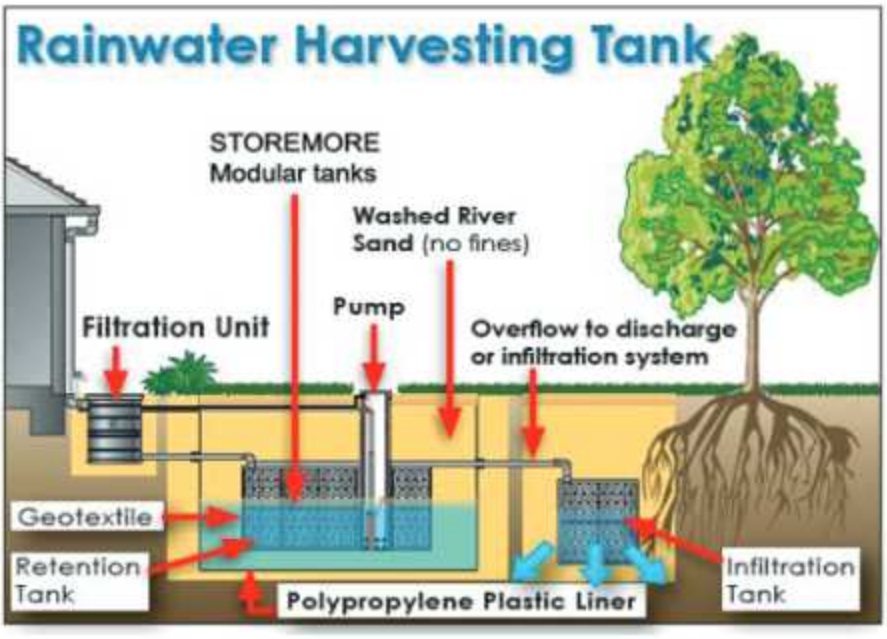
Water man of India

Dr. Rajendra Singh (born 6 August 1959) is a well-known water conservationist & environmentalist from Alwar district, Rajasthan in India. Also known as "waterman of India", he won the Stockholm Water Prize. He runs an NGO called 'Tarun Bharat Sangh' (TBS), which was founded in 1975. In 2015, for his innovative approach to water restoration in Rajasthan. The restoration of 10,000 rainwater harvesting structures, brought the wells, aquifers and rivulets back to life. The water table, i.e. the level below which the ground is saturated - reduced from 100 meters to 13 meters! "Land under cultivation has grown by five times and farm incomes are rising. For work, men no longer need to leave home. And for water, these days, women need walk no farther than the village well," notes Singh, who also collaborates with village panchayats to keep a close watch on projects that may threaten an ecological zone, or negatively impact a community's access to resources.



Rain Water Harvesting

Many thought that given the disadvantages and rising resistance against the multi-purpose projects, water harvesting system was a viable alternative, both socioeconomically and environmentally. In ancient India, along with the sophisticated hydraulic structures, there existed an extraordinary tradition of water-harvesting system. People had in-depth knowledge of rainfall regimes and soil types and developed wide ranging techniques to harvest rainwater, groundwater, river water and flood water in keeping with the local ecological conditions and their water needs. In hill and mountainous regions, people built diversion channels like the 'guls' or 'kuls' of the Western Himalayas for agriculture. 'Rooftop rain water harvesting' was commonly practised to store drinking water, particularly in Rajasthan. In the flood plains of Bengal, people developed inundation channels to irrigate their fields. In arid and semi-arid regions, agricultural fields were converted into rain fed storage structures that allowed the water to stand and moisten the soil like the 'khadins' in Jaisalmer and 'Johads' in other parts of Rajasthan. The water harvesting system was a viable alternative, both socioeconomically and environmentally. In ancient India, along with the sophisticated hydraulic structures, there existed an extraordinary tradition of water-harvesting system. People had in-depth knowledge of rainfall regimes and soil types and developed wide ranging techniques to harvest rainwater, groundwater. Rainwater can be harvested in the following ways:



In sub-hilly regions, water harvesting of rainfall run-off flowing in smaller drains/ channels/ rivulets should be stored by building small earthen dams up to a height of 15 m. The total volume of run-off in sub-hilly regions is also quite substantial and its storage improves groundwater recharge and forestry significantly.

In plains, many times, there is excess rainfall over the crop water requirement. This excess water needs to be drained by constructing a network of primary, secondary and tertiary drains to save the crops from damage due to standing water. The drained water should either be used for

irrigation in rainfall deficient areas or allowed to flow in an adjoining river to enrich the ground water recharge.

The rainfall in cities generates huge amount of run-off which is allowed to flow in an adjoining river through a network of drains. There is urgent need of injecting this run-off into the ground through water harvesting devices. A seasonal rainfall of 20 cm will raise the water table by 1m. In other words, 20 cm rainfall over one sector is sufficient to meet the water supply requirement of 64,000 persons for 100 days. The most effective way of harvesting rainwater in residential areas is to provide a water-harvesting pit in each house/institution of suitable size to ensure zero discharge from the compound. The rainfall run-off generated from streets and roads can be harvested by constructing bigger size water harvesting ponds for each sector.

These are the only ways to harvest the rainfall run-off and avert the impending water scarcity crisis by 2030. There can be no short-cut to achieving this objective.

Roof top rain water harvesting is the most common practice in Shillong, Meghalaya. It is interesting because Cherapunji and Mawsynram situated at a distance of 55 km. from Shillong receive the highest rainwater harvesting system which is adapted here. Gendathur receives an annual precipitation of 1,000 mm, and with 80 per cent of collection efficiency and of about 10 fillings, every house can collect and use about 50,000 litres of water annually. From the 20 houses, the net amount of rainwater harvested annually amounts to 1,00,000 litres.

Tamil Nadu is the first state in India which has made roof top rainwater harvesting structure compulsory to all the houses across the state. There are legal provisions to punish the defaulters.

Rain Water Harvesting is mandatory in Punjab, needs to be strictly implemented

As per building bylaws, every commercial/government/ private/schools/college, large houses must have rain water harvesting or recharging systems but here hardly anyone pays heed to such rules. Rain water is quite pure and its recharging into soil is safe too. Poor enforcement of rules mandating rain water harvesting has resulted in over 2/3 of rain water in urban areas going down the drains, thereby leading to floods in urban areas during rains due to water disposal problems in urban areas.

Seechewal model of rainwater harvesting and water treatment plants

The underground aquifers are under serious threat. Wheat and paddy crop cycle is depleting underground water rapidly. The poisonous insecticides, pesticides, artificial fertilizers, are percolating down and polluting underground water, which is leading two deadly diseases to the people of Punjab, like cancer, heart and kidney failures, memory loss etc. Baba Balbir Singh Ji seechewal one of the most renowned environmentalists and now a Rajya sabha member from Punjab who is also known as 'Eco Baba' has developed "Seechewal model", Simple Pipe and pump formula as an effective solution to this serious problem. It has been implemented at many places including village seechewal in Jalandhar district and at Sultanpur Lodhi in district Kapurthala. The Government of

India has termed it "Seechewal model", and implemented as a model for cleaning the Ganga and other rivers in India.

What exactly is the Seechewal model?

Seechewal model to keep villagers clean and green:

1. The water from the village sewage is collected in a pond.
2. A filter- mash is used to remove objects floating on the surface of water
3. The polluted water is taken into three separate wells. In the first well the sewage circulate in a clockwise direction and the silt and pebbles in the sewage are removed. In the second well the sewage circulate in anticlockwise direction and fat, oil and ghee are separated.

4. The third well takes the water to the main pond.
5. The water collected in the main found cleaned by the sun rays.
6. On the opposite side a motor pump is installed to lift the treated water to the agricultural field for the purpose of irrigation.
7. Plantation around the water treatment plant.

Baba seechewal has initiated a crusade to save the underground water and natural environment of Punjab according to this model the industrial and domestic waste should not be thrown into the rivers. Treatment plants of sufficient capacity to be installed in villages and cities. The treated water

must be used for irrigation purposes only so that the clean drinking water of underground aquifers can be save. Thick layer of silt on the river beds must be removed in order to recharge underground water.

Benefits of seechewal model

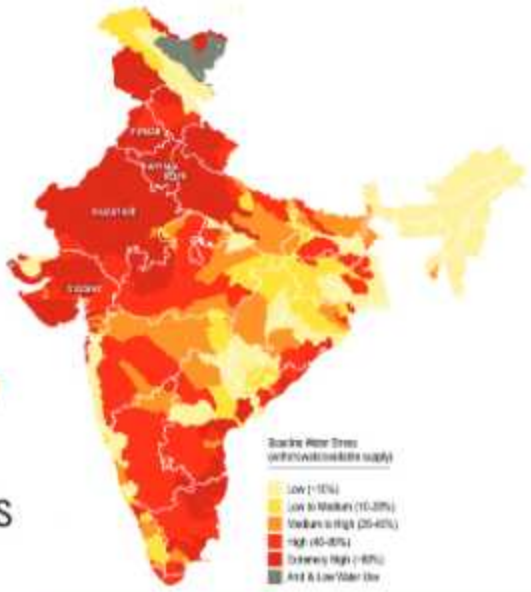
1. Seechewal model is easy to install and operate
2. it is cost effective and eco friendly
3. it is very effective in keeping environment and natural water resources neat and clean
4. it says a lot of input cost into the agriculture

As a responsible citizens of this country we all must be aware enough that the clean environment is a necessary for the survival. We all must take a pledge to minimize the use of clean underground water for agriculture, and instead treated water can be used. We must stop the wastage of water and other natural resources. The United Nations World Water Development Report 2018 lays emphasis on nature-based solutions to address the challenges. To naturally replenish the rivers and aquifers, a judicious use of water is essential. For that, there is need to push for public awareness regarding the importance of rainwater harvesting, treatment and reuse of waste water, an efficient irrigation system, and regulation of tube wells, as also prevention of pilferage or leakage through antiquated pipes in our cities. Water woes easily turn into disputes and social strife over water in the long run has the potential of disrupting any treaty and leading to a war. We need to stem any such event from gathering steam by conserving water.

The Niti Ayog report on water crisis in India 2018

India is facing the worst water crisis in its history, as per a report from the NITI Aayog-a government think tank- has reported in 2018, highlighting the need for "urgent and improved" management of water resources.

With nearly 600 million Indians facing high-to-extreme water stress-where more than 40% of the annually available surface water is used every year-and about 200,000 people dying every year due to inadequate access to safe water, the situation is likely to worsen as the demand for water will exceed the supply by 2050, said the 'Composite Water Management Index' (CWMI) report. States need to start managing their groundwater and their agriculture water. 21 Indian



cities-including Delhi, Bengaluru, Chennai and Hyderabad-will run out of groundwater by 2020, affecting 100 million people; 40% of India's population will have no access to drinking water by 2030. the report reported.

Currently, many Indian states, including Andhra Pradesh, Chhattisgarh and Tamil Nadu, face water shortages, exacerbated by changing rainfall patterns.

The Economic Survey 2017-18 had also acknowledged India's water crisis and explained the triggers, including rapid groundwater depletion, decline in average rainfall and increasing dry monsoon days. Groundwater in India depleted at 10-25 mm per year between 2002 and 2016. Average rainfall declined, from 1,050 mm in the kharif - summer cropping-season of 1970 to less than 1,000 mm in kharif 2015. Similarly, in the winter cropping, or rabi season, average rainfall declined, from Rs 150 mm in 1970 to about 100 mm in 2015. Dry days - days without rainfall - during the monsoons have increased, from ~40% to 45% in 2015.

14 states score below 50% on water management, food security imperiled

In 2015-16, 14 of the 24 states analysed scored below 50% on water management and have been classified as "low performers". These states are concentrated across the populous agricultural belts of north and east India and the northeastern and Himalayan states.

Gujarat performed best with a score of 76%, followed by Madhya Pradesh (69%) and Andhra Pradesh (68%).

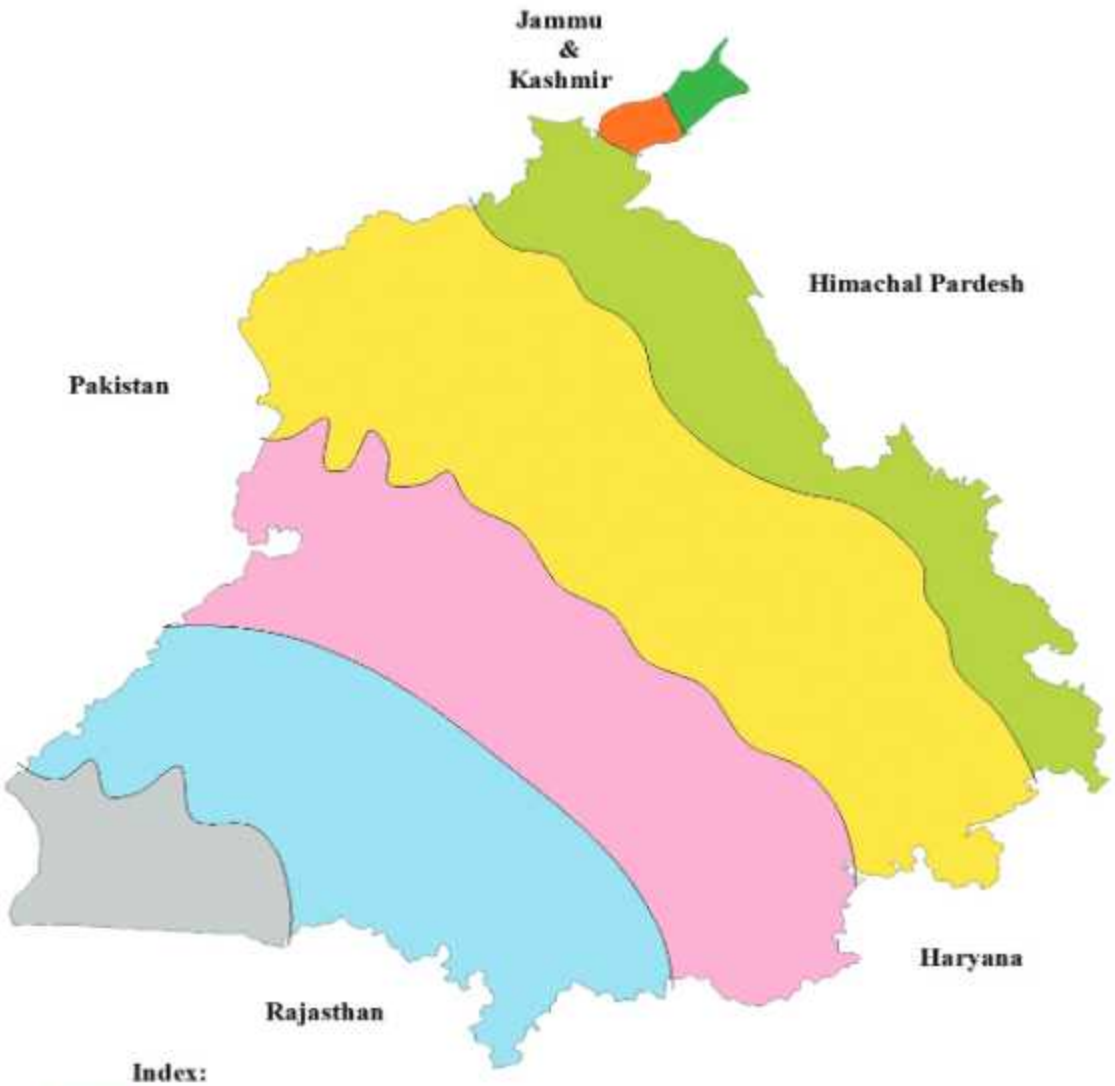
Seven states scored between 50-65%-including Karnataka, Maharashtra, Punjab, Tamil Nadu. Telangana, Himachal Pradesh and Tripura-and have been classified as "medium performers".

Drinking Water and Sanitation

The Department of Drinking Water and Sanitation (DDWS), Ministry of Jal Shakti launched the 10 Year Rural Sanitation Strategy (2019-2029), which focus on sustaining the sanitation behaviour change that has been achieved under the Swachh Bharat Mission Grameen (SBM-G), ensuring that no one is left behind, and increasing access to solid and liquid waste management. Since the launch of the SBM-G in 2014, over 10 crore toilets have been built in rural areas; over 5.9 lakh villages, 699 districts, and 35 States/UTs have declared themselves Open Defecation Free (ODF).

the Jal Shakti Abhiyan (JSA) is a time-bound, mission-mode water conservation campaign. The JSA will run in two Phases: Phase 1 from 1st July to 15th September 2019 for all States and Union Territories; and Phase 2 from 1st October to 30th November 2019 for States and UTs receiving the retreating monsoon (Andhra Pradesh, Karnataka, Puducherry and Tamil Nadu). During the campaign, officers, groundwater experts and scientists from the Government of India will work together with state and district officials in India's most water-stressed districts* for water conservation and water resource management by focusing on accelerated implementation of five target intervention. The JSA aims at making water conservation a Jan Andolan through asset creation and extensive communication.

Punjab
Moisture Provinces



Intervention Areas	Special Intervention Areas
Water conservation and rainwater harvesting	Block and District Water Conservation Plan
Renovation of traditional and other water bodies/tanks	Krishi Vigyan Kendra Mela
Reuse and recharge structures	Urban Waste Water Reuse
Watershed Management	Mobilisation of scientists and IITs
Intensive Afforestation	3D Village Contour Mapping

"If there is magic on this planet, it is contained in water." - Loren Eiseley

"Nothing is softer or more flexible than water, yet nothing can resist it." - Lao Tzu

"We forget that the water cycle and the life cycle are one." - Jacques Yves Cousteau

"In one drop of water are found all the secrets of all the oceans." - Kahlil Gibran

Exercise

1. Multiple Choice Questions:

(i) Based on the information given below classify each of the situations as 'Suffering from water scarcity' or 'not suffering from water scarcity'.

(a) Region with high annual rainfall.

(b) Region having high annual rainfall and large population

(c) Region having high annual rainfall but water is highly polluted

(d) Region having low rainfall and low population.

(ii) Which one of the following statements is not an argument in favour of multipurpose river projects?

(a) Multi-purpose projects bring water to those areas which suffer from water scarcity.

(b) Multi-purpose projects by regulating water flow helps to control floods.

(c) Multi-purpose projects lead to large scale displacements and loss of livelihood.

(d) Multi-purpose projects generate electricity for our industries and our homes.

(iii) India has ..... percent of the world's renewable under resources.

(a) 3 (b) 4

(c) 7 (d) 5

(iv) ..... % water on the earth is salt water and ..... % is fresh water.

(a) 97, 3 (b) 95, 5

(c) 90, 10 (d) 98, 2

(v) Which sector uses the largest amount of fresh water?

(a) Domestic (b) Industry

(c) Agriculture (d) None of these

(vi) Match the following:

(a) Bhakra Dam	(i) Mahanadi
(b) Hiradkud Dam	(ii) Narmada
(c) Indira Sagar Dam	(iii) Bhagirathi
(d) Tehri Dam	(iv) Sutlej

(vii) Swachh Bharat Mission-Grameen (SBM-G) was launched in:

(a) 2010 (b) 2012

(c) 2014 (d) 2016

(viii) C.W.M.I stands for:

(a) Composite Water Management Index

(b) Chattisgarh, West-Bengal, Maharashtra Interrelation

(c) Composed Water Market Index

(d) None of these

2. Answer the following questions in about 30 words:

(i) Explain how water becomes a renewable resource.

(ii) What is water scarcity and what are its main causes?

(iii) Compare the advantages and disadvantages of multi-purpose river projects.

(iv) How water is the most important substance on the earth?

(v) What is the meaning of 'Blue Water' and 'Green Water'?

(vi) Write a short note on global use of water in Agriculture sector.

(vii) What is a Dam?

(viii) Introduce three ways, ancient India used to store water.

3. Answer the following questions in about 120 words:

(i) Discuss how rainwater harvesting in semi-arid regions of Rajasthan is carried out.

(ii) Describe how modern adaptations of traditional rainwater harvesting methods are being carried out to conserve and store water.

(iii) How multi purpose projects brought change in agriculture sector?

(iv) What is rainwater harvesting? Suggest the measures to rainwater harvesting.

(v) What is Seechewal model for water treatment and rainwater harvesting?

(vi) Discuss 'Niti Ayog Report-2018' on water scarcity.

4

Agriculture

"The future belongs to the nations who have grains not guns". - ***Dr. MS Swaminathan***

'The farmer is the only man in our economy who buys everything at retail, sells everything at wholesale, and pays the freight both ways." - ***John F. Kennedy***

Dear students, Let us start discourse on Agriculture by paying tributes to the stalwarts responsible for a facelift of Indian Agriculture. MS Swaminathan, father of Green Revolution in India, had introduced High Yielding Variety seeds in well irrigated areas including our Punjab and neighbouring Haryana and did his best to make India self-reliant in food grains. He promoted environmentally sustainable agriculture and food security. We pay tributes to founding Vice Chancellor of Punjab Agricultural University and a former civil servant, Dr. M.S Randhawa for popularising modern agriculture among the people of Punjab. People remember him by the sobriquet; 'Sixth River of Punjab'. Nobel Laureate and economist Amartya Sen will always be in our minds for splendid work done in welfare economics. Physicist, Vandana Shiva has been recalled here for her concepts on food sovereignty and anti-corporate patenting campaign for seed freedom in India.

Dr. M.S. Swaminathan

Dr. M.S. Randhawa

Smt. Vandana Shiva

Agriculture is the backbone of livelihood security system of nearly 88 crore people living in countryside and we need to build our food security on the foundation of home-grown food.

Various types of economic activities are undertaken by human beings to make their survival / living comfortable on this earth. Agriculture is the most fundamental and widely distributed primary activity over the globe. It provides food, clothing as well as shelter to such a large number of people of the world.

Fact I:

Agricultural Sector contributes 20.2 percent (2021-22) to GDP (Gross Domestic Product) 44 percent of the total labour force is engaged in agriculture.

Agricultural means growing of crops and rearing of animals on a large scale. It also includes Horticulture, fishing, plantation, forestry, pig rearing, bee hiving, hydroponics, aquaponics, aeroponics and pisciculture. The methods of farming and types of production of crops are not the same in all the agricultural regions of the world and vary from place to place for having variability in the physical, economic, socio-economic factors. Some of the factors which influence the agriculture of a place are listed as below:

1. Terrain/ Land/ Relief (Riverine Plains, coastal plains, hills, mountains, plateaus, swamps, wet points, gentle rolling lands, bad lands)
2. Climatic conditions (Wind systems, heat zones, atmospheric humidity)
3. Types of soils (Alluvial, laterite, sandy, mountain & meadow soils, black, yellow, and red soils)
4. Market and Storage facilities (Collection & distribution points, silos, cold storages, consumption centres)
5. Means of transport (Surface transport, pipelines, shipping and air transport)
6. Availability of organic carbon (Denitrification of nitrates in soils)
7. Level of scientific and technological development (Institutional support)
8. Banking and Insurance facilities (Investments, loans, safety against mis happenings, accidents and act of God)

Types of Farming/Agriculture

India is a country of great physical as well as environmental variations which provides a very good basis for different types of farming / agriculture.

Five-fold criteria for classification of Agriculture:

a. The crop and livestock combination.
b. The methods or techniques to grow crops and raise livestock.
c. The intensiveness in the use of inputs to land and resultant quantity of output.
d. The disposal of the agricultural produce or livestock products.
e. The structures (farm building and silos) used to house farm implement and agricultural produce.

1. Shifting Agriculture - This type of farming is not very common but practised only in the backward forested areas. The land is cleared by cutting and burning of plants & bushes and this cleared land is cultivated for 2-3 Years by applying traditional instruments. There is no use of fertilizers, insecticides or pesticides. After sometimes when the land becomes less productive or unproductive, the farmers shift to the other locations. This type of

Shifting Agriculture

farming is found in the states like Madhya Pradesh, Andhra Pradesh, Odisha, North-eastern states and some parts of Kerala. this type of farming is also known with various other names like Jhum cultivation in Assam, Podu in Odisha, Bewar in Kerala.

2. Subsistence Farming: This type of farming is practised by poor farmers on smaller farms. The farmers grow different crops but the yield is very low. The farmers produce for their consumption and do not sell the crop into the market. Green manure, animal and human excreta and very low quantities of chemical fertilizers are used for growing the crops. This type of farming is practised in Assam and the Himalayan region of our country.

Subsistence Farming

3. Intensive Farming: Due to fragmentation of land holdings as well as increasing population density, the farmers are left with small farms. They try to get the maximum possible output from their small pieces of land. High yielding variety (HYV) seeds along with assured irrigation are practiced. Green manure, chemical fertilizers insecticides and pesticides are also used for getting good produce. New technology and scientific methods of cultivation are applied for raising more crops in a year. This type of farming is widely practiced in the irrigated regions of Western planes and Central plains of our country.

Intensive Farming

4. Extensive Farming: In this type of farming, the size of land holdings is large and the farming operations are done with the help of Machines. The use of manures, fertilizers insecticides, pesticides etc. is lesser as compared with the intensive type of farming. Though the total production of crops is very high but the yield per acre is low. This type of farming is largely practiced in the North-western states of India.

Extensive Farming

5. Commercial farming: This type of agriculture is undertaken mainly for commercial puspose i.e. to sell the produce in the market. Modern methods of cultivation are used and it is practised generally in the areas with low population density. This type of agriculture is not very common in India. Punjab, Haryana, Uttar Pradesh, Maharashtra, Gujarat, West Bengal and some other parts of the country practise this type of farming. Wheat, rice, jute, sugarcane, cotton etc. are the main crops grown under this type of agriculture.

Commercial farming

6. Plantation agriculture: In this category the crops are planted over large tracts of land by using scientific methods. The aim of this type of agriculture is to get maximum returns. Main crops which can be grown under this category in India include - tea, coffee, rubber, coconut, banana, sugarcane, spices etc. These plantation crops give yield for more than one year. Cheap and good means of transport network, availability of market facilities etc. are the main requirements for the plantation type of farming.

Plantation agriculture

7. Mixed farming: This type of farming includes growing of crops as well as rearing of animals. Mixed farming is practised mainly in the thickly populated areas. The farmers use scientific and modern methods to ensure good returns. Crop rotation is done for getting better yields. Poultry farming, Dairy farming etc. may form a part of the mixed farming. Dairy farming is very evident in the state of Punjab and generates very good income of the farmers of the state.

Vertical Farming

8. Vertical Farming: An innovative type of farming in stacked layers on above the other in controlled environmental conditions. Soil or water trays are used and hybrids are raised with skilled labour-intensive techniques.

Fact II:

India has the largest culturable land in the world. Nearly 53 percent of its land can be brought under agricultural activities. about 43 percent of the geographical area, has been brought under agriculture. Scope for horizontal expansion is limited.

Fact III:

Agriculture is an impressionable occupation and its course and output changes with slight changes in its milieu:

a. 1-degree Celsius increase in temperature reduces wheat production by 4 to 5 percent.

b. 1 degree increase in temperature reduces revenues by 6 percent on average.

c. 1-degree Celsius increase in temperature would reduce agricultural growth by 1.7 percent, and

d. a 100 millimetres reduction in rain would reduce growth by 0.35 percent.

e. Changes in farm policies have far more invasive impact to 12-18% of farm income.

Operation Flood:

The main objective of white revolution is to make India self-sufficient in milk production. On 13th January 1970 the then prime minister Mr. Lal Bahadur Shastri appointed Dr. Verghese Kurien as the chairman of National Dairy Development Board, who worked to bring the white revolution in the country. This program was implemented in three phases and the milk production increased manifold. India, the milk deficit country (1970) became the largest producer of milk (1998) and surpassed the USA in milk production in less than 30 years period. It all happened due to the broader vision of the Prime Minister Shri Lal Bahadur Shastri and Dr. Verghese Kurien, which resulted in White Revolution i.e. the success of the Operation Flood programme.

CROPPING PATTERN AND MAJOR CROPS

India is a vast country possessing climatic variations as well. All types of crops cannot be grown at all the places in all types of climates. Therefore the crops grown in a particular region largely depend upon the physical, social and economic factors of that region. Some important factors which influence the cropping pattern in our country are given as under:

Agricultural Seasons and Crops

Season	Time Duration	Climatic characteristics	Crops
Kharif (ਸਾਉਣੀ)	June 1 to mid Oct, typical summer months **Note:** High humidity in Sept and Oct produce ideal conditions Monsoon retreat starts by Sept 1.	Moisture laden South West monsoons Hot and Wet conditions	Rice, Arhar, Moong, Urd, Sugarcane, Soyabeans, Sesame, Jowar, Cotton, Bajra, Groundnut, Jute, Niger seed
Zayad I (ਜ਼ੈਦ I)	October and November	Retreating Monsoon, gradual fall in temperature and high humidity Tropical cyclonic activity across coastal lands	Vegetables and fodder
Rabi (ਹਾੜ੍ਹੀ)	November to Mid-March, winter months	North East Trade Winds, Abundant soil moisture, frequent western disturbances	Barley, Mustard, Wheat, Linseed. Peas, Safflower, Masur and Gram
Zayad II (ਜ਼ੈਦ II)	Mid-March to May	Brisk sunshine, hot and dry season, frequent cyclonic activity in coastal lands, dominance of local winds: Kalbaisakh, Mango Showers, Tea Showers, Elephanta winds, Coffee Showers and Loo	Vegetables and fodder

Major Crops

A very large number of crops are grown in our country. The major crops can be divided into the following categories:-

A. Food grains Crops (Fine cereals, coarse cereals (Jowar, Bajra, Ragi etc.) , pulses)

United Nations Genral Assembly declared year 2023 as a year of Millets

B. Cash Crops (all crops raised for commercial/market purposes like cotton, Jute, Sugarcane, Oilsededs, Groundnut, Lineseeds, Castorseeds, Mustard seeds, etc.)

C. Plantation Crops (Natural Rubber, Banana, Coffee, Tea)

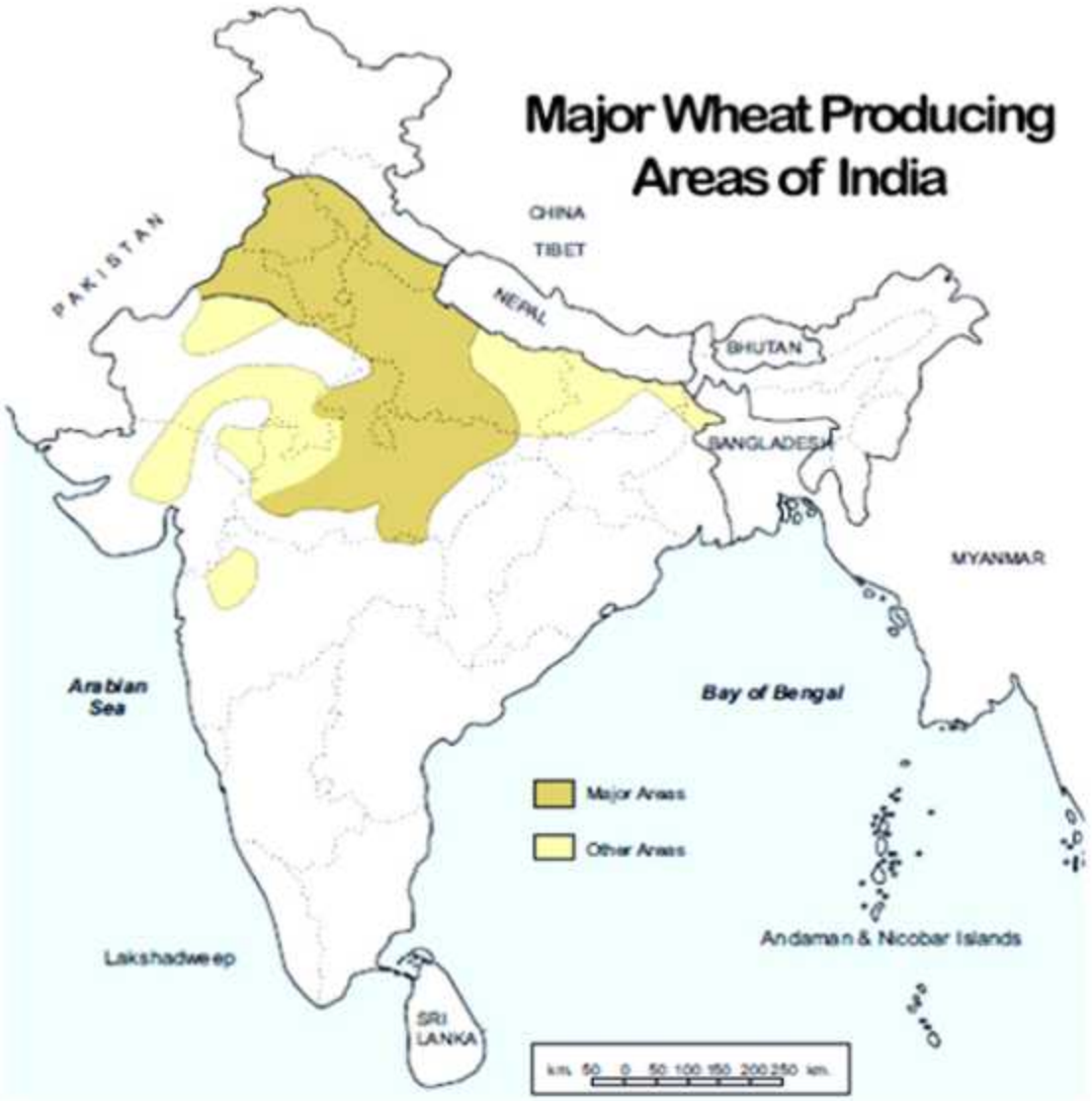
D. Fibre Crops (Cotton, Jute, Sisal, Hemp)

E. Beverage Crops (Tea, Coffee, Tobacco)

F. Industrial Crops (Jute, Cotton, Sugarcane)

G. Horticulture Crops (Fruits, vegetables and ornamental plants)

Crop	Temperature & Rainfall Ideal Soils	Types	Leading states/ Districts in Punjab
Wheat	10-15 degree Celsius) at the time of sowing 25-30 degree Celsius at the wheat time of harvesting/ well drained fertile loam soils	Spring wheat, and Durham	North-Western states of India like Punjab, Haryana and Uttar Pradesh. The other wheat producing States include Madhya Pradesh, Rajasthan, Bihar, Gujarat, Maharashtra, Karnataka, Jammu & Kashmir and Himachal Pradesh.



Crop	Temperature & Rainfall Ideal Soils	Types	Leading states/Districts in Punjab
Rice (Paddy)	25 degree Celsius, 100 cm/ Deep fertile soils		West Bengal, Punjab and Uttar Pradesh. Pathankot, Gurdaspur, Amritsar, Taran tarn and Ferozepur

Cotton	20 to 30 degree Celsius, Frost free season minimum for 210 days. It may be grown in a variety of soils but Black Soil or the Regur is best for its growth.	(i) long staple cotton which has the fibre length of more than 25 mm (ii) medium staple cotton -which has the fibre length between 20-25 mm (iii)short staple cotton-less than 20 mm	Punjab, Haryana, Rajasthan and Uttar Pradesh. It is also produced in the states of Maharashtra, Gujarat, Madhya Pradesh, Tamil Nadu and Andhra Pradesh in southern India/ It is a fibre crop which is used as raw material in the cotton textile industry of India which has fibre length

Crop	Temperature & Rainfall Ideal Soils	Types	Leading states/ Districts in Punjab
Tea	20 to 30 degree Celsius/ Heavy rainfall, i.e. 150 to 250 cm	Black tea Green tea Olong tea	Brahmaputra and Surma valleys of Assam, Darjeeling and Jalpaiguri districts of West Bengal, Nilgiri and Anamalai hills in South India and Kumaun and Kangra Hills in the North-Western India.
Coffee	Temperature 15 to 28 degree Celsius and rainfall 150 250 CM Well drained loamy soil is rich in humus and Minerals	(i) Arabica- finest variety of coffee (ii) Robusta-Comparatively of poor quality (iii)Liberica- suitable for making instant coffee	Karnataka, Kerala, Tamilnadu and Andhra Pradesh
Jute	Well grown in the humid and hot climate. 85% relative humidity is required for its growth./ Temperature between 25 to 35 degree Celsius/ having 120-150 cm rainfall annually.	An important fibre crop of India. Popularly known as 'Golden, fibre', it is in great demand in industry because of its softness, cheapness, strength and lustre.	West Bengal, Assam, Bihar and Odisha. West Bengal alone produces approximately 70% of the total jute in India
Pulses	20°-25°C temperature and 40-50 cm rainfall.		Uttar Pradesh, Madhya Pradesh, Maharashtra, Gujarat, Andhra Pradesh, Odisha, Tamil Nadu.
Oil Seeds	20°-30°C temperature and 50-75 cm rainfall. Isohyet of 100 cm marks the upper limit of groundnut cultivation. It is highly susceptible to frost, prolonged drought, continuous rain and stagnant water.	Groundnut, castor seed, sesame, rapeseed and mustard, linseed, Soybean, sunflower, niger seed and safflower.	Gujarat, Tamil Nadu and Andhra Pradesh are three main producers.

Crop	Temperature & Rainfall Ideal Soils	Types	Leading states/ Districts in Punjab
Sugar-cane	20 to 30 degrees Celsius/ 100 to 150 cm of rainfall. Can be grown on a variety of soils.		Uttar Pradesh, Maharashtra, Punjab, Haryana, Karnataka, Tamil Nadu, Telangana, Bihar etc
Millets	These coarse grains can be grown on comparatively less fertile soils with lesser amount of rainfall/ grown both in Rabi and Kharif seasons.	Jowar, Bajra and Ragi	Madhya Pradesh, Maharashtra, Karnataka, Andhra Pradesh, Uttar Pradesh, Rajasthan.

Darjeeling Tea: A global brand

The Western world has developed a craze for Indian Darjeeling Tea. This special tea carries Geographical Indication (GI) tag, used for the products produced in specific physical environment and possess a reputation of a unique product. Cold & wet climatic conditions with overcast skies and moist soils produce a niche for this special tea on the slopes of Gorkha Territories of West Bengal Hills. Skilled labour is employed for fine plucking. It is one of the costliest tea blends exported to UK, Scandinavia, USA, Canada and Japan. Assam with 50 percent share and West Bengal with 30 percent share are the largest tea producing states of India. China is a global leader with 40 percent share to total tea production and India ranked second with its 31 percent share in 2019.

Sundarbans: The world's largest Jute Producing Region

Sundarbans is the world's largest arcuate riverine delta. Both Ganges and the Brahmaputra deposit alluvium and produce fertile deltaic plains, ideal for Jute and lowland rice. Sundarbans spread across India and Bangladesh. These are water-logged lands with perfect climatic conditions for Jute cultivation. Fertile soils and abundant waters make

Sundarbans to produce 85 percent of the world jute and is known as Jute Field of the World. India produces 50 percent while Bangladesh produces 42 percent of total jute production of the world. States of West Bengal, Bihar and Assam produce 98 percent of jute in India.

Karnataka : Coffee House of India

India produces 3.5 percent coffee of the world. Out of that 73 percent of total is Robusta and the remaining 27 percent is Arabica coffee. Karnataka produces 2/3rd coffee of India. Moderate heights of Western Ghats, variety of shade trees, 150 cm or more rainfall, skilled labour have made coffee estates flourish in Chikmangalur, Kodagu and Hassan districts of Karnataka. Kodagu is the largest coffee producing region in Karnataka with more than 50% share in the total coffee produced in the state. Mysore and Shimoga are the other coffee producing regions in the state. Cherry Blossom showers in March to May add sufficient moisture to the atmosphere and help in ripening of coffee nuts. Coffee is relatively an expensive beverage and 80 percent of total production of India is exported to western countries.

Tarai Regions : Traditional Sugarcane Belt of India

Tarai are the marshy lands in the foot hill zones of Himalayas. These swampy plains run west to east along with mountain axis. Tarai sugarcane belt extends across Uttarakhand, Uttar Pradesh, Bihar and Assam between the river courses of Yamuna and Brahmaputra. Hot and wet conditions promote sugarcane cultivation. Haridwar, Udham Singh Nagar, Pilibhit, Lakhimpur Kheri, West & East Champaran, Sitamarhi, Madhubani, Siliguri and Jalpaiguri districts have significant acreage under sugarcane. Frost in winters and excessively hot summers keep its yields per hectare low (national average: 70 tonnes/hectare) Hundreds of sugar mills have been established to deal in perishable sugarcane. Uttar Pradesh is the largest producer and its share of 39 percent of national sugarcane production and 33 percent of sugar production in India.

Cotton : Production regions of Black Soils

Deccan Trap has vast expanse of Black Soils in Maharashtra and parts of Gujarat, Karnataka and Telangana. These are basaltic lava soils and have high clay content. Black soils are self-ploughing in nature and develop wide cracks during the dry season, but their iron-rich granular structure makes them resistant to wind and water erosion. They are poor in humus yet highly moisture-retentive, thus responding to irrigation. Moderate rainfalls, tropical heat and supportive soil conditions make this region ideal for cotton cultivation. Short staple cotton is grown in abundance in Maharashtra and Gujarat. The entire production is consumed in the cotton mills of Mumbai, Ahmedabad and Surat.

Assam - Tea Gardens of India

The Britishers introduced Tea Estates after massive deforestation in Assam and its other sister states. Tea bush, a tropical and sub-tropical plant, thrives well in hot and humid climate of Assam. The ideal temperature of 20°-30°C accompanied with well distributed 150-300 cm annual rainfall, high humidity, heavy dew and morning fog. Skilled tribal labour plays a nourishing role for the plucking and maintenance of tea estates. Assam has a share of 52 percent in total tea production of India and is rightly called a tea garden of India.

Fact: IV

Tea Estates have their own local time for routine works. Chai Bagan Time is an hour ahead of Indian Standard Time calibrated as per 82°. 30' east line of longitude. CBT is adopted for convenience of people to maximise use of photo period (sun light)

Kerala : Garden of Spices

Spices grow well in tropical maritime climates. Kerala is a coastal state in lower latitudes and has hot & wet conditions. It has fertile coastal plains with frequent patches of riverine alluvium, Malabar and mountainous tracts Western Ghats. Soils are fertile and conducive for spice estates. Per humid conditions produce desired environmental conditions for spice cultivation. Kerala grows Black Pepper, Turmeric, Cardamom (small), Ginger, Clove, Vanilla, Cambodge (Malabar Tamarind), Nutmeg (Supari), Cinnamon (Dalchini) and Cassia (tree bark). It has a well-established market in Mediterranean Region and the Middle East. The ancient Spice Route across Arabian sea, Red Sea and River Nile has been in vogue since the dawn of 7th Century.

Fact V

Black Pepper is called King of Spices and Cardamom is Queen of Aromatic Spices.

Role of Agricultural Universities in the Development of Agriculture and Punjab Agriculture University Ludhiana

In India, the first State Agricultural University (SAU) was established in 1960 at Pant Nagar in Uttar Pradesh. The Punjab Agricultural University (PAU) was established in 1962. In 2006, the College of Veterinary Science was upgraded to become Guru Angad Dev Veterinary and Animal Science University (GADVASU) at Ludhiana.

The PAU has played a key role in increasing food grain production in the Punjab State several folds. It has played a developmental role in making Green Revolution programme a success. It has made notable contributions in increasing livestock and poultry production. In recognition of its outstanding achievements in agricultural research, education and extension, it was adjudged the Best Agricultural University in India in 1995.

The Punjab Agricultural University now has four constituent colleges. namely College of Agriculture, College of Agricultural Engineering, College of Home science and College of Basic Sciences & Humanities.At present the university, through 28 departments in the four constituent colleges, offers 31 Master degree and 30 Ph.D. programmes.

The Central Institute of Post-Harvest Engineering and Technology (CIPHET) was established on 29 December 1989 at the PAU Campus, Ludhiana, Punjab, India as a nodal institute to undertake lead researches in the area of the post-harvest engineering and technology appropriate to agricultural production catchment and agro-industries. The aim of the college is to create Higher profitability of agricultural production systems ensuring better income to farmers and increased employment opportunities in rural sector through efficient post-harvest engineering and technological interventions for loss reduction and value addition to agricultural produce and by-products resulting in high quality and safe food and feed at competitive prices for domestic and export markets.

India on The Global Agricultural Platform

Crop/Allied Sector Product	Percentage share in Global Output	Rank/Position
Cotton	25 percent	The largest producer
Jute	50 percent	The largest producer
Small Cardamom	33 percent	The largest producer
Milk	41 percent	The largest producer
Tea	31 percent	Second largest producer

Wheat	14 percent	Second largest producer
Rice	24 percent	Second largest producer
Sugarcane	20 percent	Second largest producer
Vegetables	15 percent	Second largest producer
Tobacco	12.5 percent	Third largest producer

India is the world's largest producer of Banana, Guava, Mango, Dry Beans, Chick pea, Bajra, Ginger, Okra, Lemon, Chilli pepper, Pulses, Spices, Horticultural products.

Fact IV

India has produced 316.06 million tonnes of food grains (Cereals and pulses), 341.63 million tonnes of Horticulture (Vegetables, flowers and fruits) and 209.96 million tonnes of Milk in 2021-22. (pib press release: Ministry of Agriculture & Farmers Welfare)

Food Security

The global food security index was first introduced in 2012. It is managed and updated annually by the economists' intelligence unit. About 70% of the countries enlisted in index recorded an increased. The low ranked countries have shown an improvement in food security measures. Development in agriculture infrastructure improved capacity to feed growing urban population. Food quality and safety at global level have observed a hit and performed low. Global food security index considers the core issues of affordability and quality of food across 113 countries the index is based on 28 unique indicators, measuring drivers of food security across developed and developing countries. The index looks beyond hunger and reaches for the factors leading of food insecurities. It also includes adjustment factors on natural resources and factors on natural resources and resilience country's exposure to the impacts of a changing climate, Its susceptibility to natural resource risks and country's adaptation to the emerging risk. Year 2022 global food security index provides a worldwide perspective on the least and the most vulnerable countries to food insecurity. India with 71nd rank/113 falls in the group of moderate performance.

Global Hunger Index is out, India in 'serious' category at rank 107

The country ranks below Sri Lanka (64), Nepal (81), Bangladesh (84) and Pakistan (99). Afghanistan is the only South Asian country that lags behind India in the listing

Jagriti Chandra
NEW DELHI

India ranks 107 out of 121 countries on the Global Hunger Index in which it fares worse than all countries in South Asia barring war-torn Afghanistan.

The Global Hunger Index (GHI) is a tool for comprehensively measuring and tracking hunger at global, regional, and national levels. GHI scores are based on the values of four component indicators: undernourishment, child stunting, child wasting and child mortality. Countries are divided into five categories of hunger on the basis of their score, which are 'low', 'moderate', 'serious', 'alarming' and 'extremely alarming'.

Based on the values of the four indicators, a GHI score is calculated on a 100-point scale reflecting the severity of hunger, where zero is the best score (no hunger) and 100 is the worst. India's score of 29.1 places it in the 'serious' category. India also ranks below Sri Lanka (64), Nepal (81), Bangladesh (84), and Pakistan (99). Afghanistan (109) is the only country in South Asia that performs worse than India on the index. China is among the countries collectively ranked between 1 and 17 having a score of less than five.

India's child wasting rate, the weight for height, at 19.3%, is worse than the levels recorded in 2030 (15.1%) and even 2000 (17.1%), and is the highest for any country in the world and drives up the region's average owing to its sheer size and large population.

Prevalence of undernourishment, which is a measure of the proportion of the population facing chronic deficiency of dietary energy intake, has also risen in the country from 14.6% in 2000-2020 to 16.3% in 2019-2021. This translates into 224.3 million people in India considered undernourished.

But India has shown improvement in child stunting, which has declined from 38.7% to 35.5% between 2014 and 2022, as well as child mortality which has also dropped from 4.8% to 3.3% in the same comparative period. On the whole, India has shown a slight worsening with its GHI score increasing from 28.2 in 2014 to 29.1 in 2022. Though the GHI is an annual report, the rankings are not comparable across different years. The GHI score for 2022 can only be compared with scores for 2000, 2007 and 2014.

Food for thought

Global hunger index

Prosperity of a nation, if critically analysed, hunger may be one of the best suited parametres. The Global Hunger Index (GHI) is a tool for comprehensively measuring and tracking hunger at global, regional, and national levels. GHI scores are based on the values of four component indicators:

undernourishment (share of the population with insufficient caloric intake), child wasting (share of children under age five who have low weight for their height, (reflecting acute undernutrition), child stunting (share of children under age five who have low height for their age, reflecting chronic undernutrition), and child mortality (mortality rate of children under age five, partly reflecting the fatal mix of inadequate nutrition and unhealthy environments).

Based on the values of the four indicators, the GHI determines hunger on a 100-point scale where 0 is the best possible score (no hunger) and 100 is the worst. Each country's GHI score is classified by severity, from low to extremely alarming.

India ranked 107 out of 121 countries in the Global Hunger Index 2022 with its child wasting rate at 19.3 per cent, being the highest in the world.

The Global Hunger Index (GHI) is a tool for comprehensively measuring and tracking hunger at global, regional, and national levels. With a score of 29.1, the level of hunger in India has been labelled "serious". In Asia, Afghanistan with a rank of 109 is the only country behind India. Neighbouring countries - Pakistan (99), Bangladesh (84), Nepal (81), and Sri Lanka (64) have all fared better than India. In 2021, India ranked 101 out of 116 countries while in 2020 the country was placed at 94th position.Total 16.3 % of India's population is undernusrished.

Minimum Support Price (MSP)

The MSP is the rate at which the government buys grains from farmers.It is determined to counter price volatility of agricultural commodities for variations in their supply, lack of market integration and information asymmetry.

Cost Calculation Logic

Acronyms	Description
A2	Actual paid out cost
A2+FL	Actual paid out cost plus imputed value of family labour
C2	Comprehensive cost including imputed rent and interest on owned land & capital

The MSP is fixed on the recommendations of the Commission for Agricultural Costs and Prices (CACP).The CACP is an attached office of the Ministry of Agriculture and Farmers Welfare, formed in 1965. It is a statutory body that submits separate reports recommending prices for Kharif and Rabi seasons.

Factors taken into consideration for fixing MSP include:

1) Demand and supply;
2) Cost of production;
3) Price trends in the market, both domestic and international;
4) Inter-crop price parity;
5) Terms of trade between agriculture and non-agriculture;

6) A minimum of 50 percent as the margin over cost of production; and

7) Likely implications of MSP on consumers of that product.

The Commission also makes visits to states for on-the-spot assessment of the various constraints that farmers face in marketing their produce, or even raising the productivity levels of their crops.

After receiving the feed-back from them, the Cabinet Committee on Economic Affairs (CCEA) of the Union government takes a final decision on the level of MSPs and other recommendations made by the CACP.

Procurement: The Food Corporation of India (FCI), the nodal central agency of the Government of India, along with other State agencies undertakes procurement of crops.

How is the MSP calculated?

- According to the formula prescribed by the Swaminathan Committee, there are three variables that determine production cost - A2, A2+FL, and C2.
- A2 includes out-of-pocket expenses borne by farmers, such as term loans for machinery, fertilisers, fuel, irrigation, cost of hired labour and leasing land.
- The second metric, A2+FL, takes into account the imputed value of unpaid labour on the part of family members, in addition to the paid-out cost.
- The Comprehensive Cost (C2) is equal to A2+FL +land rent those who own land and depreciation money on owned Machinery + interest on loans.
- The ideal formula according the Committee would be: MSP = C2+ 50% of C2.
- The govt of India is paying MSP somewhat equivalent to C2 +15-19%

Example

If C2 price of wheat is 1800 rupees per quintal and ideal MSP should be C2 +50 %= 2700 rupees per quintal but at present Indian farmer is getting about 2070 to 2142 rupees and it makes C2 + (15 to 19) percent

PROJECTS/ACTIVITIES

1. Arrange a visit to a nearby village, inquire about the crops grown, livestock seen around, contact the village Sarpanch for the real information about the farming occupation. Ask him/her the following questions on the following aspects:
   a. No. of crops grown in a year ?
   b. The winter crops and the summer crops ?
   c. Water economic crops and water intensive crops ?
   d. Sources of irrigation ?
   e. Allied sectors to supplement farm income ?
   f. Cooperative silo or cold storage in a Village ?
   g. Access to grain market ?
   h. Water harvesting techniques applied or not ?
   i. Renewable energy sources being used ?

j. Who maintanes Records of village land holdings ?

2. Visit a farmer's house, interview grand old ladies about the good things in the life of a farmer she wishes to share. Ask about the festivals and other big days in their lives. Click a group photograph for school records and personal memories.
3. Collect articles from newspapers on Agricultural Policy and Reforms suggested time and again.
4. Hold a debate at class level on the problems of rural indebtedness and rise in suicides among farmers.

Exercise

1. Multiple Choice Questions:

(i) Who is known as father of the Green Revolution?

(a) M.S Swaminathan (b) M.S. Randhawa
(c) M.S. Joshi (d) M.S. Krishna Murthy

(ii) Agriculture is ..... economic activity.

(a) Primary (b) Secondary
(c) Tertiary (d) Quarternery

(iii) What is the percentage of total labour force engaged in Agriculture?

(a) 40% (b) 42%
(c) 44% (d) 45%

(iv) Primitive type of agriculture is:

(a) Subsistance Agriculture (b) Shifting Agriculture
(c) Extensive Agriculture (d) None of these

(v) HYV seeds stands for:

(a) High Yielding Variety of seeds
(b) Himamalyan Yielding Variety of Seeds
(c) Humid Yellow Variety of seeds
(d) None of these

(vi) Operation flood is related with:

(a) Flooding in India (b) Revolution in milk production
(c) Revolution in poultry (d) Joining of rivers project

(vii) Match the following:

(a) Rice, Arhar, Urd	(i) Operation Flood
(b) V. Kurien	(ii) Rabi Crops
(c) M.S Randhawa	(iii) Kharif Crops

(d) Barley, Mustard, Wheat (iv) Punjab Agriculture University

(viii) Tea, Coffee & Tobbacco are:

(a) Cash Crops (b) Beverage crops

(c) Both a &b (d) Food crops

(ix) World's largest Jute producing region is:

(a) Punjab plains (b) Kashmir valley

(c) Tamilnadu ghats (d) Sundarbans

(x) Tarai region is associated with:

(a) Tea production (b) Tobbacco production

(c) Sugarcane production (d) Cotton production

2. Answer the following questions in about 30 words:

(i) Which state of India is known as 'Garden of Spices' & Why?

(ii) Write a shote note on role of P.A.U in development of Punjab's Agriculture.

(iii) What do you mean by Global Hunger Index?

(iv) Why agriculture is important to us?

(v) Write a short note on Commercial Farming.

(vi) Write a shote note on Kharif crops season.

(vii) Write any three bases of settling M.S.P.

3. Answer the following questions in about 120 words:

(i) Write a detailed note on types of Agriculture.

(ii) Explain crop pattern of India.

(iii) Write a note on Cotton production in India.

(iv) Write notes on:

(i) Coffee House of India

(ii) Tea Gardens of India

(iii) Food Security

(iv) Sugarcane production belt

(v) How Agriculture Universities played a vital role in development of Indian Agriculture.

5

Minerals and Energy Resources

Minerals are an indispensable part of our lives. Almost everything we use, from a tiny pin to a towering building or a big ship, all are made from minerals. The railway lines and the tarmac (paving) of the roads, our implements and machinery too are made from minerals. Cars, buses, trains, aeroplanes are manufactured from minerals and run-on power resources derived from the earth. Even the food that we eat contains minerals. In all stages of development, human beings have used minerals for their livelihood, decoration, festivities, religious and ceremonial rites.

What are minerals?

Geologists define mineral as a "homogenous, naturally occurring substance with a definable internal structure." Minerals are found in varied forms in nature, ranging from the hardest diamond to the softest talc.

Why are they so varied?

You have already learnt about rocks. Rocks are combinations of homogenous substances called minerals. Some rocks, for instance limestone, consist of a single mineral only, but majority of the rock consist of several minerals in varying proportions. Although, over 2000 minerals have been identified, only a few are abundantly found in most of the rocks. A particular mineral that will be formed from a certain combination of elements depends upon the physical and chemical conditions under which the material forms. This, in turn, results in a wide range of colours, hardness, crystal forms, lustre and density that a particular mineral possesses. Geologists use these properties to classify the minerals.

All the rocks on the earth surface are composed of one or more minerals. The mineral is a natural substance of organic or inorganic origin with some specific chemical and physical properties. The rock which has large concentration of particular mineral is called the ore of that mineral. The minerals are also considered as the free gifts of nature which can be used for the welfare of the human beings. A mineral may or may not be commercially useful. All the minerals are not concentrated at one place rather they are unevenly distributed over the surface of the earth. There is not a single country in the world which is self-sufficient in all types of mineral resources. The minerals are found at the surface of the earth or mixed up with impurities which get removed after its processing in the industries.

The minerals are being used by the humans since time immemorial. These minerals have been very significant in the history of human civilizations and development. Various stages of human development have been named after the name of the minerals used in that particular era such as:

1. **Stone age:** when the early man-made weapons and implements from stones.
2. **Copper age:** when copper was used by man.
3. **Bronze age:** When Men used copper by mixing with tin.
4. **Iron age**: when the man starts using iron about 3000 years ago.
5. **Steel age:** modern age is called the Steel age1780-1980
6. **Silicon age :** (timespan) 1980 onwards.

Types of minerals

On the basis of chemical and physical properties the minerals can be broadly categorised into following two types:

A. Metallic minerals

B. Non-metallic minerals

A. The Metallic minerals contain metals. Such minerals like copper, gold, manganese, bauxite is further divided into:

a. Ferrous minerals which have iron content in it. Iron, manganese Nickel cobalt tungsten etc.

b. Non-ferrous minerals - such minerals do not have iron content in it. These include gold silver copper bauxite etc.

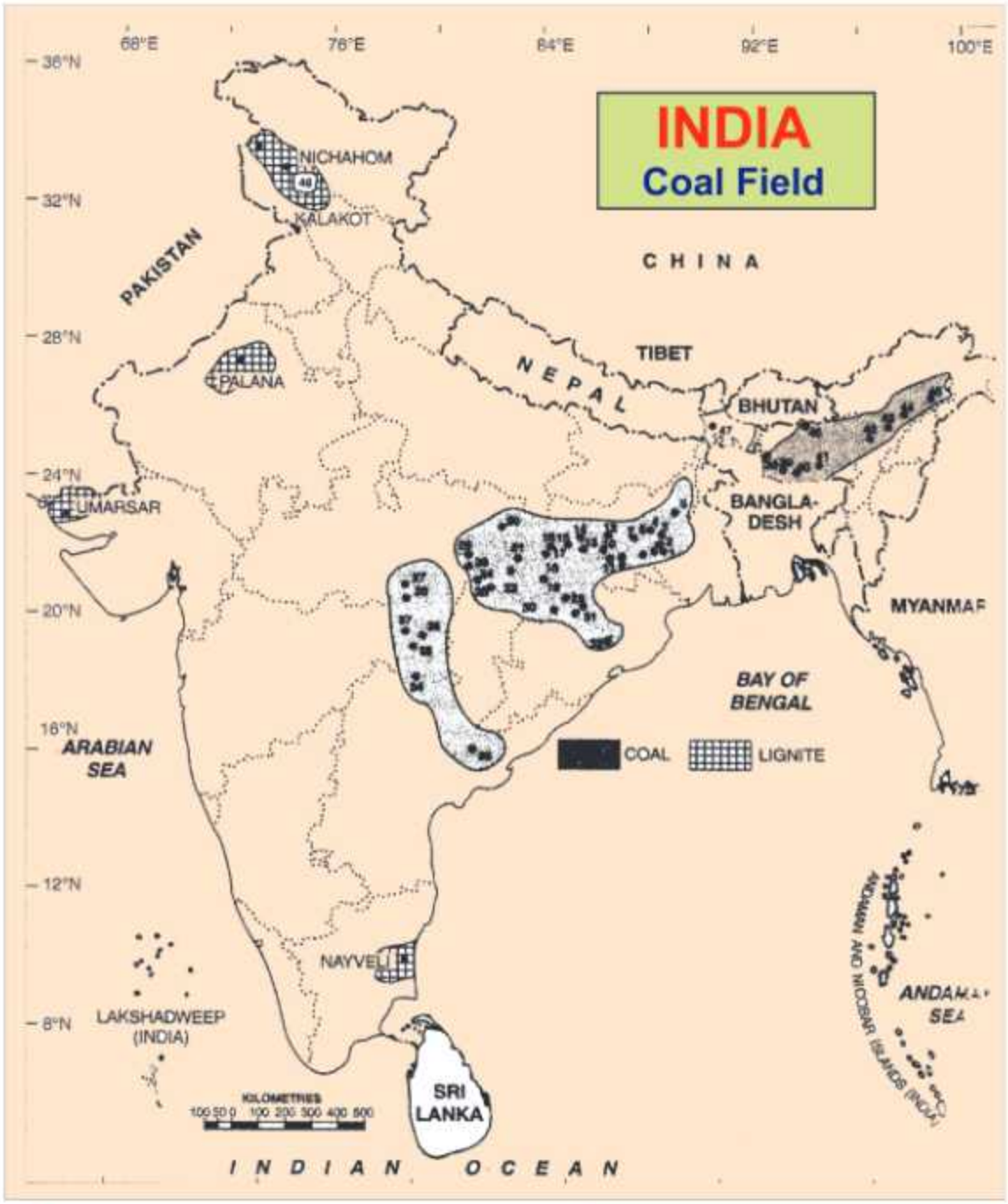
B. Non-metallic minerals do not contain metals. These are mica, limestone, dolomite, gypsum, Potash and coal. Coal and petroleum are non-metallic minerals which are used as fuels and also known as mineral fuels.

Minerals	Types	Global share and global production (thousand tonnes) in 2019	Leading Indian States	Specific Mining Region
Iron ore	Magnetite 70% of iron content Haematite 60-70% Limonite 50-60% Siderite less than 60%	210,000 thousand tonnes in 2019	Odisha, Chhatisgarh Andhra Pradesh, Karnataka, Rajasthan, Tamil Nadu.	Bailadila Badam Pahar Raniganj coalfield, Garhwal.
Bauxite	Aluminium is derived from bauxite	23,000	Odisha, Gujarat, Chhattisgarh, Maharashtra, Madhya Pradesh and Karnataka.	Kalahandi, Koraput, Sundargarh, Bolangir. Jamnagar, Junagadh, Kheda.

Minerals	Types	Global share and global production (thousand tonnes) in 2019	Leading Indian States	Specific Mining Region
Manganese	Pyrolusite	950,000	Maharashtra, Madhya Pradesh, Andhra Pradesh Karnataka	Nagpur, Ratnagiri, Balaghat, Chindwara, Kalahandi, Bellary
Thorium	Monazite	963,000 ,21%	Jharkhand, Madhya Pradesh. Rajasthan.	
Coal	Anthracite, Bituminous, Lignite ,Peat	716.0	Jammu & Kashmir, Jharkhand, Odisha, West Bengal, Chhattisgarh, Madhya Pradesh	
Gold	Large-scale mining is extremely capital-intensive, employing lots of machinery and expertise to mine vast areas on and below the surface.	757 Mt	Karnataka	Kolar & Hutti, Gold Fields
Diamond		37,515 carats	Madhya Pradesh, Andhra Pradesh, Karnataka,	Panna, Majhgawan mine, Raichur,
Copper	Chalcopyrite Chalcocite Covellite Bornite		Madhya Pradesh, Rajasthan, Jharkhand Cu2S CuS	34.5 79.8 66.5

1. Damodar valley; Ruhr of India

Ruhr valley is an area in west Germany bounded by rivers Ruhr, Rhine and Lippe. It is rich in minerals, specifically coal, which led to the development of many industries in the valley region especially iron and steel industries. Same is the case with Damodar valley in India (spread across Jharkhand and West Bengal),which is rich in coal and mica leading to the development of a vast industrial belt in the valley with uncountable big and small industries including high capacity thermal power plants and three big steel plants of India.So, it is for this resemblance that the Damodar Valley is also called the 'Ruhr' of India.

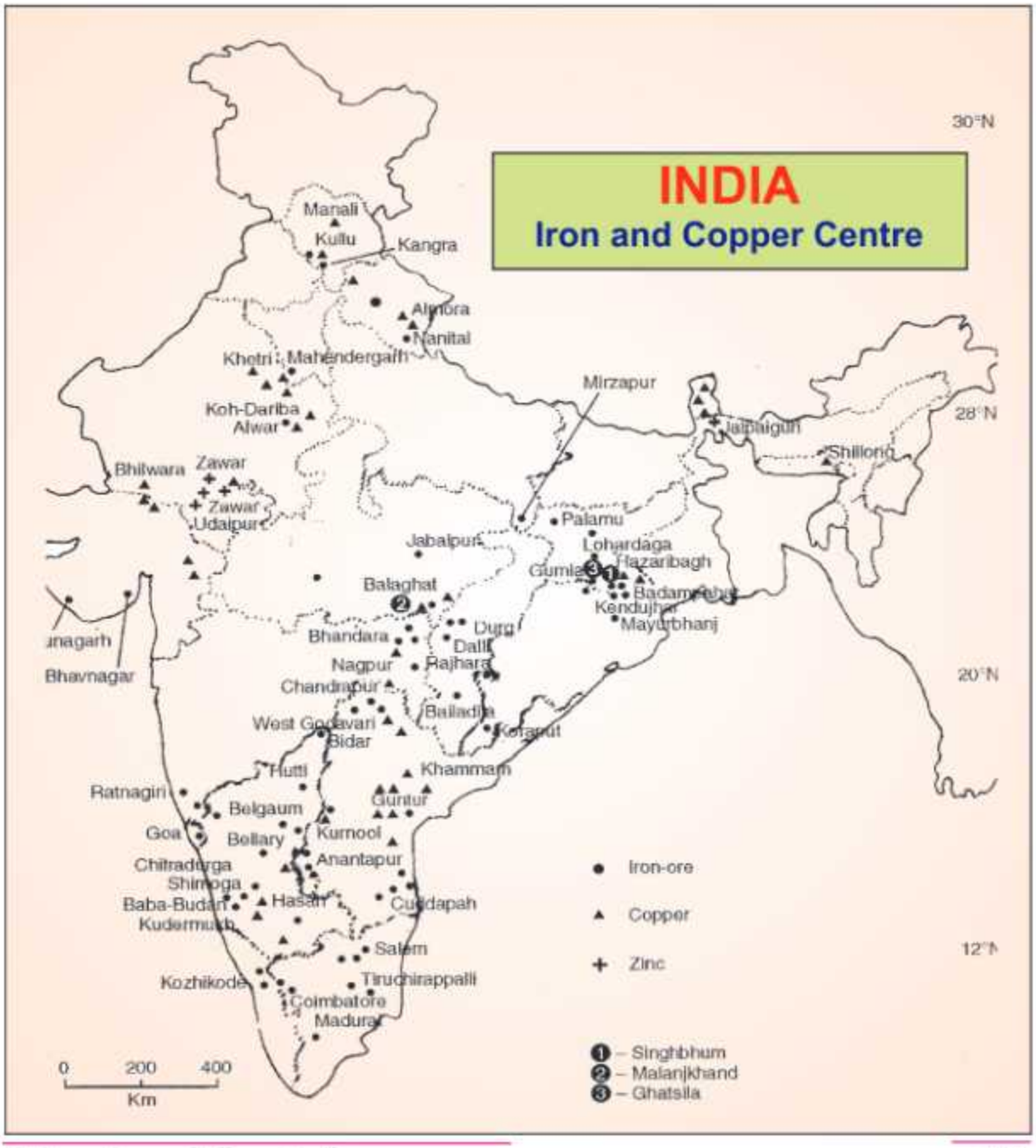


2. Neyveli lignite coal field

The state of Tamilnadu has the largest deposits of lignite at Neyveli in the south Arcot district. The seams are 10 to 12 meter in thickness. Its carbon and moisture contents are 30-40 percent and 20 percent respectively, while the volatile matter varies between

3. Kolar and Hutti gold mine

Hutti Maski Belt is one such most promising and the position of the Hutti Belt in relation to the other Precambrian Greenstone Belts of Karnataka. Particularly Eastern green stone belts namely Hutti, Ramgiri, Kolar are important as the major working gold mines fall in these belts.



4. Panna diamond area

Diamond is a precious stone. It is known for its brilliance, lustre, transparency and hardness. Diamonds are mainly found in Vindhyan formations of Bundelkhand (M.P). A large group of diamond deposits extends North-East on a branch of the Vindhya Range for 240 kilometres (150 mi) or so, and is known as the Panna group. They do not cover an area of more than 20 acres (81,000 m2). The total diamond reserves is about 32.91 million crates.

5. Off shore oil Mumbai high

This is the largest petroleum production oilfield contributing over 65 percent of the total production of crude oil. This field lies about 176 km to the south-west of Mumbai. it has about 35 million tonnes of crude oil and about 40,000 million cubic meters of natural gas. Production of oil from this field starts in 1976. Owing to over exploitation, the production of this oil-field is declining fast.

6. Makrana (Rajasthan) stone mining

Makrana Marble is listed as a Global Heritage Stone by International Union of Geological Sciences. Makrana is the source of the marble used in the Taj Mahal. It is situated at a distance of

60 km from Kishangarh and falls in the Nagaur district of Rajasthan. The region has various mining ranges, mainly Doongri, Devi, Ulodi, Saabwali, Gulabi, Kumari, Neharkhan, Matabhar, Matabhar kumari, Chuck doongri. Chosira and Pahar Kua amongst others.

7. Black salt mining in Mandi (Himachal Pradesh)

Rock salt from Mandi district of Himachal Pradesh has its own rock salt mines at Mandi in Himachal Pradesh where 116 Million (MT) of proven rock salt deposit exist. The current method of mining is dry mining producing about 400-500 tonnes per month and this salt is especially liked by the people of HP and distributed in Himachal Pradesh, Jammu & Kashmir, Punjab, Haryana. Since the demand is higher than our production, the government are opening up some new mines under Solution Mining Technology.

8. Brahmaputra valley upper oil field

The crude oil was first discovered in Brahmaputra valley. The oil bearing rok spread from the Dehang basin up to the Surma valley. The main oil producing wells, however, lie in the Dibrugarh and Sibsagar districts of Upper Assam. Some of the important oil producing centres.

Conservation of Mineral Resources

The mineral resources are the free gifts of nature. It takes millions of years for the formation of minerals. Compared to the present rate of consumption, the replenishment rate of minerals is very slow. The reserves of the mineral resources are limited as well as non-renewable. They do not get replaced immediately. The man is exploring as well as using almost all types of minerals at a very high speed without thinking about the requirements of the generations to come. Therefore it is important to use the mineral resources in a wise manner. Hence we need to conserve our precious mineral resources.

Some measures to conserve the minerals:

1. Use of minerals in a planned and sustainable manner.
2. Recycling of metals.
3. Use of alternative renewable substitutes.
4. Technology should be improved to use the low grade ores profitably.
5. There should be no wastage of minerals rather optimal use of minerals is the need of the hour.
6. Elaborative

Energy / Power Resources

It is a well-established fact that industry is the backbone of any economy and the power resources are required to run that industry. These resources are also used for providing light, heat and serve many other purposes. Depending upon its source and utilisation, the energy can be divided in two broad categories that are commercial as well as non-commercial sources of energy. On the basis of their nature, the energy resources can be classified into conventional and non-conventional sources of energy.

Conventional Sources of Energy

These types of energy resources are being used for a very longer period of time. Coal, Petroleum, natural gas and electricity (Thermal) are included in the conventional sources of energy.

Non-Conventional Sources of Energy

With the increasing demand for energy and fast depleting conventional sources of energy, non-conventional sources of energy are gaining importance in the present time. These include:

Solar Energy	Wind Energy
Geo-thermal Energy	Tidal Energy
Wave Energy	Hydroelectric Energy
Bio-mass Energy etc.	Power generation

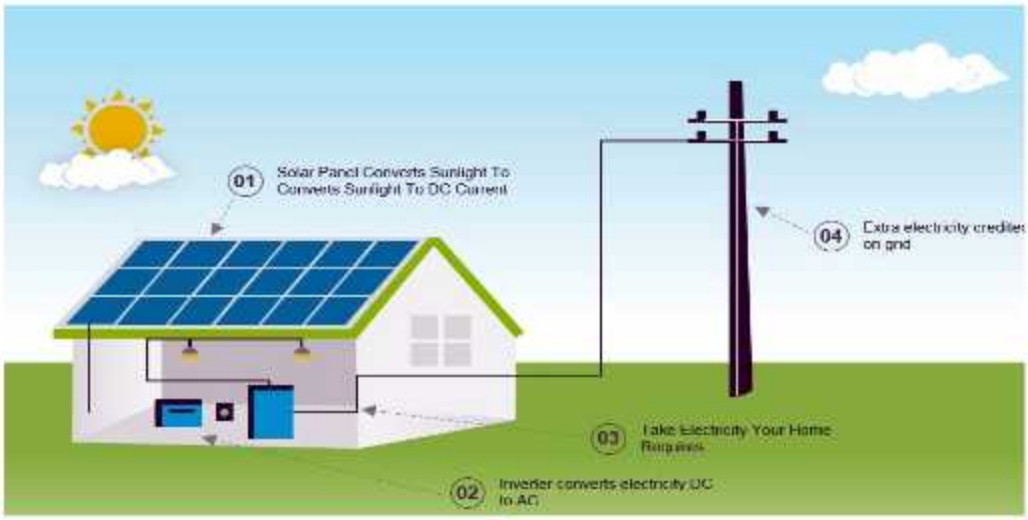
Fossil Fuels are hydrocarbons, like coal, petroleum and natural gas. It is a general term for buried deposits of organic materials, formed from decayed plants and animals that have been converted to crude oil, coal, natural gas, or heavy oils by exposure to heat and pressure in the earth's crust over hundreds of millions of years. These are also known as mineral fuels.

Non-conventional Sources of Energy

Non-conventional energy sources consist of those energy sources that are infinite, natural, and renewable in nature. Currently, some of the important and widely used non-conventional sources of energy are tides, wind, solar geothermal heat, and biomass comprising animal waste, agricultural waste, and human body waste.

Solar Energy

Sun is the main source of energy on the earth surface. India is gifted with plenty of solar energy because of being the tropical country. Many parts of the country receive sufficient amount of Sun energy throughout the year. With the use of the latest technology, solar energy is being used in many ways. Solar water heating, solar air heaters, solar dryers, solar cookers etc. are some of the examples which are used by converting solar energy into thermal energy. The solar photovoltaic



technology enables direct conversion of Sunlight into electricity and that too without causing any type of pollution. This technology is now being widely used for roadside lightning in the country. Many solar power plants have also been established in the country. On January 29, 2014 Ministry of New and Renewable Energy (MNRE) announced the setting up of the ultra-mega solar power project in Sambhar (Jaipur) Rajasthan.

Jawaharlal Nehru National Solar Mission

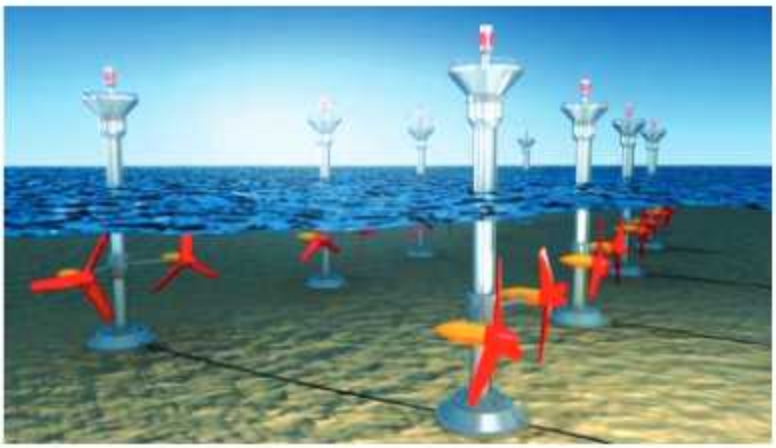

Jawaharlal Nehru National Solar Mission (JNNSM)

- Jawaharlal Nehru National Solar Mission (JNNSM) was launched in 2009 with a target for Grid Connected Solar Projects of 20,000 MW by 2022.
- The sector has witnessed rapid development with installed solar capacity increasing rapidly from 18 MW to about 3800 MW during 2010 - 15.
- In 2015, Government of India gave its approval for stepping up of India's solar power capacity target by five times, reaching 1,00,000 MW by 2022.
- The target will principally comprise of 40 GW Rooftop and 60 GW through Large and Medium Scale Grid Connected Solar Power Projects.
- Currently, India has a capacity to generate 21.65 GW of solar power and is expected to make an additional 56-58 GW of solar capacity addition between FY19 and FY23.
- A safeguard duty on solar modules from China and Malaysia has slowed the solar capacity addition. The fast-growing Indian market for solar components is dominated by Chinese companies due to their competitive pricing.
- The surge in imports led the government to impose a safeguard duty from 30 July for two years on solar cells and modules imported from China and Malaysia.

Wind Energy

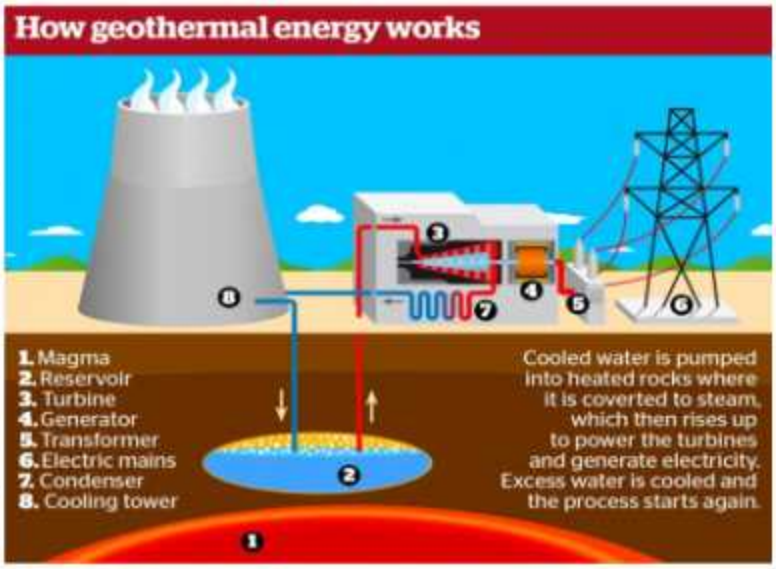
This is another very important source of non-conventional energy. India has good potential of wind energy. The costs are incurred only in the beginning of the project but once the generation of power starts, the cost free power is available about 20 years. The coastal States like Tamil Nadu, Karnataka, Andhra Pradesh, Kerala, Maharashtra, Andaman and Nicobar and Rajasthan have started generating power from wind energy.

Tidal energy



The tides are regular feature occurring in the Indian seas. The tidal energy can be converted into electricity. The water of the high tide is used to run the turbine which in turn produces the electricity. It is estimated that India possesses more than 9000 MW of a tidal energy potential. Gulf of Khambhat, Gulf of Kutch, Sundarban are the most ideal areas which can be used for converting tidal energy into electricity.

Geothermal energy



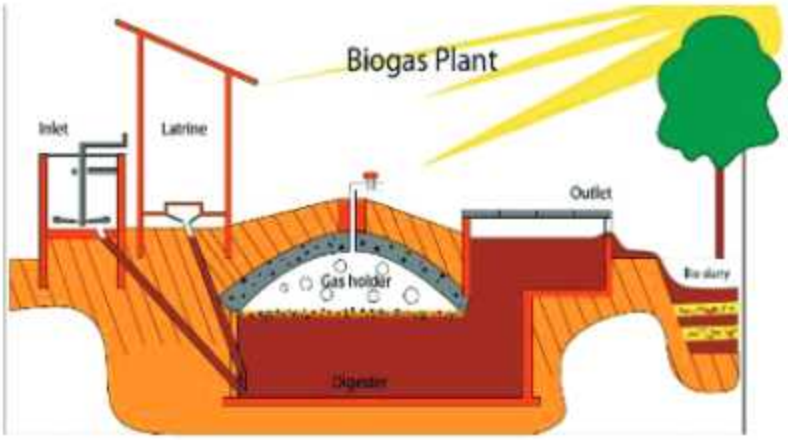
It is the heat energy of the earth which can be utilised for direct heat as well as the power generation. A geyser is a vent in the Earth's surface that periodically ejects a column of hot water and steam. A lava fountain is an example of the amount of heat stored in the Earth. Geysers, lava mountains and hot springs are all natural examples of geothermal energy. An assessment of geothermal energy potential of some selected sites in J and K, Himachal Pradesh and Chhattisgarh has been undertaken.

Biogas

Biogas typically refers to a mixture of different gases produced by the breakdown of organic matter in the absence of oxygen. Biogas can be produced from raw materials such as cattle dung (gobar), poultry waste, kitchen waste agricultural waste, , municipal waste, plant material, sewage, green waste or food waste etc.

Advantages of Biogas:

- Biogas is Eco-Friendly.
- Biogas Generation Reduces Soil and Water Pollution.
- Biogas Generation Produces Organic Fertilizer.



- It's a Simple and Low-Cost Technology.
- Healthy Cooking alternative for developing Areas.

Hydrocarbon exploration and licencing policy

HELP is a uniform policy for granting licenses for exploration of hydrocarbons inside India and its Exclusive Economic Zone. The following are the main features of this policy:

- A single licensing format for exploration, production and subsequent marketing of all hydrocarbons.
- Open acreage policy for granting exploration blocks.
- Easy to understand revenue sharing model which is also easy to administer.
- Freedom from government regulation in pricing and marketing on hydrocarbons produced from such exploration.

The policy is designed to enhance domestic oil and gas production, bring additional investment into the sector and generate employment. As discussed earlier, it also aims to increase transparency and decrease the administrative discretion in granting hydrocarbon licenses. Open Acreage will allow E&P Companies to choose blocks from a designated area. The new HELP will stimulate the creation of exploration business for oil and gas by simplifying the petroleum exploration license and reduce import dependence. This, in turn, will create new job opportunities in the oil and gas sector as well as reduce disputes and corruption as the government will not have too much discretionary power over petroleum exploration licenses.

Mineral wealth of Punjab

The geological composition of Punjab is primarily from sediments brought down and deposited by the rivers. Sedimentary rocks comprising sand, silt, clay, pebbles, etc. are found in Punjab. Most of the minerals in the world are associated with igneous and metamorphic rocks. Therefore, there is a virtual absence of minerals in Punjab. Of course, at certain places, building materials are found. These includes sand, gravel, and sandstone of the Siwaliks and foothill regions and river beds. Mainly found in the districts of Nawanshahr. (Shaheed Bhagat Singh Nagar), Hoshiarpur, Pathankot, Gurdaspur, Firozpur and Jalandhar.

PROJECTS/ACTIVITIES

1. Go to your chemistry lab and go through The Periodic Table with information on elements.
   a. Make a list of rare earth metals
   b. Reactive metals
   c. Non-reactive metals
   d. Transitional metals
2. Class teacher will conduct a competition on map work to help students in learning locational aspects of:
   a. Mining areas in specific
   b. Mining regions of India
3. Ask your teacher about the rock salt mining regions of neighbouring states. Also see the basic difference between the sea salts and rock salts
4. Ask a question to your elders about gross absence of mining activities in Punjab. Why do we see only sand mining and quarrying in Punjab?
5. You Tube helps in understanding concepts. Explore some videos on Gold and Diamond Mining and share it with your friends.

Exercise

1. Multiple Choice Questions:

(i) Which of the following is not a characteristic of 'mineral'.

(a) Homogenous (b) Naturally accurring substance
(c) Definable internal structure (d) None of the above

(ii) Match the following:

(a) Steel age	(i) 1000 years ago
(b) Bronze	(ii) 1780-1980
(c) Iron age	(iii) Copper + Tin
(d) Silicon age	(iv) 1980 onwards

(iii) 'Ruhar valley' is a region in:

(a) Australia (b) Germany
(c) Japan (d) India

(iv) Conventional energy resources are:

(a) Wind & Coal (b) Tides and Solar energy
(c) Natural gas & Wave energy (d) Coal & Petroleum

(v) Mumbai high is a :

(a) Hill station (b) Oil producing region

(c) Coal producing belt (d) Metro station

2. Answer the following questions in about 30 words:

(i) What are Metallic minerals?

(ii) Name any 5 coal producing states of India.

(iii) Write the names of types of Iron ore with their iron content.

(iv) Which area is known as 'Ruhar of India', & Why?

(v) Write a note on Brahmputra valley, upper oil fields.

(vi) Write a note on Fossil fuels.

(vii) Write a note on mineral wealth of Punjab.

(viii) What do you understand by Non-conventional energy resources ?

3. Answer the following questions in about 120 words:

(i) Give a detailed account of Non conventional sources of energy.

(ii) What do you understand by conservation of Mineral resources? Suggest some measures to conserve these resources.

(iii) Present a comparision between conventional and Non-conventional resources of energy.

(iv) Write a notes on:

(a) Makrana Rajasthan stone mining

(b) Kalar and Huti Sold mine

(c) Black salt mining of Himachal Pradesh

(d) Grathermal energy resources.

Manufacturing Industries

6

Production of goods in large quantities after processing from raw materials to more valuable products is called manufacturing. Do you know that paper is manufactured from wood, sugar from sugarcane, iron and steel from iron ore and aluminium from bauxite? Do you also know that some types of clothes are manufactured from yarn which itself is an industrial product? People employed in the secondary activities manufacture the primary materials into finished goods. The workers employed in steel factories, car, breweries, textile industries, bakeries etc. fall into this category. Some people are employed in providing services. In this chapter. we are mainly concerned with manufacturing industries which fall in the secondary sector. The economic strength of a country is measured by the development of manufacturing Industries.

Importance of Manufacturing Sector

Manufacturing sector is considered the backbone of development in general and economic development in particular mainly because-

- Manufacturing industries not only help in modernising agriculture, which forms the backbone of our economy, they also reduce the heavy dependence of people on agricultural income by providing them jobs in secondary and tertiary sectors.
- Industrial development is a precondition for eradication of unemployment and poverty from our country. This was the main philosophy behind public sector industries and joint sector ventures in India. It was also aimed at bringing down regional disparities by establishing industries in tribal and backward areas.
- Export of manufactured goods expands trade and commerce, and brings in much needed foreign exchange.
- Countries that transform their raw materials into a wide variety of finished goods of higher value are prosperous. India's prosperity lies in increasing and diversifying its manufacturing industries as quickly as possible. Agriculture and industry are not exclusive of each other. They move hand in hand. For instance, the agro-industries in India have given a major boost to agriculture by raising its productivity. They depend on the latter for raw materials and sell their products such as irrigation pumps, fertilisers, insecticides, pesticides, plastic and PVC pipes, machines and tools, etc. to the farmers. Thus, development and competitiveness of manufacturing industry has not only assisted agriculturists in increasing their production but also made the production processes very efficient. In the present day world of globalisation, our industry needs to be more efficient and competitive. Self-

sufficiency alone is not enough. Our manufactured goods must be at par in quality with those in the international market. Only then, will we be able to compete in the international market.

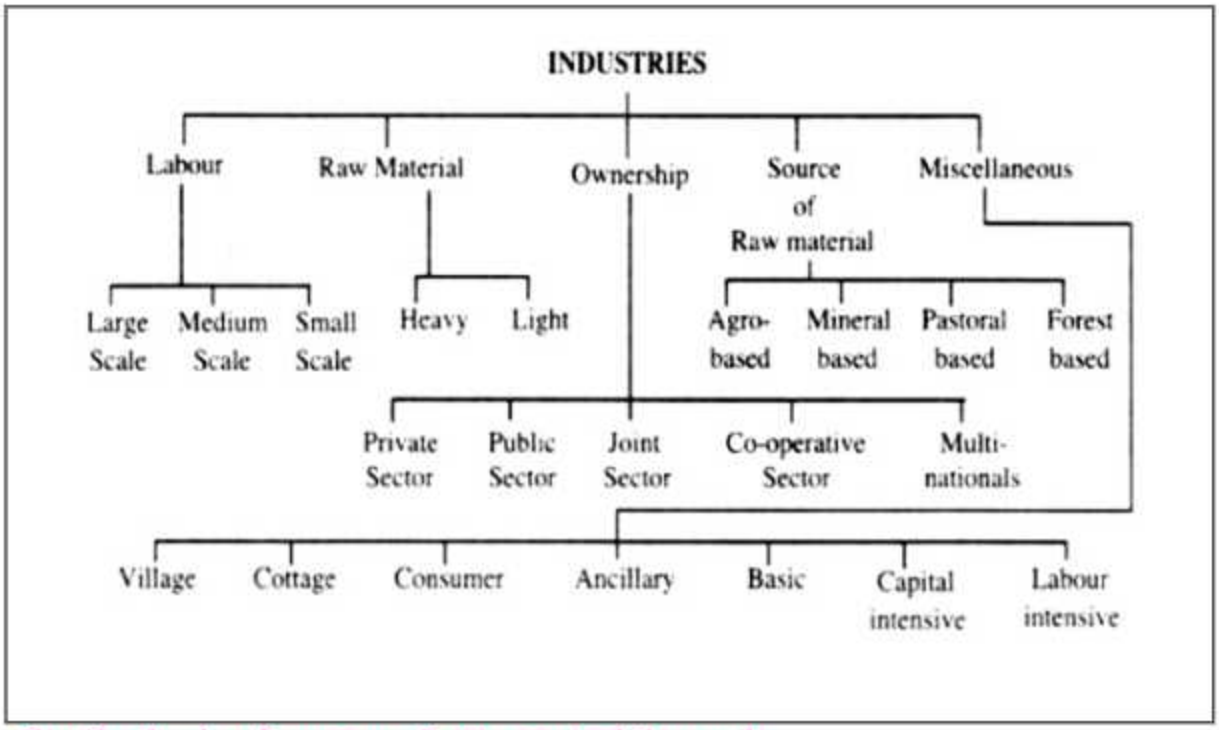
Industrial Locations

Industrial locations are complex in nature. These are influenced by availability of raw material, labour, capital, power and market, etc. It is rarely possible to find all these factors available at one place. Consequently, manufacturing activity tends to locate at the most appropriate place where all the factors of industrial location are either available or can be arranged at lower cost.

After an industrial activity starts, urbanisation follows. Sometimes, industries are located in or near the cities. Thus, industrialisation and urbanisation go hand in hand. Cities provide markets and also provide services such as banking, insurance, transport, labour, consultants and financial advice, etc. to the industry. Many industries tend to come together to make use of the advantages offered by the urban centres known as agglomeration economies. Gradually, a large industrial agglomeration takes place. In the pre-Independence period, most manufacturing units were located in places from the point of view of overseas trade such as Mumbai, Kolkata, Chennai, etc. Consequently, there emerged certain pockets of industrially developed urban centres surrounded by a huge agricultural rural hinterland.

Classification of Industries

List the various manufactured products you use in your daily life such as - transistors, electric bulbs, vegetable oil, cement, glassware, petrol, matches, scooters, automobiles, medicines and so on. If we classify the various industries based on a particular criterion then we would be able to understand their manufacturing better. Industries may be classified as follows:



On the basis of source of raw materials used:

- Agro based: cotton, woollen, jute, silk textile, rubber and sugar, tea, coffee, edible oil.
- Mineral based: iron and steel, cement, aluminium, machine tools, petrochemicals. According to their main role:
- Basic or key industries are those which supply their products as raw materials to manufacture other goods e.g. iron and steel and copper smelting, aluminum smelting.
- Consumer industries that produce goods for direct use by consumers - sugar, toothpaste, paper, sewing machines, fans etc. On the basis of capital investment:
- A small-scale industry is defined with reference to the maximum investmentallowed on the assets of a unit. This limit has changed over a period of time. At present the maximum investment allowed is rupees one crore.

On the basis of ownership:

- Public sector, owned and operated by government agencies - BHEL, SAIL etc.
- Private sector industries owned and operated by individuals or a group of individuals - TISCO, Bajaj Auto Ltd., Dabur Industries.
- Joint sector industries which are jointly run by the state and individuals or a group of individuals. Oil India Ltd. (OIL) is jointly owned by public and private sector.
- Cooperative sector industries are owned and operated by the producers or suppliers of raw materials, workers or both. They pool in the resources and share the profits or losses proportionately. Such examples are the sugar industry in Maharashtra, the coir industry in Kerala. Based on the bulk and weight of raw material and finished goods:

- Heavy industries such as iron and steel o Light industries that use light raw materials and produce light goods such as electrical goods industries.

Factors influencing the location of industries: There are many factors which are responsible for the location as well as success of the industries at a specific place. Some of the important factors are listed below:

1. Land
2. Raw Material
3. Power Resources
4. Capital
5. Skilled and unskilled Labour
6. Means of Transportation
7. Market
8. Water Supply
9. Climate Suitability
10. Banking and Insurance Facilities.

Industrial Regions of India

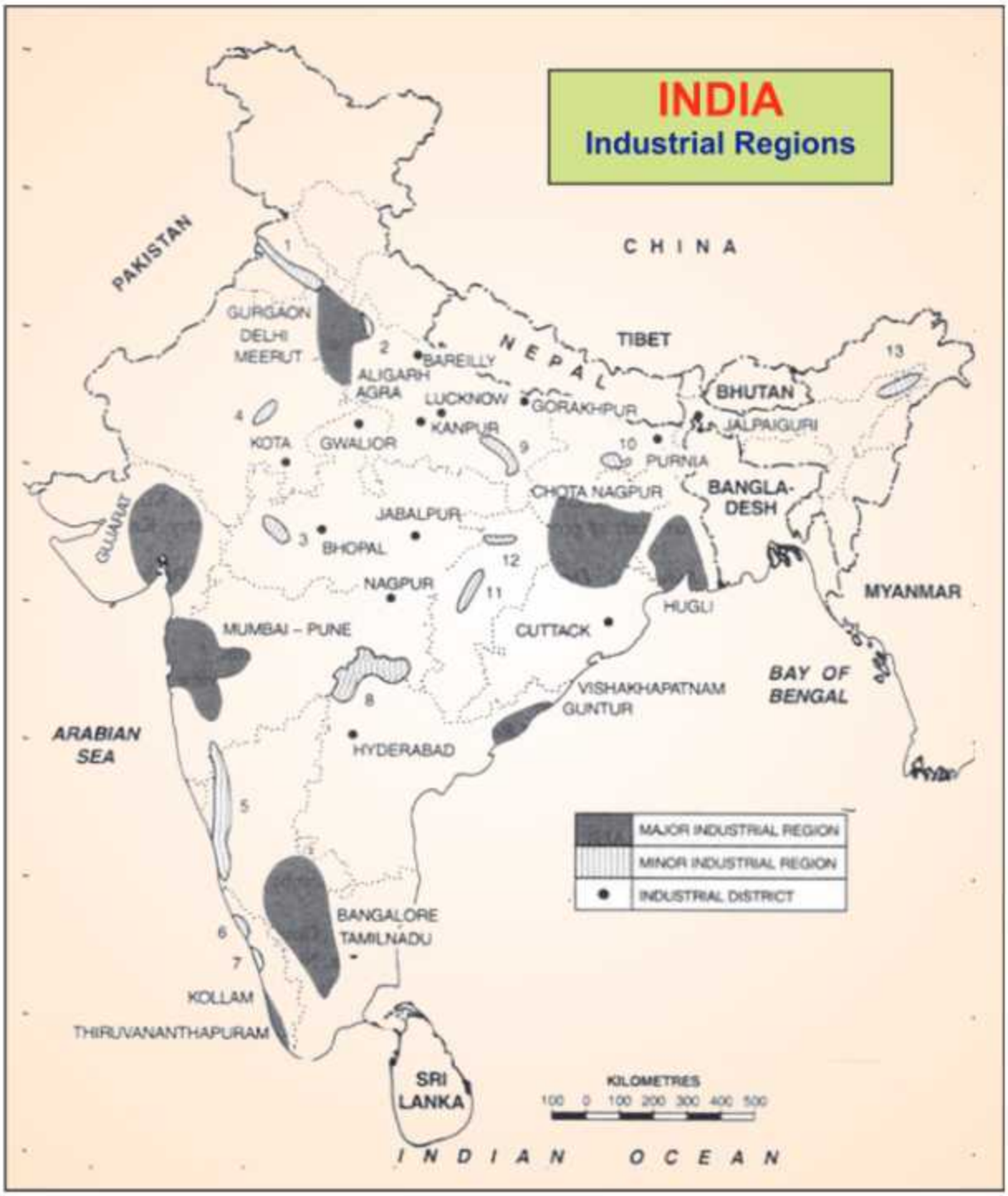
Industrial regions are those areas, where concentration of industries has occurred due to favourable geo-economic conditions. These are the areas within which manufacturing industry is carried out on a relatively large scale and employs a relatively large proportion of population.

The industrial regions of the world are unevenly distributed over the surface of the earth. Though a large number of factors are responsible for the distribution of manufacturing regions in the world but the great differentiations in localisation of any industrial region can be explained to a large degree by the availability of resources.

Since the development of machinery, many industrial centres have sprung up where there is abundance of coal or coal & iron or extensive water-power - the mainsprings of modern industry, and all such towns are more or less business centres.

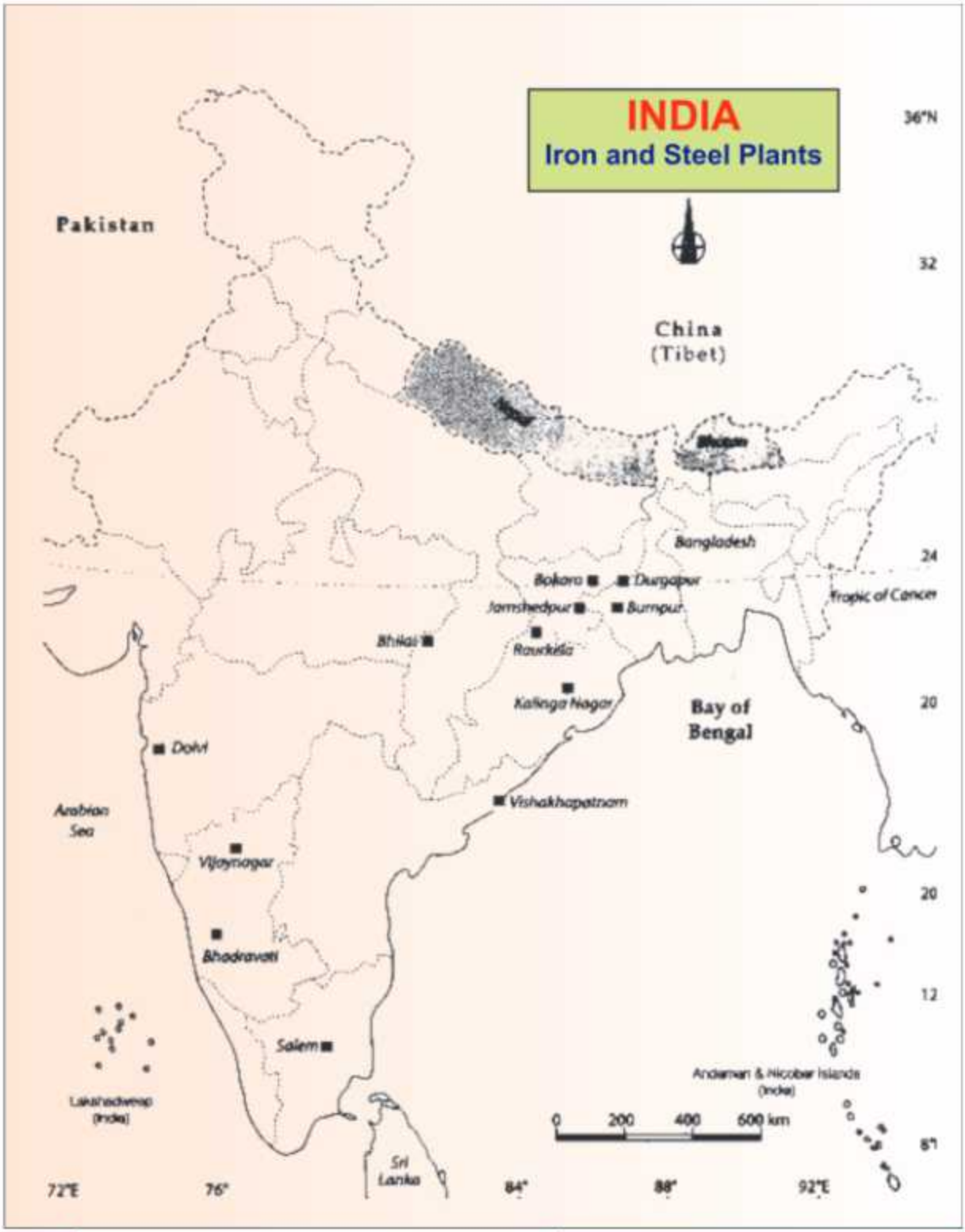
Industrial Regions: (8 Major Industrial Regions of India)

- Mumbai-Pune Industrial Region
- Hugli Industrial Region
- Bangalore-Tamil Nadu Industrial Region
- Gujarat Industrial Region
- Chhota Nagpur Industrial Region
- Vishakhapatnam-Guntur Industrial Region
- Gurgaon-Delhi-Meerut Industrial Region
- Kollam-Thiruvananthapuram Industrial Region


INDIA
Industrial Regions
PAKISTAN
CHINA
NEPAL
TIBET
BHUTAN
BANGLA-
DESH
MYANMAR
GURGAON
DELHI
MEERUT
BAREILLY
ALIGARH
AGRA
LUCKNOW
GORAKHPUR
JALPAIGURI
KOTA
GWALIOR
KANPUR
PURNIA
CHOTA NAGPUR
JABALPUR
BHOPAL
NAGPUR
HUGLI
CUTTACK
MUMBAI – PUNE
VISHAKHAPATNAM
GUNTUR
HYDERABAD
BAY OF
BENGAL
ARABIAN
SEA
BANGALORE
TAMILNADU
KOLLAM
THIRUVANANTHAPURAM
SRI
LANKA
INDIAN OCEAN
MAJOR INDUSTRIAL REGION
MINOR INDUSTRIAL REGION
INDUSTRIAL DISTRICT
KILOMETRES
100 0 100 200 300 400 500

Iron and Steel Industry

The iron and steel industry is the basic industry since all the other industries - heavy, medium and light, depend on it for their machinery. Steel is needed to manufacture a variety of engineering goods, construction material, defence, medical, telephonic, scientific equipment and a variety of



consumer goods. Mini steel plants are smaller, have electric furnaces, use steel scrap and sponge iron. They have re-rollers that use steel ingots as well. They produce mild and alloy steel of given specifications. Collect information about products of steel plants in India. Production and consumption of steel is often regarded as the index of a country's development. Iron and steel is a heavy industry because all the raw materials as well as finished goods are heavy and bulky entailing heavy transportation costs. Iron ore, coking coal and lime stone are required in the ratio of approximately 4 : 2 : 1. Some quantities of manganese, are also required to harden the steel. Where should the steel plants be ideally located? Remember that the finished products also need an efficient transport network for their distribution to the markets and consumers. In 2018 with 106.5 million tonnes of crude steel production, India ranked 2nd among the world crude steel producers. It is the largest producer of sponge iron. In 2018 per capita consumption of steel in the country was only around 70.9 kg per annum against the world average of 224.5 kg. Most of the public sector undertakings market their steel through Steel Authority of India Ltd. (SAIL). In the 1950s China and India produced almost the same quantity of steel. Today, China is the largest producer and world's largest consumer of steel. Chhotanagpur plateau region has the maximum concentration of iron and steel industries. It is largely, because of the relative advantages this region has for the development of this industry. These include, low cost of iron ore, high grade raw materials in proximity, cheap labour and vast growth potential in the home market. Though, India is an important iron and steel producing country in the world yet, we are not able to perform to our full potential largely due to:

(a) High costs and limited availability of coking coal

(b) Lower productivity of labour

(c) Irregular supply of energy and

(d) Poor infrastructure

We also import good quality steel from other countries. However, the overall production of steel is sufficient to meet our domestic demand. Liberalisation and Foreign Direct Investment have given a boost to the industry with the efforts of private entrepreneurs. There is a need to allocate resources for research and development to produce steel more competitively.

Major Problems faced by Indian Iron and Steel Industry :

- ¢ Lack of huge Capital
- ¢ Lack of latest Technology
- ¢ Low Productivity & High input costs
- ¢ Inefficiency of public sector units
- ¢ Low potential utilisation of steel plants
- ¢ Heavy demand
- ¢ Shortage of metallurgical coal
- ¢ Inferior quality of products

- ¢ Steel companies are plagued with huge debts.
- ¢ Cheap imports from China, Korea and other countries.

Sugar Industry

India stands second as a world producer of sugar but occupies the first place in the production of gur and khandsari. The raw material used in this industry is bulky, and in haulage its sucrose content reduces. The mills are located in Uttar Pradesh, Bihar, Maharashtra, Karnataka, Tamil Nadu, Andhra Pradesh, Gujarat, Punjab, Haryana and Madhya Pradesh. Sixty per cent mills are in

Uttar Pradesh and Bihar. This industry is seasonal in nature so, it is ideally suited to the cooperative sector. Can you explain why this is so? In recent years, there is a tendency for the mills to shift and concentrate in the southern and western states, especially in Maharashtra, This is because the cane produced here has a higher sucrose content. The cooler climate also ensures a longer crushing season. Moreover, the cooperatives are more successful in these states. Major challenges include the seasonal nature of the industry, old and inefficient methods of production, transport delay in reaching cane to factories and the need to maximise the use of baggase.

The state of Punjab has 24 sugar mills out of which 16 are in Co-operative sector and 8 are in the private sector. Out of the 16 Co-operative sugar mills, 7 are closed and one private sugar mill has also not working since 2009-10. The sugar industry of this state is going through difficult times just like the sugar industries of several other states in India due to financial and infrastructural problems.

Cotton Textile Industry

Textile Industry: The textile industry occupies unique position in the Indian economy, because it contributes significantly to industrial production, employment generation and foreign exchange earnings. It is the only industry in the country, which is self-reliant and complete in the value chain i.e., from raw material to the highest value added products.

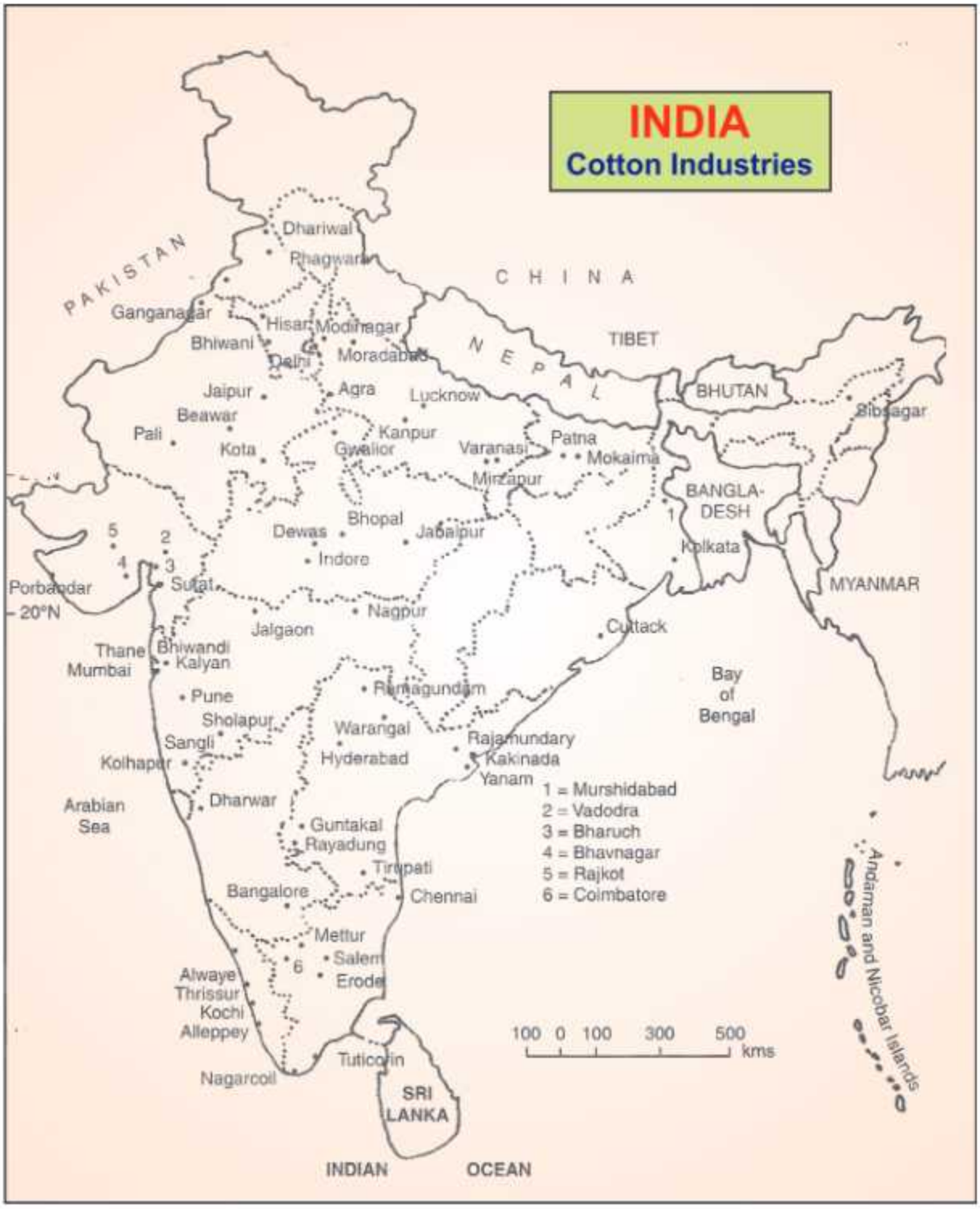
Cotton Textiles: In ancient India, cotton textiles were produced with hand spinning and handloom weaving techniques. After the 18th century, power-looms came into use. Our traditional industries suffered a setback during the colonial period because they could not compete with the mill-made cloth from England. Fig. 6.3:

Value addition in the textile industry: In the early years, the cotton textile industry was concentrated in the cotton growing belt of Maharashtra and Gujarat. Availability of raw cotton, market, transport including accessible port facilities, labour, moist climate, etc. contributed towards its localisation. This industry has close links with agriculture and provides a living to farmers, cotton boll pluckers and workers engaged in ginning, spinning, weaving, dyeing, designing, packaging, tailoring and sewing. The industry by creating demands supports many other industries, such as, chemicals and dyes, packaging materials and engineering works. While spinning continues to be centralised in Maharashtra, Gujarat and Tamil Nadu, weaving is highly decentralised to provide scope for incorporating traditional skills and designs of weaving in cotton, silk, zari, embroidery, etc. India has world class production in spinning, but weaving supplies low quality of fabric as it cannot use much of the high quality yarn produced in the country. Weaving is done by handloom, powerloom and in mills. The handspun khadi provides large scale employment to weavers in their homes as a cottage industry.

Why did Mahatma Gandhi lay emphasis on spinning yarn and weaving khadi?

Why is it important for our country to keep the mill sector loomage lower than power loom and handloom?

India exports yarn to Japan. Other importers of cotton goods from India are U.S.A., U.K.,



Russia, France, East European countries, Nepal, Singapore, Sri Lanka, and African countries. We have a large share in the world trade of cotton yarn. Our spinning mills are competitive at the global level and capable of using all the fibres we produce. The weaving, knitting and processing units cannot use much of the high quality yarn that is produced in the country. There are some large and modern factories in these segments, but most of the production is in fragmented small units, which

cater to the local market. This mismatch is a major drawback for the industry. As a result, many of our spinners export cotton yarn while apparel/garment manufactures have to import fabric.

Although, we have made significant increase in the production of good quality long staple cotton, the need to import is still felt. Power supply is erratic and machinery needs to be upgraded in the weaving and processing sectors in particular. Other problems are the low output of labour and stiff competition with the synthetic fibre industry

Food Processing Industry

The sector of food processing industry in India has grown rapidly and it has gained immense importance in modern time. Several academicians stated that food processing is the alteration of raw ingredients into food, or of food into other forms or value addition on existing food. Food processing usually takes reaped crops or slaughtered animal products and uses these to yield long shelf-life food

products. Food processing of food items like fermenting, sun drying, preserving with salt etc. is done since ancient times. Currently, food processing adopts newest technologies and practices. There is easy availability of raw materials and the changing lifestyles & relaxation in policies that has given a substantial momentum to the industry's development. This sector serves as a dynamic link between the agriculture and industrial segments of the economy. It is necessary to strengthen this link is to improve the value of agricultural produce, surety of remunerative prices to farmers and create favourable demand for Indian agricultural products in the global market. A push to the food processing sector indicates noteworthy development of the agriculture sector and ensures value addition to it.

Significance of Food Processing Industries

In India, there is huge land for food production. It is estimated that more than 50% of Indian population work in Agriculture related activities. If there are good food processing industries in India, raw materials such as grains or meat can be converted into food for domestic and foreign consumption.

Food processing units act as linkages between agriculture and agro-industries. Food processing industries can absorb a major share of workers from the agriculture sector, who face disguised unemployment.

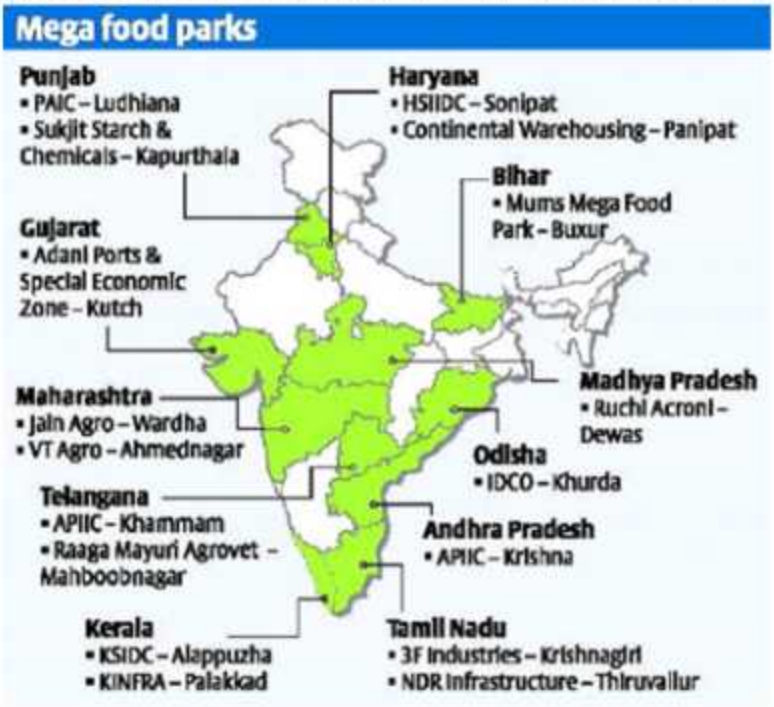
Reasons for food processing: Foods are processed for five major reasons:

1. Preservation for later consumption or sale to fetch better price
2. Removal of inedible portions
3. Destruction or removal of harmful substances
4. Conversion to forms desired by the consumer
5. Subdivision into food ingredients.

Mega food parks:

Mega Food Park Scheme is the effective program of the Ministry of Food Processing Industries, Government of India. Mega Food Park Scheme suggests a demand driven/pre-marketed model with strong backward/forward linkages and sustainable supply chain

Total 42 Mega Food Parks have been sanctioned by the Government for setting-up in the



country. This step of the Government will create huge modern infrastructure for food processing sector and provide impetus to the development of the area. One such mega food park in Punjab under the name of Punjab Agro Industries Corporation Limited (PAIC) at Ludhiana is the premier organization of Punjab Government, entrusted with the responsibility of promotion and facilitation of agro based industries including agro processing, dairy processing, poultry processing, agro residue processing, food & horticulture processing, agro chemicals manufacturing etc. in Punjab. Other such food parks have been set up at Fazilka and Phagwara.

Ship Building Industry

A ship is a large watercraft that travels the world's oceans and other sufficiently deep waterways, carrying passengers or goods, or in support of specialized missions, such as defence, research and fishing. Ships have been important contributors to human migration and commerce. The Indian shipping industry plays an important role in the Indian economy as almost 90% of the country's international trade is conducted by the sea. It was during the medieval period that a number of Indian vessels were constructed, for the first time, purely for war at sea.

The ancient shipbuilding in India goes back to the third millennium BC in the Harappan times (Indus Civilisation). The Harappans built the first tide dock of the world for berthing and servicing ships at the port town of Lothal in about 2500 BC. For inland waterways, flat bottomed boats of the type suggested by the terracotta models were used. An engraving on a seal from Mohenjo-Daro represents a sailing ship with a high prow, the stern was made of reeds. With the coming of the Portuguese in 1498, building of warships in India underwent a change when guns were mounted on board.

List of Public Sector Undertakings (PSUs) of Shipping Industry in India

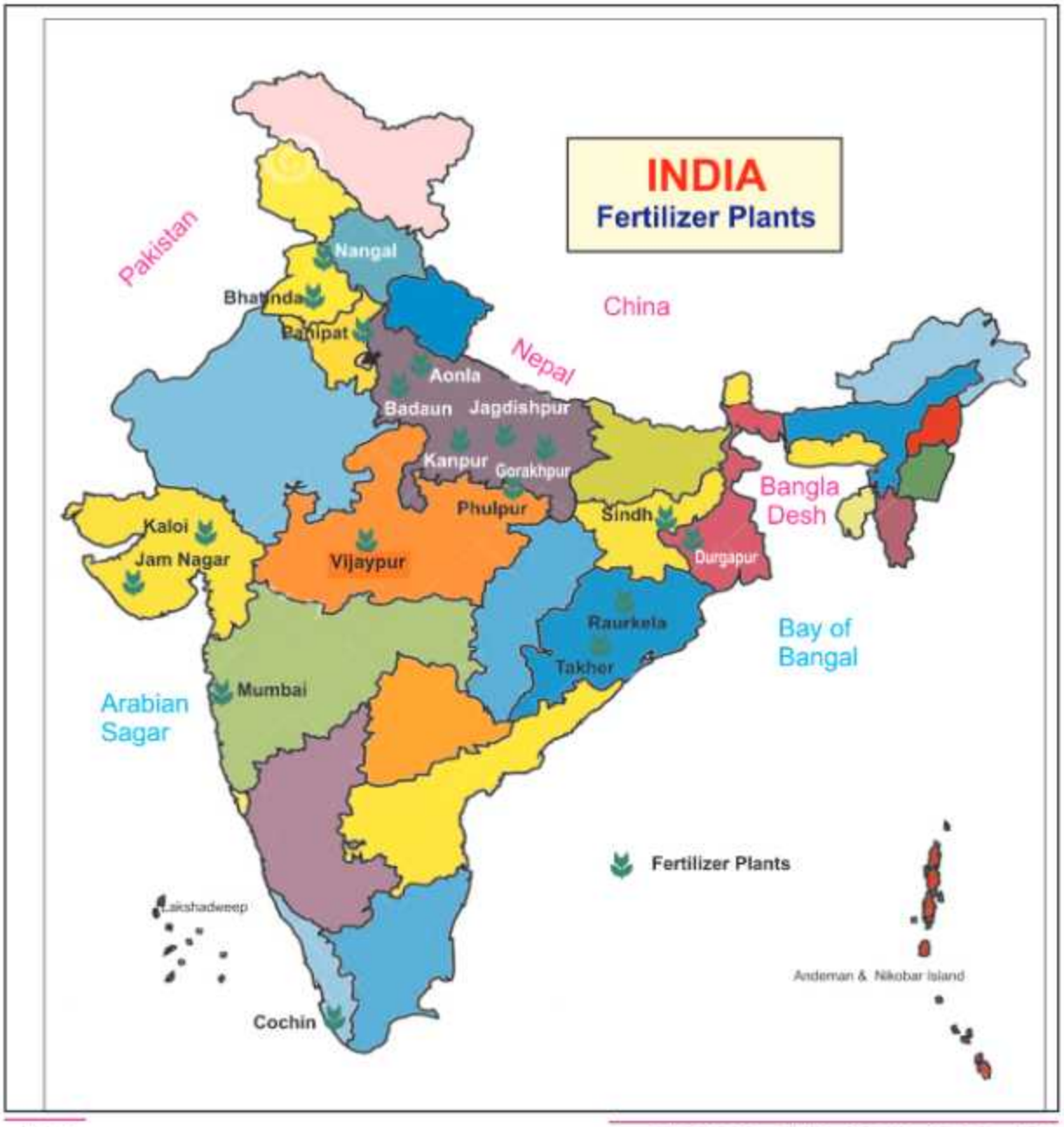
- Shipping Corporation of India Mumbai
- Hindustan Shipyard Ltd., Visakhapatnam
- Cochin Shipyard Ltd., Cochin
- Dredging Corporation of India Ltd. (MSIL), Visakhapatnam
- Hooghly Dock and Port Engineers Ltd., Kolkata
- Ennore Port Ltd., Chennai
- Central Inland Water Transport Corporation Ltd., Kolkata

Vishakhapatnam, Kolkata, Kochi and Mumbai are four major ship building centres of India. India ranks second among the Asian countries next only to Japan in terms of shipping tonnage.

Cochin Shipyard Limited (CSL) (Kerala) is the largest shipbuilding and maintenance facility in India. There are approximately 1.2 million people currently employed at sea in the maritime industry. Today, India has more than 1070 ships.

Fertilizers Industry

The fertilizer industry is centred around the production of nitrogenous fertilizers (mainly urea), phosphatic fertilizers and ammonium phosphate (DAP) and complex fertilizers which have a combination of nitrogen (N), phosphate (P), and potash (K). The third, i.e. potash is entirely imported as the country does not have any reserves of commercially usable potash or potassium compounds in any form. After the Green Revolution the industry expanded to several other parts of the country. Gujarat, Tamil Nadu, Uttar Pradesh, Punjab and Kerala contribute towards half of the fertilizer



production. Other significant producers are Andhra Pradesh, Odisha, Rajasthan, Bihar, Maharashtra, Assam. West Bengal, Goa, Delhi, Madhya Pradesh and Karnataka.

Industrial Pollution & Environmental Degradation

Although industries contribute significantly to India's economic growth and development, the increase in pollution of land, water, air, noise and resulting degradation of environment that they have caused, cannot be overlooked. Industries are responsible for four types of pollution: (a) Air (b) Water (c) Land (d) Noise.

The polluting industries also include thermal power plants. Air pollution is caused by the presence of high proportion of undesirable gases, such as sulphur dioxide and carbon monoxide. Airborne particulate materials contain both solid and liquid particles like dust, sprays mist and smoke. Smoke is emitted by chemical smelting plants, and burning of fossil fuels in big and small factories that ignore pollution norms. Toxic gas leaks can be very hazardous with long-term effects. Are you aware of the Bhopal Gas tragedy that occurred? Air pollution adversely affects human health, animals, plants, buildings and the atmosphere as a whole.

Pacific garbage patch is far larger than feared: study

80,000 tonnes of trash float as a mass in the ocean

AGENCE FRANCE-PRESSE
PARIS

The vast dump of plastic waste swirling in the Pacific ocean is now bigger than France, Germany and Spain combined – far larger than previously feared – and is growing rapidly, a study published on Thursday warned.

Researchers based in the Netherlands used a fleet of boats and aircraft to scan the immense accumulation of bottles, containers, fishing nets and microparticles known as the "Great Pacific Garbage Patch" (GPGP) and found an astonishing build-up of plastic waste. "We found about 80,000 tonnes of buoyant plastic currently in the GPGP," said Laurent Lebreton, lead author of the study published in the journal *Scientific Reports*.

File photo of plastic waste in Hanauma Bay, Hawaii. • NOAA PACIFIC ISLANDS FISHERIES SCIENCE CENTER

That's around the weight of 500 jumbo jets, and up to sixteen times greater than the plastic mass uncovered there in previous studies.

But what really shocked the team was the amount of plastic pieces that have built up on the marine gyre between Hawaii and California in recent years.

They found that the dump now contains around 1.8 trillion pieces of plastic, posing a dual threat to marine life. Microplastics, tiny fragments of plastic smaller than 50mm in size that make up the vast majority of items in the GPGP, can enter the food chain when swallowed by fish.

The pollutants they contain become more concentrated as they work their way up through the food web.

"The other environmental impact comes from the larger debris, especially the fishing nets," said Mr. Lebreton.

These net fragments kill marine life by trapping fish and animals such as turtles in a process known as 'ghost fishing'. Global plastics production hit 322 million tonnes in 2015, according to the International Organization for Standardization.

Water pollution is caused by organic and inorganic industrial wastes and affluents discharged into rivers. The main culprits in this regard are paper, pulp, chemical, textile and dyeing, petroleum refineries, tanneries and electroplating industries that let out dyes, detergents, acids, salts and heavy metals like lead and mercury pesticides, fertilisers, synthetic chemicals with carbon, plastics and rubber, etc. into the water bodies. Fly ash, phospo- gypsum and iron and steel slags are the major solid wastes in India. Thermal pollution of water occurs when hot water from factories and thermal plants is drained into rivers and ponds before cooling. What would be the effect on aquatic life? Wastes from nuclear power plants, nuclear and weapon production facilities cause cancers, birth defects and miscarriages.

Soil and water pollution are closely related. Dumping of wastes specially glass, harmful chemicals, industrial effluents, packaging, salts and garbage renders the soil useless. Rain water percolates to the soil carrying the pollutants to the ground and the ground water also gets contaminated. Noise pollution not only results in irritation and anger, it can also cause hearing impairment, increased heart rate and blood pressure among other physiological effects. Unwanted sound is an irritant and a source of stress. Industrial and construction activities, machinery, factory equipment, generators, saws and pneumatic and electric drills also make a lot of noise.

Control of Environmental Degradation

Every litre of waste water discharged by our industry pollutes eight times the quantity of freshwater. How can the industrial pollution of fresh water be reduced? Some suggestions are-

(i) minimising use water for processing by reusing and recycling it in two or more successive stages

(ii) harvesting of rainwater to meet water requirements

(iii) treating hot water and effluents before releasing them in rivers and ponds. Treatment of industrial effluents can be done in three phases

(a) Primary treatment by mechanical means. This involves screening, grinding, flocculation and sedimentation.

(b) Secondary treatment by biological process

(c) Tertiary treatment by biological, chemical and physical processes. This involves recycling of wastewater.

Overdrawing of ground water reserves by industry where there is a threat to ground water resources also needs to be regulated legally. Particulate matter in the air can be reduced by fitting smoke stacks to factories with electrostatic precipitators, fabric

filters, scrubbers and inertial separators. Smoke can be reduced by using oil or gas instead of coal in factories. Machinery and equipment can be used and generators should be fitted with silencers. Almost all machinery can be redesigned to increase energy efficiency and reduce noise. Noise absorbing material may be used apart from personal use of earplugs and earphones. The challenge of sustainable development requires integration of economic development with environmental concerns

PROJECTS/ACTIVITIES

Select one agro-based and one mineral-based industry in your area and answer the following:-

(i) What are the raw materials they use?

(ii) What are the other inputs in the process of manufacturing that involve transportation cost?

(iii) Are these factories following environmental norms?

Exercise

1. Multiple choice questions.

(i) Which one of the following industries uses limestone as a raw material ?

(a) Aluminium (b) Cement

(c) Plastic (d) Automobile

(ii) Which one of the following agencies markets steel for the public sector plants?

(b) HAIL (b) SAIL

(c) TATA Steel (d) MNCC

(iii) Which one of the following industries uses bauxite as a raw material?

(a) Aluminium Smelting (b) Cement

(c) Paper (d) Steel

(iv) Which one of the following industries manufactures telephones, computer, etc.

(a) Steel (b) Electronic

(c) Aluminium Smelting (d) Information Technology

(v) Manufacturing sector is considered the ..... of development.

(a) Mind (b) Backbone

(c) Energy (d) Body

(vi) Full Form of BHEL is:

(a) Bharat Heavy Electricals Limited

(b) Bharat Heat Energy Limited

(c) Bhopal Hydrabad Energy Limited

(d) None of the above

(vii) Sugar industry is:

(a) Raw material based industry

(b) Agro based industry

(c) Heavy Industry

(d) All the above

(viii) How many Mega food parks have been sanctioned by the government?

(a) 40 (b) 42

(c) 45 (d) 48

2 . Answer the following briefly in not more than 30 words.

(i) What is manufacturing?

(ii) Name any three physical factors for the location of the industry.

(iii) Name any three human factors for the location of an industry.

(iv) What are basic industries? Give an example.

(v) Name the important raw materials used in the manufacturing of cement?

(vi) Which are the major basis for classification of industries? name them.

(vii) Classify the industries on the basis of Raw material.

(viii) Name the major industrial regions of India.

(ix) Why food processing is required?

3. Write the answers of the following questions in 120 words.

(i) How are integrated Steel plants different from mini Steel plants?

(ii) What problems do the industries face?

(iii) What recent developments have led to a rise in the production capacity?

(iv) How do industries pollute the environment?

(v) Discuss the steps to be taken to minimise environmental degradation by industry?

(vi) Give a detailed account of classification of industries with the help of a flow chart.

(vii) Write a note on cotton textile industry of India.

(viii) Write notes on:

(a) Fertilizers industry

(b) Ship building industry

(c) Mega food park

(d) Major problems faced by Industries

Transport and Communication as life lines of India

7

We use different materials and services in our daily life. Some of these are available in our immediate surroundings, while other requirements are met by bringing things from other places. Goods and services do not move from supply locales to demand locales on their own. The movement of these goods and services from their supply locations to demand locations necessitates the need for transport. Some people are engaged in facilitating these movements. These are known to be traders who make the products come to the consumers by transportation. Thus, the pace of development of a country depends upon the production of goods and services as well as their movement over space. Therefore, efficient means of transport are prerequisites for fast development. Movement of these goods and services can be over three important domains of our earth i.e., land, water and air. Based on these, transport can also be classified into land, water and air transport.

For a long time, trade and transport were restricted to a limited space. With the development in science and technology, the area of influence of trade and transport expanded far and wide. Today, the world has been converted into a large village with the help of efficient and fast-moving transport. Transport has been able to achieve this with the help of equally developed communication system. Therefore, transport, communication and trade are complementary to each other. Today, India is well-linked with the rest of the world despite its vast size, diversity and linguistic and socio-cultural plurality. Railways, airways, waterways, newspapers, radio, television, cinema and internet, etc. have been contributing to its socio-economic progress in many ways. The trades from local to international levels have added to the vitality of its economy. It has enriched our life and added substantially to growing amenities and facilities for the comforts of life. In this chapter, you will see how modern means of transport and communication serve as lifelines of our nation and its modern economy. It is thus, evident that a dense and efficient network of transport and communication is a prerequisite for local, national and global trade of today.

TRANSPORT

Roadways :

India has one of the largest road networks in the world, aggregating to about 6,371,847 kilometres (3,959,282 mi) of roads as of 1 December 2021. In India, roadways have preceded railways. They still have an edge over railways in view of the ease with which they can be built and maintained. The growing importance of road transport vis-à-vis rail transport is rooted in the following reasons;

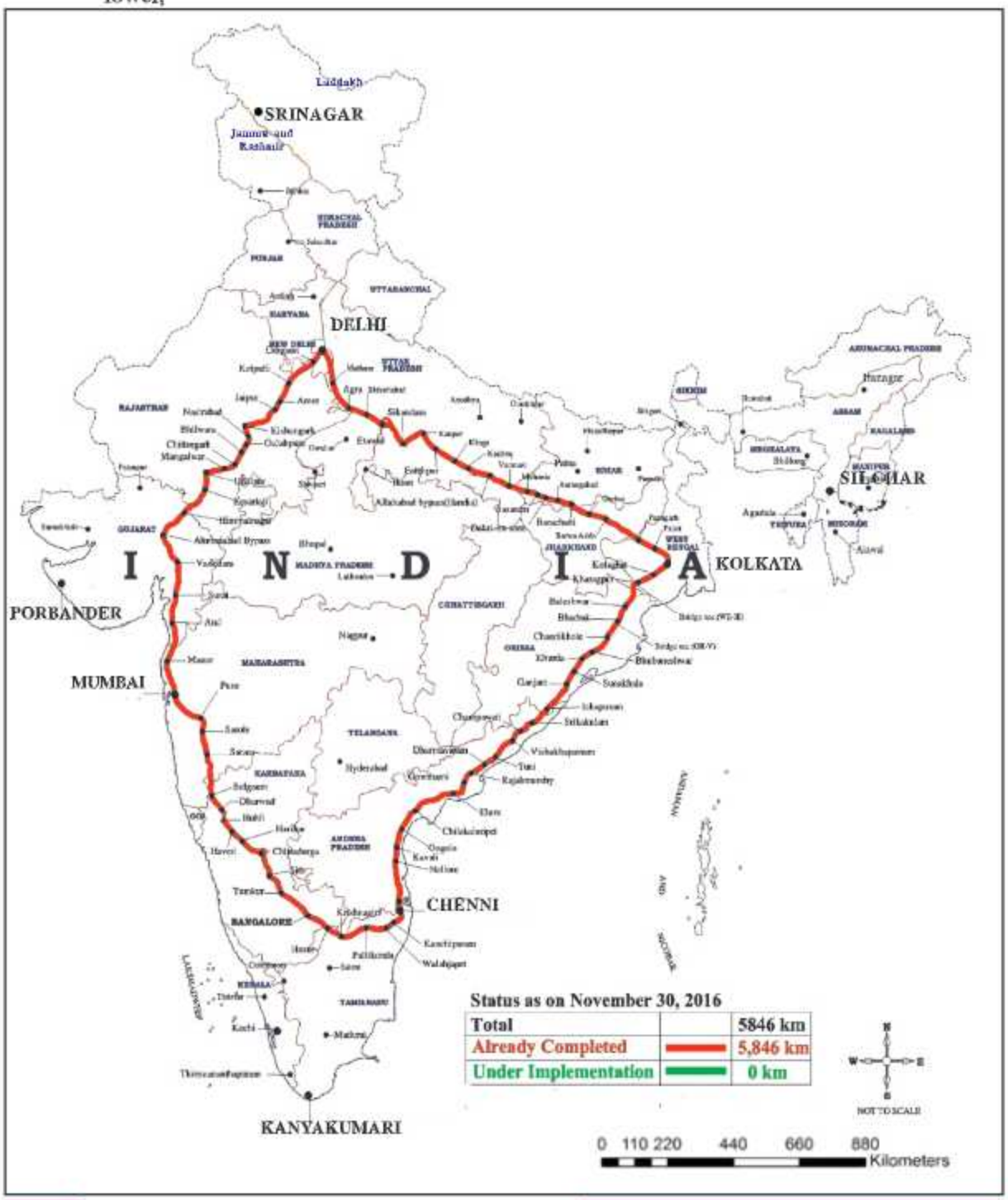
(a) Construction cost of roads is much lower than that of railway lines,

(b) Roads can traverse comparatively more dissected and undulating topography,

(c) Roads can negotiate higher gradients of slopes and as such can traverse mountains such as the Himalayas,

(d) Road transport is economical in transportation of few persons and relatively smaller amount of goods over short distances,

(e) It also provides door-to-door service; thus, the cost of loading and unloading is much lower,



(f) Road transport is also used as a feeder to other modes of transport such as they provide a link between railway stations, air and sea ports. In India, roads are classified in the following six classes according to their capacity. Look at the map of the National Highways and find out about the significant role played by these roads.

- **Golden Quadrilateral Super Highways:** The government has launched a major road development project linking Delhi Kolkata-Chennai-Mumbai and Delhi by six-lane Super Highways. The North South corridors linking Srinagar (Jammu & Kashmir) and Kanniyakumari (Tamil Nadu), and East-West Corridor connecting Silchar (Assam) and Porbander (Gujarat) are part of this project. The major objective of these Super Highways is to reduce the time and distance between the mega cities of India. These highway projects are being implemented by the National Highway Authority of India (NHAI).
- **National Highways:** National Highways link extreme parts of the country. These are the primary road systems and are laid and maintained by the Central Public Works Department (CPWD). A number of major National Highways run in North South and East-West directions. The historical Sher-Shah Suri Marg is called National Highway No.1, between Delhi and Amritsar.
- **State Highways:** Roads linking a state capital with different district headquarters are known as State Highways. These roads are constructed and maintained by the State Public Works Department (PWD) in State and Union Territories.
- **District Roads:** These roads connect the district headquarters with other places of the district. These roads are maintained by the Zila Parishad.
- **Other Roads:** Rural roads, which link rural areas and villages with towns, are classified under this category. These roads received special impetus under the Pradhan Mantri Grameen Sadak Yojana. Under this scheme special provisions are made so that every village in the country is linked to a major town in the country by an all season motorable road.
- **Border Roads:** Apart from these, Border Roads Organisation a Government of India undertaking constructs and maintains roads in the bordering areas of the country. This organisation was established in 1960 for the development of the roads of strategic importance in the northern and north-eastern border areas. These roads have improved accessibility in areas of difficult terrain and have helped in the economic development of these area. Roads can also be classified on the basis of the type of material used for their construction such as metalled and unmetalled roads. Metalled roads may be made of cement, concrete or even bitumen of coal, therefore, these are all weather roads. Unmetalled roads go out of use in the rainy season.

Roads Classification of roads in India ?

First ever road classification plan was drawn in 1943 at Nagpur ; now known as Nagpur plan:

- The Nagpur Plan divides roads into 4 main categories: National Highways, State Highways, District Roads and Village roads. Expressways were added as an additional category recently.

* **National Highways :** Roads that are required for strategic movement, those that reduce the travel time substantially, and those that open up backward areas and help economic growth, are also classified as National Highways.
* They connect all major ports, state capitals, large industrial and tourist centres, and foreign highways.
* **State Highways :** They are the arterial roads of a state that connect to National Highways, district headquarters and important cities and are also linked to district roads.
* **Major District Roads :** They connect areas of production, main markets and the State and National Highways crossing the state.
* Village Roads connect villages to each other or to the nearest District Roads.

Excellence Express Highways.

The Central government is taking steps to improve the efficiency of surface transport by constructing 350 railway bridges and level crossings. Sethu Bharatam Project involves creation of

150 railway over-bridges and 204 level crossings. Under Rashtriya Rajmarg Zila Sanjoyukta Pariyojana over 5,600 km highways will be linking 123 district HQs to NH network through this scheme. Road ministry has also identified 123 district headquarters not linked to National Highways. As part of National Highways Development Programme, roads in these stretches will be upgraded to match NH standards. Another scheme for improving road networks in India is Bharatmala which is a 5,500 km stretch connecting border states. Road and tourism ministries have also prepared action plan to improve connectivity in religious pilgrimage places such as Nanded and Katra as part of a 2000 km network.

Railways :

The history of Indian Railways dates back to over 160 years and Lord Dalhousie the former Governor-General of India is considered the father of Indian railways. On 16th April 1853, the first passenger train ran between Bori Bunder (Bombay) and Thane, a distance of 34 km. It was operated by three locomotives, named Sahib, Sultan and Sindh, and had thirteen carriages.

The railways are an important mode of transport in India. In the year 2021-22, 24 million passengers daily used Indian Railways network, which operates mainline and suburban rail services in the country. In the same period, 203.88 million tonnes of freight metric tons of freight was also shipped daily on the Indian Railway.

Railways are the principal mode of transportation for freight and passengers in India. Railways also make it possible for people to conduct multifarious activities like business, sightseeing, pilgrimage along with transportation of goods over longer distances. Apart from an important means of transport the Indian Railways have been a great integrating force for more than 150 years. Railways in India bind the economic life of the country as well as accelerate the development of the industry and agriculture. The Indian Railway is now reorganised into 19 zones.

Types of rail gauges

The gauge of the railway track is a clear minimum vertical distance between the inner sides of two tracks is called railway gauge. That is, the distance between the two tracks on any railway route is known as railway gauge. Approximately sixty percent of the world's railway uses standard gauge of 1,435 mm. There are 4 types of railway gauge used in India. Broad gauge, Metre Gauge, Narrow gauge and Standard gauge (for Delhi Metro). distance between the two tracks in these railway gauges is 1676 mm (5 ft 6 in). It would not be wrong to say that any gauge, wider than standard gauge or 1,435 mm (4 ft 8½ inches), is called broad gauge.

As per figures of March 2022, the national rail network comprises 126,366 km of track over a route of 67,956 km and 7,325 stations. It is the fourth-largest national railway network in the world (after those of the United States of America, Russia and China).

Some Important trains in India:

1. Sachkhand express

The 12715 / 12716 Sachkhand Express is superfast train and it is operated by Indian Railways on a daily basis between the cities of Huzur Sahib Nanded in Maharashtra to Amritsar in Punjab. This train links two

famous Sikh shrines. The train is named after Sachkhand Sahib Gurudwara, situated in Nanded. This train also links New Delhi, which is the capital of India, as well as the state capital of Madhya Pradesh, Bhopal to Nanded, Parbhani, Jalna and Aurangabad of the Marathwada Region of Maharashtra.

2. Himsagar express

Himsagar Express is a weekly express train of the Indian Railways running between Kanyakumari in India's southernmost state of Tamil Nadu to Shri Mata Vaishno Devi Katra in Jammu and Kashmir- the northernmost state of India. It is currently the third longest running train on the Indian Railways in terms of distance and time, surpassed by the Dibrugarh–Kanyakumari Vivek Express and Thiruvananthapuram - Silchar Superfast Express. In 72 hours, the train covers a distance of 3787 km at a speed of 52 km/h, and transverses twelve of India's states halting at a total of 73 stations

3. Shri Ramayna express

The 'Ramayana express' is a proposed train from Saffarjang railway station at Delhi to Sri Lanka, Via Rameshwaram. The train provides options to people visiting places associated with Ramayana in Sri Lanka for a limited number of seats. It will be connected by Sri Lankan railways beyond Rameshwaram, Shri Ramayan express shall run through Gaziabad, Moradabad, Barelly, Lucknow and shall stop at Ayodhya. Its further stopages will beat Nandigram, Sitamarhi, Janadpur, Varanasi, Paryag, Shri Ranguipur, Chitastest Hanyri, Nasik and Rameshwaram. It will complete one voyage in 16 days.The ticket price for the second AC is Rs 82,950 and for the first AC, it is Rs 1,02, 095.

Gati Shakti Scheme

Government of India has recently launched PM Gati Shakti - National Master Plan for Multi-modal Connectivity, essentially a digital platform to bring 16 Ministries including Railways and Roadways together for integrated planning and coordinated implementation of infrastructure connectivity projects.The multi-modal connectivity will provide integrated and seamless connectivity for movement of people, goods and services from one mode of transport to another. It will facilitate the last mile connectivity of infrastructure and also reduce travel time for people.

Gati Shakti is based on six pillars:

Comprehensiveness: It will include all the existing and planned initiatives of various Ministries and Departments with one centralized portal. Each and every Department will now have visibility of each other's activities providing critical data while planning & execution of projects in a comprehensive manner.

Prioritization: Through this, different Departments will be able to prioritize their projects through cross-sectoral interactions.

Optimization: The National Master Plan will assist different ministries in planning for projects after identification of critical gaps. For the transportation of the goods from one place to another, the plan will help in selecting the most optimum route in terms of time and cost.

Synchronization: Individual Ministries and Departments often work in silos. There is lack of coordination in planning and implementation of the project resulting in delays. Gati Shakti will help in synchronizing the activities of each department, as well as of different layers of governance, in a holistic manner by ensuring coordination of work between them.

Analytical: The plan will provide the entire data at one place with GIS based spatial planning and analytical tools having 200+ layers, enabling better visibility to the executing agency.

Dynamic: All Ministries and Departments will now be able to visualize, review and monitor the progress of cross-sectoral projects, through the GIS platform, as the satellite imagery will give on-ground progress periodically and progress of the projects will be updated on a regular basis on the portal. It will help in identifying the vital interventions for enhancing and updating the master plan.

What Is a Gig Economy?

In a gig economy, temporary, flexible jobs are commonplace and companies tend to hire independent contractors and freelancers instead of full-time employees. A gig economy undermines the traditional economy of full-time workers who often focus on their career development.

KEY TAKE AWAYS

- The gig economy is based on flexible, temporary, or freelance jobs, often involving connecting with clients or customers through an online platform.
- The gig economy can benefit workers, businesses, and consumers by making work more adaptable to the needs of the moment and the demand for flexible lifestyles.
- At the same time, the gig economy can have downsides due to the erosion of traditional economic relationships between workers, businesses, and clients.

Understanding a Gig Economy

In a gig economy, large numbers of people work in part-time or temporary positions or as independent contractors. The result of a gig economy is cheaper, more efficient services, such as Uber or Airbnb, for those willing to use them.

People who don't use technological services such as the Internet may be left behind by the benefits of the gig economy. Cities tend to have the most highly developed services and are the most entrenched in the gig economy.

A wide variety of positions fall into the category of a gig. The work can range from driving for Uber or delivering food to writing code or freelance articles. Adjunct and part-time professors, for example, are contracted employees as opposed to tenure-track or tenured professors. Colleges and universities can cut costs and match professors to their academic needs by hiring more adjunct and part-time professors.

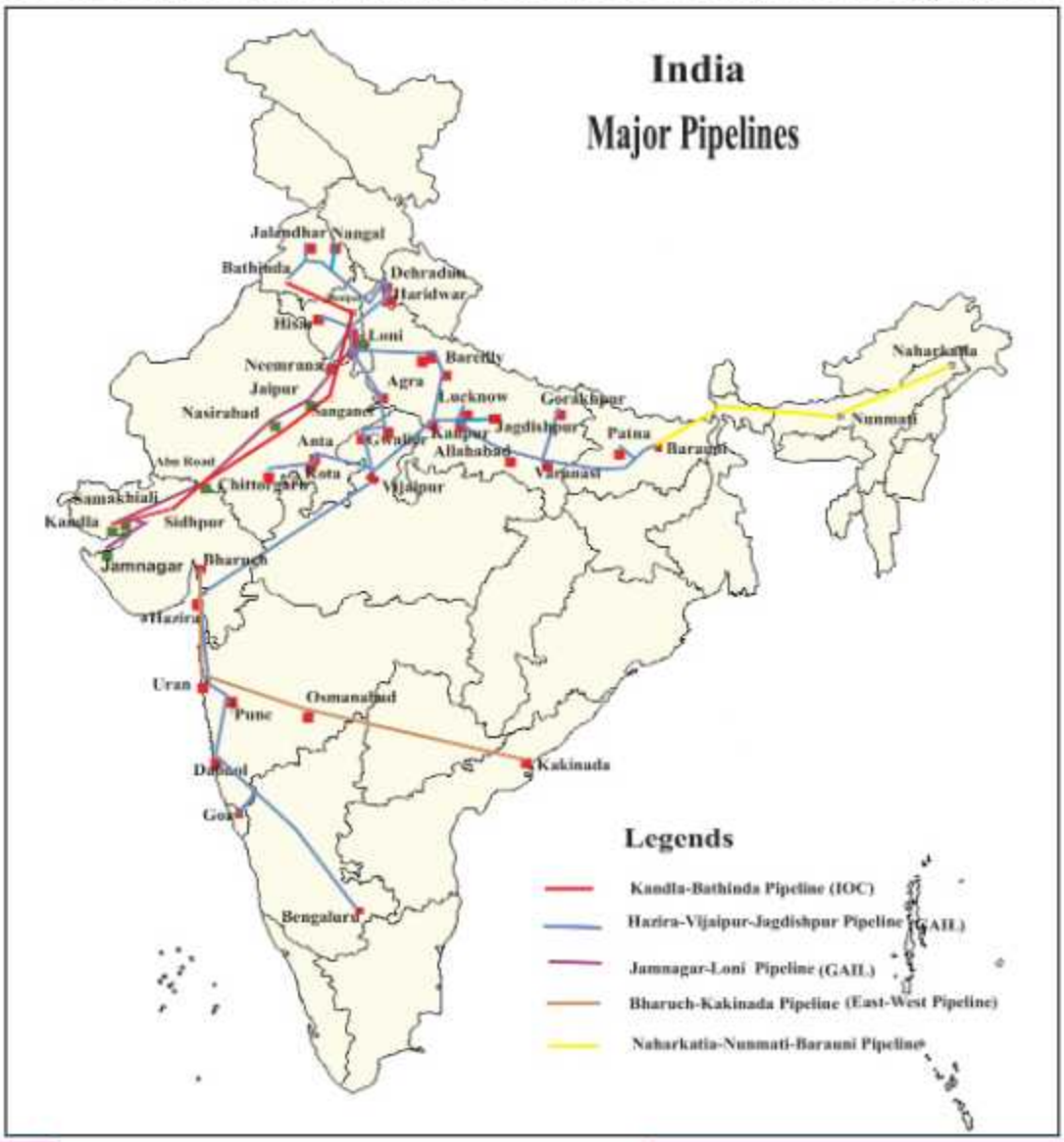
Some steps for improvements in Indian Railways

Indian Railway has already adopted the technological up-gradation in safety aspects of coaches and wagons. Indian Railways have taken several key measures, as a result of which the number of

train accidents has decreased considerably. Electronic Interlocking System with centralized operation of points and signals are being provided to eliminate accident due to human failure and to replace old mechanical systems. Conventional coaches are being replaced with the latest and well-designed coaches. A GPS based Fog Pass device is being provided to loco pilots in fog affected areas which enables loco pilots to know the exact distance of the approaching landmarks like signals, level crossing gates etc. Mechanization of track maintenance is being carried out to reduce human errors. Train Protection and Warning System (TPWS) based on European Technology to avoid train accident /collision on account of human error or over speeding, has been provided.

Pipelines :

Pipeline transport network is a new arrival on the transportation map of India. In the past, these were used to transport water to cities and industries. Now, these are used for transporting crude oil, petroleum products and natural gas from oil and natural gas fields to refineries, fertilizer factories and big thermal power plants. Solids can also be transported through a pipeline when



converted into slurry. The far inland locations of refineries like Barauni, Mathura, Panipat and gas-based fertilizer plants could be thought of only because of pipelines. Initial cost of laying pipelines is high but subsequent running costs are minimal. It rules out trans-shipment losses or delays. There are three important networks of pipeline transportation in the country.

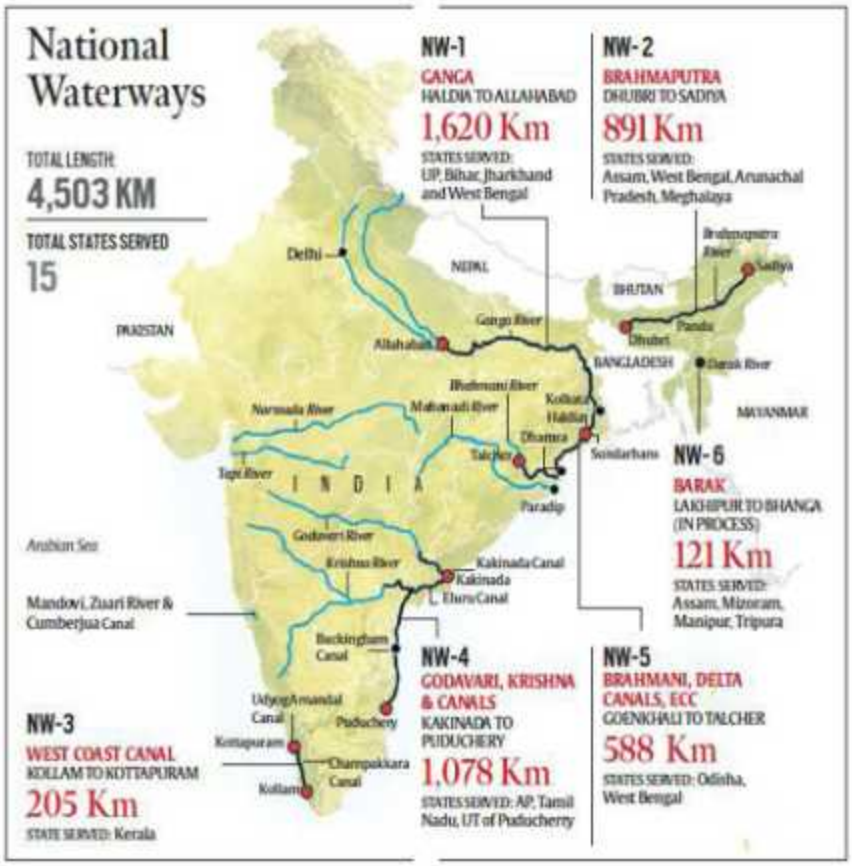
- From oil field in upper Assam to Kanpur (Uttar Pradesh), via Guwahati, Barauni and Allahabad. It has branches from Barauni to Haldia, via Rajbandh, Rajbandh to Maurigram and Guwahati to Siliguri.
- From Salaya in Gujarat to Jalandhar in Punjab, via Viramgam, Mathura, Delhi and Sonipat. It has branches to connect Koyali (near Vadodara, Gujarat) Chakshu and other places.
- Gas pipeline from Hazira in Gujarat connects Jagdishpur in Uttar Pradesh, via Vijaipur in Madhya Pradesh. It has branches to Kota in Rajasthan, Shahajahanpur, Babrala and other places in Uttar Pradesh.

Waterways :

Water transport is the process of moving people, goods, etc. by means like boat, barge, and ship over a sea, ocean, lake, canal, river, etc. The water transport is of two types–

a. Inland waterways

b. Oceanic waterways.



Inland waterway act 2016

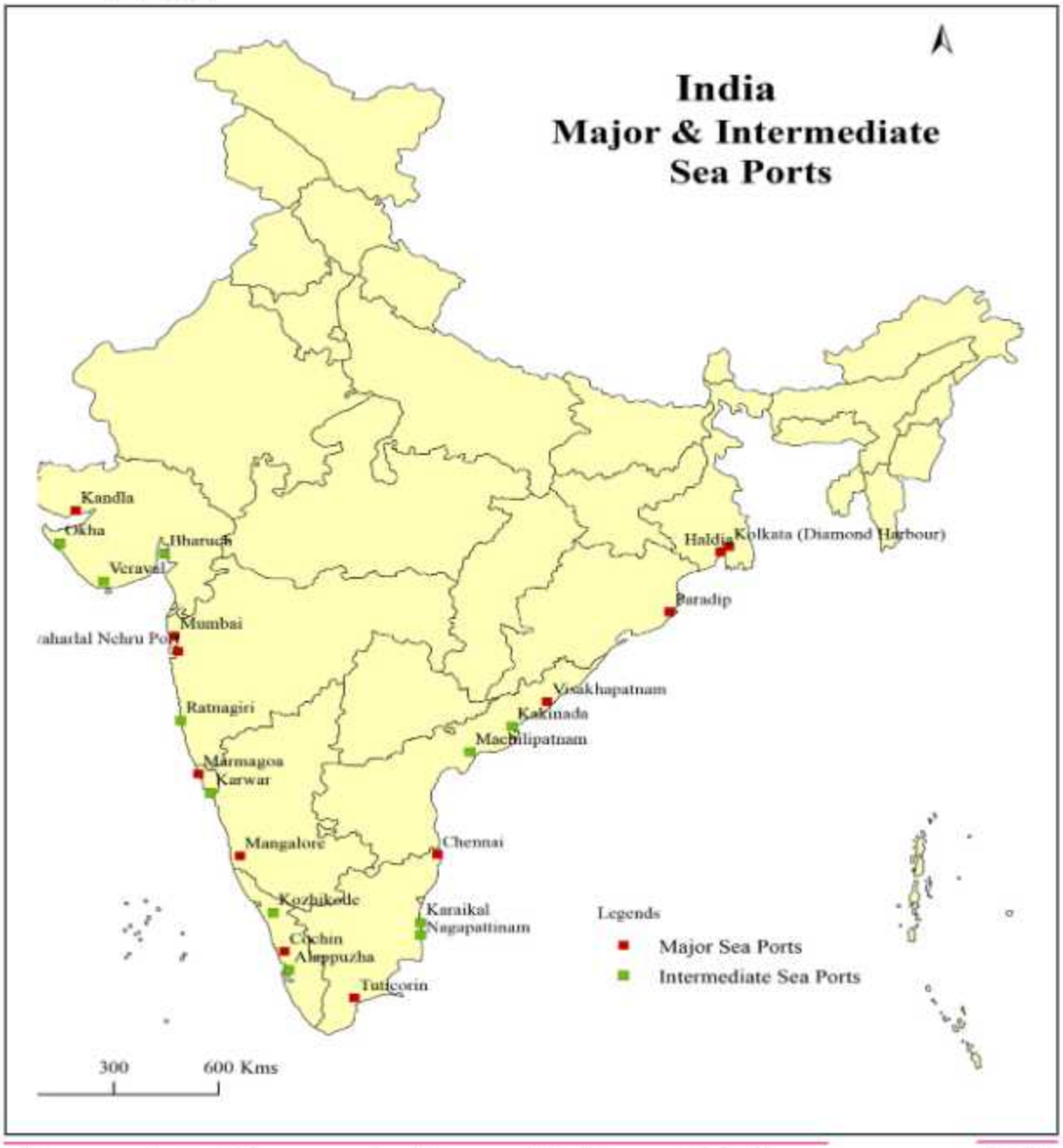
The Inland waterways were the chief mode of transport before the advent of railways whereas Oceanic routes play an important role in the transport sector of India's economy.Since the ancient period, India was one of the seafaring countries. Its seamen sailed far and near, thus, carrying and spreading Indian commerce and culture. Waterways are the cheapest means of transport. They are most suitable for carrying heavy and bulky goods. It is a fuel-efficient and environment friendly mode of transport. India has inland navigation waterways of 14,500 km in length. Out of these only 5685 km are navigable by mechanised vessels. The following waterways have been declared as the National Waterways by the Government

S. No.	NW Number	River System	Route	Length	Locations	Estab-lished
1	NW – 1	Ganga-Bhagirathi-Hooghly	Prayagraj – Haldia	1620	Uttar Pradesh, Bihar, Jharkhand, West Bengal	1986
2	NW – 2	Brahmaputra	Sadiya-Dhubri	891	Assam	1982
3	NW – 3	West Coast Canal, Champakara Canal, and Udyogamandal Canal	Kottapuram – Kollam	205	Kerala	1993
4	NW – 4	Krishna and Godavari	Kakinada–Puducherry stretch of canals, Kaluvelly Tank, Bhadrachalam – Rajahmundry, Waziraba–Vijayawada	1095	Andhra Pradesh, Tamil Nadu, and Puducherry	2008
5	NW – 10	Amba River		45	Maharashtra	
6	NW – 83	Rajpuri Creek		31	Maharashtra	
7	NW – 85	Revadanda Creek – Kundalika River System		31	Maharashtra	
8	NW – 91	Shastri river–Jaigad creek system		52	Maharashtra\	
9	NW – 68	Mandovi – Usgaon Bridge to the Arabian Sea		41	Goa	
10	NW – 111	Zuari–Sanvordem Bridge Marmugao Port		50	Goa	
11	NW – 73	Narmada River		226	Gujarat & Maharashtra	
12	NW – 100	Tapi River		436	Gujarat & Maharashtra	
13	NW – 97 (Sundarbans Waterways)	Namkhana to Athara BankiKhal	Indo-Bangladesh Protocol Route	172	West Bengal	

Advantages and Disadvantages of Water Transport are as follows:

Advantages:

1. **Less Maintenance Cost:** Maintenance cost in rail and road transport is quite high but maintenance cost of water transport is quite less.
2. **Cheap:** Water transport is quite cheaper as compared to rail and road Transport.
3. **Useful for Bulky Goods:** Heavy and bulky goods can be transported easily at much lesser cost through water transport.
4. **Useful during Natural Calamities:** During natural calamities like flood and rains, when rail and road transport is disrupted, relief operations can be operated through water transport.



5. **Helpful in Defence:** Development of shipping is essential for the defence of the country also.

6. **Important for Foreign Trade:** Water transport plays important role in foreign trade. India's foreign trade is mainly dependent on this type of transport.

Disadvantages of Water Transport:

The following are the disadvantages of water transport:

1. **Slow Speed:** It is a slow means of transport. Failure of monsoon results into fall in the water level of many rivers making navigation difficult.

2. **More Risky:** Water transport is more risky as compared to other means because there is always danger of sinking ships or boats.

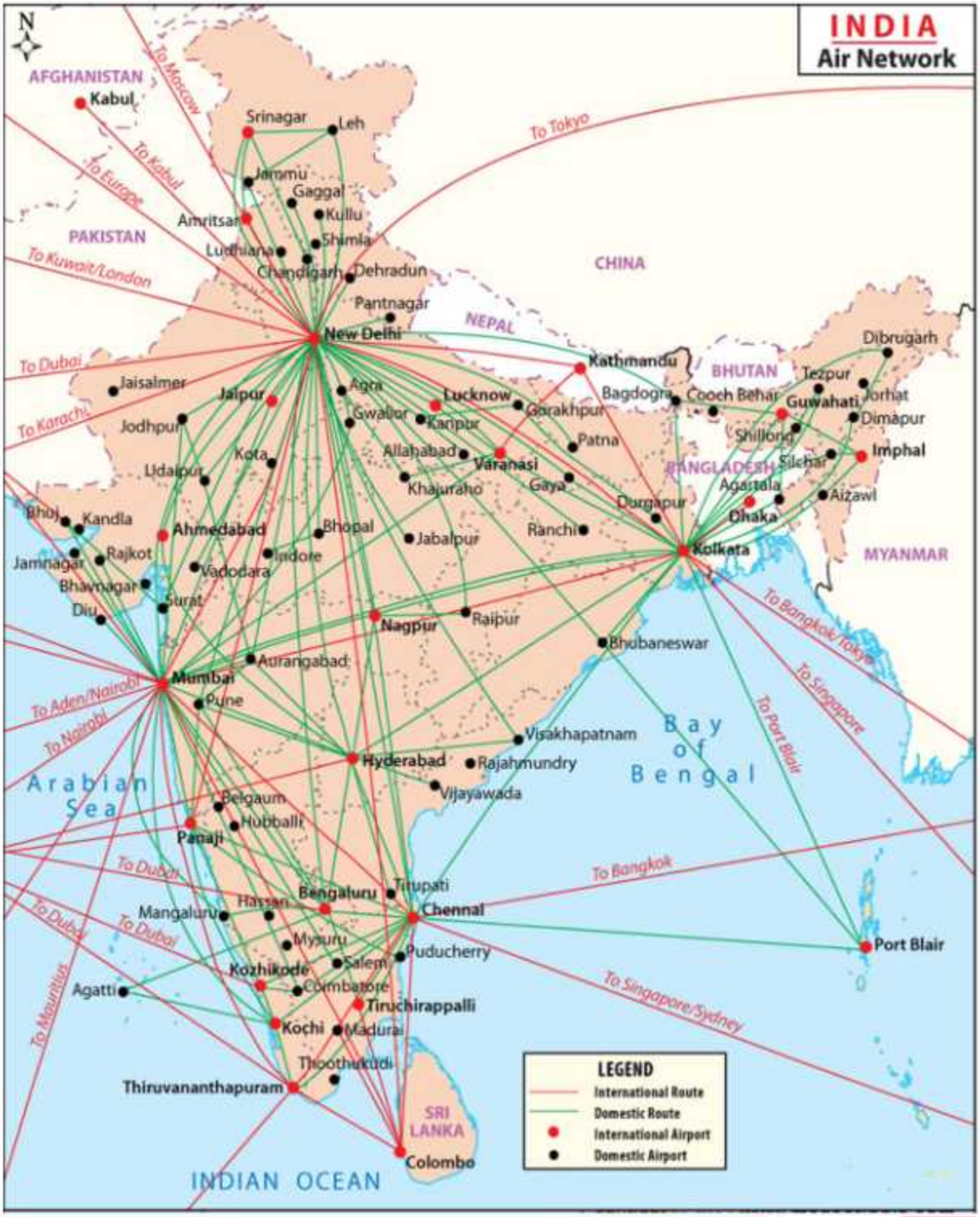
Major sea ports :

Major Sea Ports With a long coastline of 7,516.6 km, India is dotted with 12 major and 200 notified non-majors (minor/intermediate) ports. These major ports handle 95 per cent of India's foreign trade. Kandla in Kuchchh was the first port developed soon after Independence to ease the volume of trade on the Mumbai port, in the wake of loss of Karachi port to Pakistan after the Partition. Kandla also known as the Deendayal Port, is a tidal port. It caters to the convenient handling of exports and imports of highly productive granary and industrial belt stretching across the states of Jammu and Kashmir, Himachal Pradesh, Punjab, Haryana, Rajasthan and Gujarat.

Mumbai is the biggest port with a spacious natural and well-sheltered harbour. The Jawaharlal Nehru port was planned with a view to decongest the Mumbai port and serve as a hub port for this region. Marmagao port (Goa) is the premier iron ore exporting port of the country. This port accounts for about fifty per cent of India's iron ore export. New Mangalore port, located in Karnataka caters to the export of iron ore concentrates from Kudremukh mines. Kochchi is the extreme south-western port, located at the entrance of a lagoon with a natural harbour. Moving along the east coast, you would see the extreme south-eastern port of Tuticorin, in Tamil Nadu. This port has a natural harbour and rich hinterland. Thus, it has a flourishing trade handling of a large variety of cargoes to even our neighbouring countries like Sri Lanka, Maldives, etc. and the coastal regions of India. Chennai is one of the oldest artificial ports of the country. It is ranked next to Mumbai in terms of the volume of trade and cargo. Vishakhapatnam is the deepest landlocked and well-protected port. This port was, originally, conceived as an outlet for iron ore exports. Paradwip port located in Odisha, specialises in the export of iron ore. Kolkata is an inland riverine port. This port serves a very large and rich hinterland of Ganga Brahmaputra basin. Being a tidal port, it requires constant dredging of Hoogly. Haldia port was developed as a subsidiary port, in order to relieve growing pressure on the Kolkata port.

Airways :

The air travel, today, is the fastest, most comfortable and prestigious mode of transport. It can cover very difficult terrains like high mountains, dreary deserts, dense forests and also long oceanic stretches with great ease. Think of the north-eastern part of the country, marked with the presence of big rivers, dissected relief, dense forests and frequent floods and international frontiers, etc. in the



absence of air transport. Air travel has made access easier. The air transport was nationalised in 1953. Air India provides domestic and international air services. Pawan hans Helicopters Ltd. provides helicopter services to Oil and Natural Gas Corporation in its off-shore operations, to inaccessible areas and difficult terrains like the north-eastern states and the interior parts of Jammu and Kashmir, Himachal Pradesh and Uttarakhand.

Air transport in India made a beginning in 1911 when airmail operation commenced over a little distance of 10 km between Allahabad and Naini. Air India was started by the Tata Group in 1932, but in 1947, as India gained Independence, the government bought 49% stake in AI. In 1953, the government bought the remaining stake, and AI was nationalised. On October 8, 2021, the government announced that Talace Pvt. Ltd, a fully owned special purpose vehicle (SPV) floated by Tata Sons Pvt. Ltd, the principal holding company of the Tata group, had won the bid to acquire a 100 per cent stake in the debt-laden Air India. Here is the list of leading Airlines in India:

- § Vistara percentage share
- § SpiceJet
- § Air India Express
- § Indigo
- § GoAir
- § Alliance Air
- § Air india
- § Air Asia

India has a total of 34 operational International Airports.

Activity:

Find out the names of the countries connected by Air India.

Air travel is not within the reach of the common people. It is only in the north-eastern states that special provisions are made to extend the services to the common people.

Cable Transport

Cable transport is a broad class of transport modes that have cables. The cable may be driven or passive, and items may be moved by pulling, sliding, sailing, or by drives within the object being moved on cableways. The cable car is a type of aerial transit to transport passengers in a cabin which is suspended and pulled by cables. The advantages of cable car transport compared to other modes of transport are its quiet operation with an environmentally-acceptable electric drive and the possibility of transporting passengers and other materials above the ground, which can provide additional transport dimensions.

Asian Highways Project

India signed the Inter-Governmental Agreement on Asian Highway Network during the 60th Annual Session of the United Nations Economic and Social Commission for Asia and Pacific (UNESCAP), held in April, 2004 in Shanghai (China). The agreement was for coordinated development of the highway routes falling on the Asian Highway Network in each country to a minimum acceptable standard within the framework of their national programmes, aimed to develop international tourism, trade, transport and commerce. However, no specific time frame for completion of works has been stipulated in the Agreement. It is one of the three pillars of the Asian Land Transport Infrastructure Development (ALTID) project, endorsed by the Economic and Social Commission for Asia and Pacific (ESCAP Commission) at its 48th session in 1992, comprising Asian Highway, Trans-Asian Railway (TAR) and facilitation of land transport projects.

Agreements have been signed by 32 countries to allow the highway to cross the continent and also reach to Europe. Some of the countries taking part in the highway project are India, Sri Lanka. Pakistan, China, Iran, Japan, South Korea and Bangladesh. Most of the funding comes from the Asian nations like Japan, India, Nepal, Taiwan, South Korea and China as well as international agencies such as the Asian Development Bank. The project aims to make maximum use of the continent's existing highways to avoid the construction of newer ones, except in cases where missing routes necessitate their construction. The planned network runs a total distance of 140,479 kilometres.

Belt and Road Initiative (BRI)

The One Belt One Road Initiative (OBOR) is now the Belt and Road Initiative (BRI) is the global development strategy initiated by the Government of China involving infrastructural development and direct investments in many countries across the continents of Asia, Europe, Africa and the Americas.

What is the One Belt One Road initiative?

The OBOR initiative was announced in 2013 by China's President Xi Jinping. The 'Belt' refers to the 'Silk Road Economic Belt', which is a series of overland routes reminiscent of the Silk Road of antiquity and the late middle ages, while the 'Road' refers to the sea routes, which is also referred to as the 21st Century Maritime Silk Road.

The OBOR has been referred to as the Belt and Road Initiative (BRI) since 2016 due to the Chinese government's consideration of the word 'one' is prone to misinterpretation.

Objectives of the BRI

The objectives of the BRI are as follows:

1. Creation of a unified large market that makes use of both international and domestic markets.
2. Facilitate cultural exchange and integration
3. Enhance mutual understanding and trust of member nations that will foster an innovative environment with capital inflows, talent pool and technology database.

To summarise it the ultimate objective of the BRI will address the infrastructural gap and accelerate potential economic growth across the Asia Pacific region, Africa and Eastern Europe

Major Concerns about the BRI in Asia and Beyond

The implementation of the BRI will pose significant risks and challenges for China's neighbours and itself. Some of them are as follows:

- Chinese construction companies have a poor track record when operating in foreign nations, chief among them being the mistreatment of local workers. Therefore, any excesses on the part of these companies might result in a serious blow to China's image. This in

addition to giving rise to instability in host nations will prove detrimental to the BRI initiative.

- The geopolitical aspects of the initiative are that certain nations such as the United Nations and Russia view it as a risk to their influence in their respective regions. Russia views Central Asia as part of its sphere influence for a long time. The increase in Chinese influence is taken as a hurdle towards Russian interests in the region. The same can be said for the United States regarding its interests in the Pacific Region.
- The ultimate risk is of falling into a 'debt trap'. The exorbitant funding for unsound projects to secure Chinese access to local resources, instead of helping the local economy will leave such nations vulnerable to Chinese influence. When a host country is unable to pay back the money invested by China, China on its part will ask concessions that will compromise its sovereignty. The case of Sri Lanka handing over one of its Chinese-financed shipyards to a Chinese-backed company for a 99-year lease is such an example.
- Countries who have been part of the BRI have accused China of practising credit imperialism by charging exorbitant rates of interest. This forces them into giving up critical infrastructure in order to pay off the loan. Such claims have been vehemently denied by China.
- **India's Stand on the BRI initiative :**
- The Indian security establishment is deeply suspicious of China's silk road initiatives.
- Delhi's strategic community has long objected to China's road construction on land frontiers and port-building in the Indian Ocean as "strategic encirclement".
- The problem is even more compounded with the presence of the China-Pakistan Economic Corridor (CPEC). It is the presence of CPEC that actually lends credence to the "strategic encirclement" theory.
- However, optimists feel India needs to take a fresh look. Canning the issue will be paving the way for India's marginalisation from the unfolding geo-economic Options for India

Blue Dot Network

Blue Dot Network and Belt and Road Initiative are the Marshall plans of 21st century and a clandestine form of economic imperialism and geopolitical aspirations. These are probabilistic models for better prospects. BDN has been introduced on ASEAN platform in 2019 at Bangkok in Thailand. It is more realistic and profitable business under quad purview (Indian is not yet its participant partner). BDN has been envisaged relatively cheaper, hassle free projects with set environmental and labour standards and economic viabilities across Indo Pacific sea board. It has been designed to save countries falling in bad debt trap of China.

It is an initiative of International Development Finance Cooperation of USA, Japanese Bank of International Cooperation and Department of Foreign Affairs and Trade of Australia.

It promotes high quality trusted standards for global infrastructure by engaging governments, private sector and civil societies. Blue dot rendered to a project is a universal standard of excellence.

It is a First World solution to the Third World but its financing procedures will be indirect unlike BRI (Belt and Road Initiative)

The concept is relatively new and will take time to establish its credibility. It has been designed to counter state driven economic model - BRI of China.

BDN has been designed for deep hinterland connectivity to the Blue dots and to counter possible restriction to free movement & trade and regional security especially in South China Sea and Bay of Bengal. It extends between the Pacific coast of USA to the Arabian coast of Indian Peninsula.

Communication

Ever since humans appeared on the earth, they have used different means of communication. But, the pace of change, has been rapid in modern times. Long distance communication is far easier without physical movement of the communicator or receiver. Personal communication and mass communication including television, radio, press, films, etc. are the major means of communication in the country. The Indian postal network is the largest in the world. It handles parcels as well as personal written communications. Cards and envelopes are considered first-class mail and are airlifted between stations covering both land and air. The second-class mail includes book packets, registered newspapers and periodicals. They are carried by surface mail, covering land and water transport. To facilitate quick delivery of mails in large towns and cities, six mail channels have been introduced recently. They are called Rajdhani Channel, Metro Channel, Green Channel, Business Channel, Bulk Mail Channel and Periodical Channel.

Digital India is an umbrella programme to prepare India for a knowledge-based transformation. The focus of Digital India Programme is on being transformative to realise – IT (Indian Talent) + IT (Information Technology) =IT (India Tomorrow) and is on making technology central to enabling change.

India has one of the largest telecom networks in Asia. Excluding urban places more than two-thirds of the villages in India have already been covered with Subscriber Trunk Dialling (STD) telephone facility. In order to strengthen the flow of information from the grassroot to the higher level, the government has made special provision to extend twenty-four hours STD facility to every village in the country. There is a uniform rate of STD facilities all over India. It has been made possible by integrating the development in space technology with communication technology.

Mass communication provides entertainment and creates awareness among people about various national programmes and policies. It includes radio, television, newspapers, magazines, books and films. All India Radio (Akashwani) broadcasts a variety of programmes in national, regional and local languages for various categories of people, spread over different parts of the country. Doordarshan, the national television channel of India, is one of the largest terrestrial networks in the world. It broadcasts a variety of programmes from entertainment, educational to sports, etc. for people of different age groups. India publishes a large number of newspapers and periodicals annually. They are of different types depending upon their periodicity. Newspapers are published in about 100 languages and dialects. Did you know that the largest number of newspapers published in the country are in Hindi, followed by English, Punjabi and Urdu?

India is the largest producer of feature films in the world. It produces short films; video feature films and video short films. The Central Board of Film Certification is the authority to certify both Indian and foreign films.

International Trade

The exchange of goods among people, states and countries is referred to as trade. The market is the place where such exchanges take place. Trade between two countries is called international trade. It may take place through sea, air or land routes. While local trade is carried in cities, towns and villages, state level trade is carried between two or more states. Advancement of international trade of a country is an index to its economic prosperity. It is, therefore, considered the economic barometer for a country. As the resources are space bound no country can survive without international

trade. Export and import are the components of trade. The balance of trade of a country is the difference between its export and import. When the value of export exceeds the value of imports, it is called a favourable balance of trade. On the contrary, if the value of imports exceeds the value of exports, it is termed as unfavourable balance of trade. India has trade relations with all the major trading blocks and all geographical regions of the world. The commodities exported from India to other countries include gems and jewellery, chemicals and related products, agriculture and allied products, etc. The commodities imported to India include petroleum crude and products, gems and jewellery, chemicals and related products, base metals, electronic items. machinery. agriculture and allied products. India has emerged as a software giant at the international level and it is earning large foreign exchange through the export of information technology.

Tourism as a Trade : Tourism in India has grown substantially over the last three decades. More than 15 million people are directly engaged in the tourism industry. Tourism also promotes national integration, provides support to local handicrafts and cultural pursuits. It also helps in the development of international understanding about our culture and heritage. Foreign tourists visit India for heritage tourism, eco-tourism, adventure tourism, cultural tourism, medical tourism and business tourism. There is a vast potential for development of tourism in all parts of the country. Efforts are being made to promote different types of tourism for this upcoming industry.

PROJECTS/ACTIVITIES

(i) Prepare a project about visit of haritage places in India.

(ii) On the map of India show important tourist places of your State/UT and its connectivity with other parts of the country by railways/ roadways/airways.

(iii) Discuss in the class:

- (a) What type of tourism may be developed in your state/UT and why?
- (b) Which areas in your state/UT you find more attractive for development of tourism and why?
- (c) How tourism may be helpful for the economic development of a region adopting sustainable development approach?

Exercise

1. Multiple choice questions.

(i) Which two of the following extreme locations are connected by the eastwest corridor?

- (a) Mumbai and Nagpur
- (b) Silchar and Porbandar
- (c) Mumbai and Kolkata
- (d) Nagpur and Siligudi

(ii) Which mode of transportation reduces trans-shipment losses and delays?

(a) Railways (c) Pipeline

(b) Roadways (d) Waterways

(iii) Which one of the following states is not connected with the H.V.J. pipeline?

(a) Madhya Pradesh (c) Gujarat

(b) Maharashtra (d) Uttar Pradesh

(iv) Which one of the following ports is the deepest land-locked and well protected port along the east coast?

(a) Chennai (c) Tuticorin

(b) Paradwip (d) Vishakhapatnam

(v) Which one of the following is the most important modes of transportation in India?

(a) Pipeline (c) Roadways

(b) Railways (d) Airways

(vi) Which one of the following terms is used to describe trade between two or more countries?

(a) Internal trade (c) External trade

(b) International trade (d) Local trade

(vii) State Highways are constructed & maintained by:

(a) NHAI (b) PWD

(c) Zila Parishad (d) Union Government

(viii) Width of the standard guage is:

(a) 1676 mm. (b) 1435 mm

(c) 1000mm (d) 1500mm

(ix) Biggest part of India is:

(a) Chennai (b) Haldia

(c) Mumbai (d) Kandla

(x) BRI stands for

(a) Bank Reserve of India (b) Belt and Road Initative

(c) Belt and Reserve of India (d) None of these

2. Answer the following questions in about 30 words.

(i) State any three merits of roadways.

(ii) Where and why is rail transport the most convenient means of transportation?

(iii) What is the significance of the border roads?

(iv) What is meant by trade? What is the difference between international and local trade?

(v) Why transport and communication network is required?

(vi) Write a note on Golden quadrilateral.

(vii) Write any 4 advantages of water transport.

(viii) Name some leading Airlines of India.

3. Answer the following questions in about 120 words.

(i) Why are the means of transportation and communication called the lifelines of a nation and its economy?

(ii) Write a note on the changing nature of the international trade in the last fifteen years.

(iii) Steps to be taken for the improvement of roads?

(iv) What is belt and road initiative? what are major concerns for India?

(v) Why railways have an edge as transport man in India?

(vi) Classify roads in details.

(vii) Write a detailed note on railways of India?

(viii) 'Pipelines are modren & boller mode of transport.'How?

(ix) Compare the advantage and disadvantages of water transport.

(x) Write notes on:

(a) Cable transport

(b) Air transport in India

(c) Excellence express highways

(d) Himsagar Express

(e) Gati Shakti Scheme


(Economics)

1

ECONOMICS-AN INTRODUCTION

1.1 INTRODUCTION

Dear students, do you know who the richest person of your village or city is ? Yes ! You are right. He is ..... But have you noticed that he is still working on new projects to earn more money ? So, we can say that he still feels shortage of money and thus wants more of it. This is not only the case of that particular richest person of your village or city rather it is the case of each and every individual. Everyone wants to earn more and more money to cater his unlimited wants. Also, everyone wants to know about some rules and regulations which can help one to make proper use of one's money. For the solution of these problems, we need a subject that can provide us with such rules and regulations and that subject is Economics. But before studying these rules and regulations, we have to understand what Economics is all about?

The word "**ECONOMICS**" has been derived from the two Greek words ***"OIKOS and NEMEIN"*** in which ***OIKOS means Household*** and ***NEMEIN means Management***. In this way, Economics means a subject which deals with household management. It incorporates all those methods with the help of which a person can manage the house or the government can manage the nation. But now the question arises what the management of the house or management of the nation means.

As we know that our needs are unlimited, but our resources are limited and these have alternative uses also i.e. we can use these resources in different ways. For example, a ₹100 in your pocket is limited, which can satisfy only a limited want of yours as well as it can be used in other

ways also. So, we have to make a budget for our house and in this budget, we provide a sequence to our wants in accordance to their priority and urgency in which the most urgent need is placed at a higher rank in this list and as the urgency decreases, the want is placed at a lower rank in the list. Similarly, the government also makes budget for the economy because of the same reason as the income of the government is limited and the needs are unlimited. Both these parties i.e. the individuals and the government make this budget in light of some principles which are provided by Economics, so that the house or the country can be managed in a better way.

Economics means household management. It deals with how an individual or the state can use their limited resources, which have alternative uses in an efficient manner in order to maximize the individual or social welfare.

1.2 DEFINITIONS OF ECONOMICS

Economics has a very wide subject matter, so it is not possible to provide a single definition of this subject. So, various economists provide different definitions of this subject taking into consideration its various aspects. These definitions are as under:

1.2.1 Wealth Definition

The first and the systematic definition of economics was given by a famous economist and father of economics **"Adam Smith"** in his famous book ***"An Inquiry into the Nature and Causes of Wealth of Nations"*** in 1776.

According to him, "Economics is an inquiry into the nature and causes of wealth of nations."

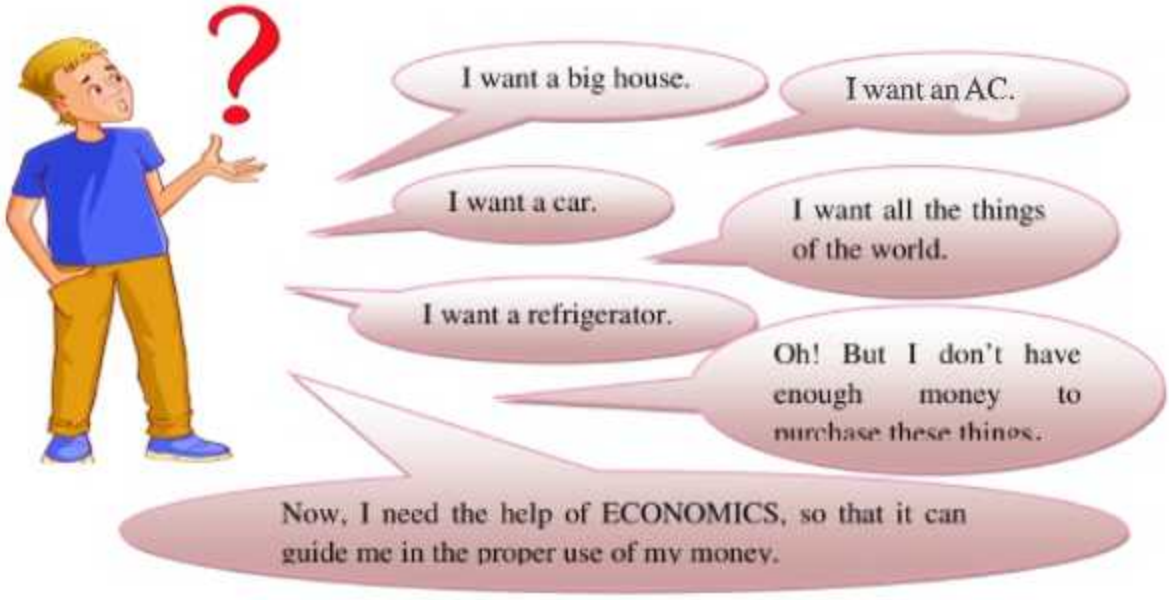
He further explains that the main subject matter of economics is wealth and all the economic activities which are related with wealth. Economics provides us the knowledge about "what is meant by wealth of nations?", "How this wealth can be increased"? "If a country wants to grow and prosper, then how could this wealth be saved and invested?", etc.

1.2.2 Material Welfare Definition

Adam Smith was severely criticized for providing undue importance to wealth in his definition. So, after him, ***Alfred Marshall***, provides material welfare definition of economics in his famous book ***'Principles of Economics'*** in 1890.

According to Marshall, "Economics is a study of mankind in the ordinary business of life. It examines that part of individual and social welfare which is closely connected with the attainment and use of material requisites of well being."

In this definition, he tried to explain economics as a study of all those activities done by a social man (who lives in the society) through which he tries to attain various materialistic goods and consumption of those goods, can maximize his satisfaction or welfare. He further states that welfare can only be attained by the consumption of materialistic goods which have size, weight, colour and shape and which can be touched as well. Regarding, ordinary business of life, Marshall means the activities by which a person earns his income and spends that income on various goods.



So, we can conclude that, Economics is a subject which deals with all those activities of human beings which are related to fulfilment of maximum wants with the help of limited resources which have alternative uses.

Activity

1. List some of your daily needs in which you face the problem of scarcity.
2. Give any one example of unlimited resources and limited wants?
3. What are materialistic goods?

1.3 BRANCHES OF ECONOMICS

Branches of economics are framed on the basis of level of economic activities that you have already studied in the previous class. Level of economic activities means their small or big level. On this basis, there are two branches of economics i.e. Micro Economics and Macro Economics.

1.3.1 Micro Economics

The word Micro has been derived from the Greek word 'MIKROS' which means SMALL. So, Micro Economics studies economic activities at small level i.e. the economic activities of an individual or a household. The subject matter of micro economics includes the theory of demand, theory of supply, theory of production, theory of cost, etc.

1.3.2 Macro Economics

The word Macro has been derived from the Greek word MAKROS which means LARGE. So, Macro Economics studies economic activities at large scale or the level of an economy as a whole. The main subject matter of macro economics is aggregate demand, aggregate supply, aggregate consumption, National income, etc.

Activity Differentiate Micro from Macro Economics

Basis	Micro Economics	Macro Economics
Derivation of Word		
Scope		
Example of subject matter		

1.4 CONCEPTS RELATED TO MACRO ECONOMICS

1.4.1 Consumption: Generally, we consider consumption as eating something. But in Economics, consumption means to use various types of goods and services in our daily life for the direct satisfaction of our wants. Whenever, we use any good or service, it means that we are consuming that good or service and if this happens, some of our wants are fulfilled and we get satisfaction in return. If we are using pen, clothes, note book, bed, bench, fan, etc., then we can say that we are consuming these goods. Similarly, taking tuitions, consultation of a doctor or a lawyer are some of the examples of consuming services. The part of income spent on consumption is known as consumption expenditure. For example, if your father's income is ₹50000 and he spends ₹30000 on satisfying various needs of the family, then this amount of ₹30000 is called consumption expenditure of your father.

Caution

Though it is true that consumption expenditure depends upon income, but it is also true that there is always some minimum level of consumption that doesn't depend upon income. Even if income is zero, we still consume many things. This is called an autonomous consumption. For example, your income as a student is zero, but still you consume many things in a day. This amount of consumption is called an autonomous consumption.

1.4.2 Savings : Every one of us saves a part of our income, so that we can use it for our future safety. Saving is that part of our income which is not spent, but is kept with us. It can be calculated by deducting the amount of consumption expenditure from the level of income.

For example, at the micro level, if Aaradhya's income is ₹50000 and he spends ₹30000 on satisfying his various needs, then this amount of ₹30000 is called his consumption expenditure and rest of the amount of ₹20000 is called his savings.

At the macro level, if national income of a country is ₹5000 crores and out of it the sum of/ amount of ₹3000 crores is spent as consumption expenditure and then the amount of saving will be ₹2000 crores.

Saving= Income – Consumption Expenditure

Saving also depends upon many factors, but the most important factor is an income. There is a direct relationship between income and saving. With an increase in income, there is an increase in saving and vice versa.

1. List some of the goods and services you consumed today.
2. As a student, you are earning nothing. But still you are consuming many things, then how it is possible that you are able to consume these things with your zero income?
3. Prepare a list of how much your father has saved during the last three months?

1.4.3 Investment:

Investment means incrase in the stock of capital in any given time period. Generally, this time period is taken as one year. Stock of capital means the amount of capital goods like machines held by a producer. When there is a change in the stock of these capital goods, it means that the producer has made some expenditure on these and this is called investment expenditure. For example, if a producer has machines worth of ₹5 Lakhs in his factory in the previous year and this year he has machines worth of ₹12 Lakhs, it means that he has done an expenditure of ₹7 Lakh on these machines. So, this expenditure is called investment.

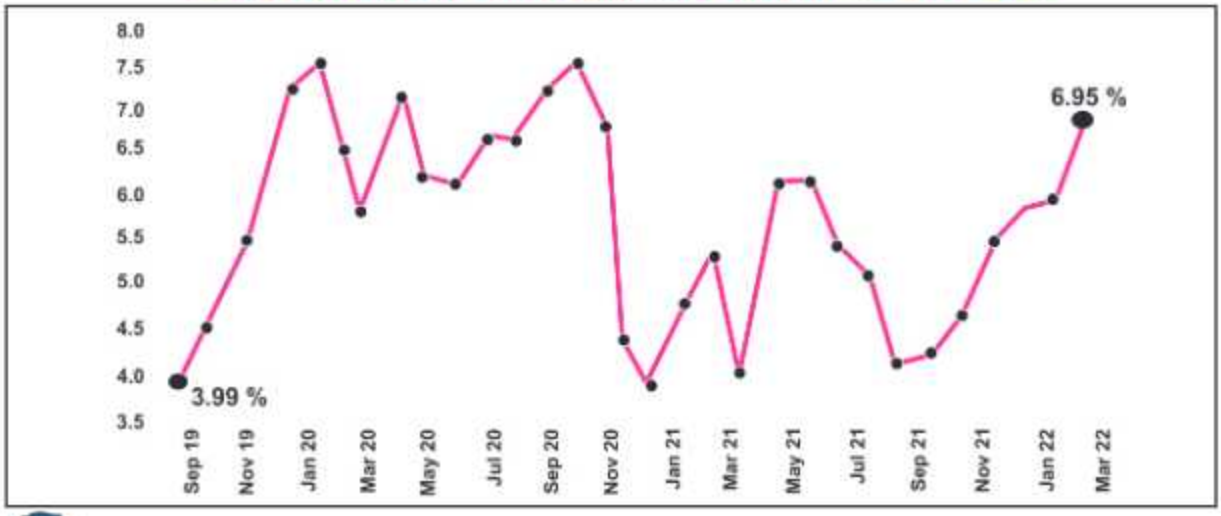
The amount of expenditure on roads, means of transportation, machines, technology, factories, buildings etc. are an example of investment because all these create a change in the stock of capital.

1. Why investment is considered as equal to change in capital stock?
2. Make a list of the investments made in your school during the last year.
3. Have you or your family members made any investment? If Yes, then list some of those avenues.

1.4.4 Inflation

The word inflation has been derived from the word "Inflate" which means to expand. Like, we often inflate a balloon and it expands in its size. But we have to keep one thing in mind that if we really want to inflate the balloon, we have to continuously fill the air in it, otherwise if we fill the air once and then release it, we will not be able to inflate it. Same is the case of inflation in economics. Generally, inflation means rise in prices. but it is not true. If the prices of different goods and services rise at one time and fall at another time, it will not be termed as inflation. But if the price of various goods and services rises continuously for a long period of time, only then it is called an inflation. It is also true that inflation is not always bad for the economy. If price rises to only some extent, it is good for the economy as it stimulates producers to produce more commodities as now they are able to get more price for their product. It is only a high degree of inflation which is bad for the economy.

Graph 1.1 Trends in rate of Inflation in India from 2019 to 2022



Activity

1. List some of the commodities in which you have faced the problem of inflation recently.
2. Is inflation good for the economy? State your views.

1.4.4.1 Types of Inflation

Mainly two types of inflation are accepted, which are as follows :

• **Demand pull inflation :** When aggregate demand in the economy exceeds aggregate supply, then this leads to shortage of goods in the economy. So, the entrepreneurs increase the prices of goods, so that can make more profit.

• **Cost-Puch Inflation :** When the cost of goods produced by producers increases, producers raise the price of the good to maintain their profits.

Measures of Inflation

Inflation is measured with the help of two types of index numbers, which are as follows :

Wholesale Price Index	Retail Price Index
• It is constructed based on the prices prevailing in the wholesale market.	• It is contructed based on prices prevailing in the retail market.
• It includes a certain set of goods. At present 697 items are added to this by the Government of India.	• It includes essential items used by households. It includes ration, clothing, electricity etc.
• It is measured on weekly basis by the Goverment of Inida.	• It is measured on monthly basis by the Goverment of Inida.

1.4.5 Supply of Money

Supply means the total amount of anything which comes to the market by the producer. For

example, a producer sends 100 pens in the market for sale, then this amount of 100 pens is called supply. Similarly, supply of money means the amount of money sent by the producers of money in the market. In India, there are two producers of money i.e. Government of India and Reserve Bank of India. Government of India supplies all coins and ₹1 note and Reserve Bank of India supplies notes from ₹2 onwards. So, supply of money refers to the total stock of money (in the form of currency notes and coins) released by these producers of money and held by the people at a particular point of time. It should be kept in mind that money supply is a stock variable. It is always measured at a particular point of time.

Pic 1.1

Check it

You can check from the coins and ₹ 1 note that on these, "Government of India" or "Bharat" is written and it bears the signature of Finance Secretary. On currency of ₹2 onwards, "Reserve Bank of India" is written and it bears the signature of Governor of Reserve Bank of India. It means that all coins and ₹1 note is supplied by Government of India and all currency notes from ₹ 2 onwards are supplied by RBI.

Concept of Variable

Generally, we assume anything which changes its value as variable. But there are two conditions which are necessary to be fulfilled to call anything as variable. First, that thing changes its value and secondly, it is possible to measure that change. For example, our hair colour, our skin colour, our personality also change, but it is not possible to measure their change, so they can not be called variables, rather they are called attributes. But our height, our weight, our marks in examination change over time and it is also possible to measure these changes, so they are called variables. There are two types of variables in economics; one are stock variables and other are flow variables. Stock variables are those variables which are measured at a particular point of time. For example, if at a particular point of time, there is ₹ 2 lakh in your bank account, then this is called stock. Flow variables are those variables which are measured during a period of time. For example, if between January 1 to January 31 there is an amount of ₹5 lakh in your bank account, then this is called flow.

1.4.6 Government Budget

As we prepare budget for our house because we have limited resources in comparison to our wants; in the same way the government also prepares budget for the national economy because it has limited resources in comparison to its expenditure and because of this reason, the government has to face the problem of scarcity and has to prepare a budget.

A government budget is a financial statement showing item-wise expected receipts and expenditures of the government for the next financial year. It also presents the government's report on its financial performance during the previous financial year, but very little attention is paid to this aspect.

It should be kept in mind that the government budget is not a statement of the actual receipts and actual payments of the government. It is prepared for the next financial year, so it is a statement of the expected receipts and expected expenditure of the government in the next financial year. In India, every year, on the 1st of February, the budget is presented in the parliament by the Finance Minister for discussion and approval.

1.4.6.1 Various Items of Government Expenditure : Government expenditure is primarily done on defence of the country, police, schools, hospitals, roads, electricity, administration, development of various sectors like agriculture, industry, service, social welfare i.e. providing various types of subsidies, pension, scholarships to the students, economic planning, development of infrastructure for the development of urban and rural areas, etc.

1.4.6.2 Various Sources of the income of Government

Government earns its income from various tax and non-tax sources. Tax sources of the government include Goods and Services Tax (GST), Income tax, Excise duty etc. Non-Tax sources of the government include various types of fees, fines, donations etc.

1. What is the difference between a normal year and a financial year? Consult your teacher.
2. List some of the items of the income of the government.
3. List some of the items of government expenditure.
4. Write a note on GST with the help of your teacher.

1.4.7 Deficit Financing

Sometimes the government has to face deficit in its budget. This happens when government expenditure exceeds its income. This is because the government works as a welfare agency and sometimes it has to make expenditure which is far more than its income. In this situation, government has to suffer losses in its budget. In order to overcome this problem, government has to arrange money or finance from some other means, so that it can make its expenditures. These arrangements

of finance to overcome deficit in the budget is called deficit financing. In most of the cases, the government arranges this money by borrowing from RBI which provides this money to the government by printing more currency notes. In this way, RBI helps the government to overcome the problem of deficit in its budget.

A question may arise in your mind that if the government and RBI can print more currency notes in case of deficit budget, then why not the government and RBI print more currency notes and provide these to the people, who don't have money to purchase required things. But printing more currency notes is not good for the economy as it increases the amount of money in the public and they can use this money to purchase more goods and services which will increases the demand in the economy and as a result, price will increase and the economy will have to face the problem of inflation. Moreover, India follows the system of minimum reserve system to print new currency notes which you will study in your next class. So, it is not possible to issue as much coins and notes as are required by the government and the Reserve Bank of India.

1.4.8 Public Finance

Public Finance is made up of two words i.e. Public and Finance. Here Public means 'The Group of People which is represented by the 'Government', so ultimately 'Public' means 'the Government.' The word 'Finance' means the financial resources i.e. the resources related with income and expenditure. So, Public Finance means the financial resources of the government i.e. all the resources related with income and expenditure of the government. It should be kept in mind that here, government means both the state government and the central government. So, in public finance we study income and expenditure related resources of the government.

In the income aspect, we study various sources of income of the government i.e. various tax and non-tax sources and in the expenditure aspect; we study various expenditure items of the government i.e. developmental and non-developmental expenditures of the government, planned and non-planned expenditures of the government etc.

Make a list of various tax and non-tax sources of income of the government.

Sr. No.	Tax Sources	Non-tax Sources
1		
2		
3		

1.4.9 Public Debt

When the government prepares budget for the economy, it at first, makes plan for its expenditure and then for its income. It is the duty of the government to make expenditures on certain items whether any income is received from those items or not in order to prove itself as a welfare agency.

So, there are many chances of loss in the budget of the government. But in case of private budget; a private person first thinks about his income and then after his expenditure. So, there are little chances of loss in private budget.

As we know that the sources of income of the government are limited in relation to its expenditure. Whenever the government has shortage of funds in order to make expenditure on certain essential items, then it has to borrow some funds from others in the form of debt. So, all these types of debt taken by the government from any sources i.e. internal sources (within the country) or external sources (from outside the country) are called Public Debt.

1.4.10 Growth Rate

The major objective of all the policies pursued by the government of any nation is to increase the rate of growth of the economy, so that the standard of living of the people can be raised. So, it is the most important for any country to measure and raise its growth rate.

The growth rate of any country can be defined as a percentage change in its Gross Domestic Product in any particular year as compared to the previous year.

Concept of Gross Domestic Product

Gross domestic product of a country consists of three words namely **Gross** which means **Total**, **Domestic** which means **domestic territory of the country** and **Product** which means **Production**. So, gross domestic product of a country means total production of all final goods and services within the domestic territory of a country in an accounting year.

For example, if the Gross Domestic Product (G.D.P.) of a country is ₹ 100 Crore in the previous year and this year it is ₹ 110 Crore, then the growth rate of the country can be calculated as:

$$\text{Growth Rate} = \frac{\text{GDP of the Current Year} - \text{GDP of the Previous Year}}{\text{GDP of the Previous Year}} \times 100$$

$$\text{Growth Rate} = \frac{₹110 \text{ crore} - ₹100 \text{ crore}}{₹100 \text{ crore}} \times 100$$

$$\text{Growth Rate} = \frac{₹10 \text{ crore}}{₹100 \text{ crore}} \times 100$$

$$\text{Growth Rate} = 10\%$$

1.4.11 Balance of Payment (BoP)

In modern times, every economy is an open economy. An open economy is the one which has its economic transactions with rest of the world in the form of export and import of goods and services and other capital transactions.

Thus, when a country makes economic transactions with rest of the world, it has to maintain an account of these economic transactions and this account is called **Balance of Payment**.

Table 1: Major Items of India's Balance of Payments

(US$ Billion)

	April-June 2021 P			April-June 2020 PR		
	Credit	Debit	Net	Credit	Debit	Net
A. Current Account	180.0	173.5	6.5	122.4	103.3	19.1
1. Goods	97.4	128.1	-30.7	52.2	63.2	-11.0
of which : POL (Petroleum Oil Lubricant)	13.0	31.0	-18.0	4.8	13.2	-8.3
2. Services	56.2	30.4	25.8	47.0	26.2	20.8
3. Primary Income	5.4	13.0	-7.5	5.0	12.7	-7.7
4. Secondary Income	20.9	1.9	19.0	18.2	1.2	17.0
B. Capital Account and Financial Account	155.3	161.4	-6.1	120.2	138.6	-18.5
of which: Change in Reserves (Increase (–)/Decrease (+))	0.0	31.9	-31.9	0.0	19.8	-19.8
C. Errors & Omissions (-) (A+B)		0.4	-0.4		0.6	-0.6

P: Preliminary; PR: Partially Revised

Note: Total of subcomponents may not tally with the aggregate due to rounding off.

Source: RBI, https://www.rbi.org.in/Scripts/BS_PressReleaseDisplay.aspx?prid=44937#T1

Often we misunderstand the meaning of balance of payment as it is the payment which a country has to make in terms of its balance of economic transactions with rest of the world. But here, balance means BALANCE SHEET. Balance Sheet has two sides i.e. Credit Side and Debit Side. In the Debit side, all types of expenses of the government are shown and in the Credit side, all types of income of the government is shown. Payment means not only the payment made by a country, but both payment and receipts of the country because the payments of the one country are the receipts of the another country and vice versa. So, in nutshell, we can say that balance of payment is a systematic record of all the payments and receipts of a country with the rest of the world in a given period of time. Usually, this time period is taken as one year.

1.4.12 Monetary Policy

As the name suggests, Monetary Policy refers to a policy which is related with money in the economy. When we talk about money, there are two aspects of money i.e. the demand for money and supply of money. ***So, any policy which deals with demand and supply of money is called monetary policy.***

Now the question arises how the demand and supply of money can be controlled in the economy. As far as the supply of money is concerned, it is controlled by RBI and the Government of

India. Demand for money depends upon the demand for goods and services in the economy. If there is more demand for goods and services in the economy, there will be more demand for money and vice versa. So, Monetary Policy is that policy by which the central bank and the government of a country control demand and supply of money for the achievement of certain objectives.

1.4.12.1 Instruments of Monetary Policy

The following instruments are used by the Reserve Bank of India to implement its monetary policy :

i. Bank Rate : Bank rate is the rate which the central bank of any country lends to commercial banks.

ii. Cash Reserve Ratio : Commercial bank are required to deposit a certain percentage of their total assets with the Central Bank, this is called the cash reserve ratio.

iii. Statutory Liquidity Ratio : Statutory Liquidity ratio refers to the minimum percentage of the banks' total deposits, which the banks are required to hold in the form of cash or liquid assets as per Central Bank regulations.

iv. Open Market Operations : In open market operations, the Central Bank influences the demand and supply of money in the economy by buying and selling securities held by it.

v. Repo rate : Repo rate refers to the rate at which commercial bank borrow short-term loans from Central Bank by pledging Government Securities to it.

1.4.13 Fiscal Policy

The word Fiscal has been derived from the word 'FISC' which means 'TREASURY'. So, Fiscal policy is related with the treasury of the Government. As we know that the amount in the treasury of the government depends upon two things i.e. income of the government and the expenditure of the government. If income of the government is more and expenditure is less, then there will be more money available in the government treasury and if the income of the government is less and the expenditure is more, then there will be lesser amount available in the government treasury.

In nutshell, the policy related with the income and expenditure of the government is called Fiscal Policy.

- Economics means Household Management. It deals with how an individual or the state can use their limited resources which have alternative uses in an efficient manner in order to maximize the individual or social welfare.
- Micro Economics deals with the study of economic activities at the level of small economic units like an individual, a household, a firm etc.
- Macro Economics deals with the study of various economic activities at the large scale or at the level of an economy as a whole.

- Consumption means to consume various types of goods and services for the direct satisfaction of wants.
- Saving is that part of income which is not spent.
- Investment means change in the stock of capital in any given time period which is generally taken as one year.
- Inflation is defined as a continuous rise in prices of goods and services in the economy for a fairly long period of time.
- Supply of money refers to the total stock of money (in the form of currency notes and coins) held by the people of an economy at a particular point of time.
- A government budget is a financial statement showing item-wise expected receipts and expenditures of the government during a particular financial year.
- Deficit financing is the policy of printing new notes by the RBI in order to provide money to the government to solve the problem of deficit budget.
- Public Finance means the financial resources of the government i.e. all the resources related with income and expenditure.
- Public debt means all the types of debt taken by the government from any sources i.e. internal sources or external sources in order to overcome its financial needs.
- The growth rate is defined as a percentage change in the Gross Domestic Product in the current year as compared to the previous year.
- Balance of Payment is a systematic record of all the payments and receipts of a country with rest of the world in a given period of time.
- Monetary Policy is the policy by which the Central Bank and the Government of a Country control demand and supply of money and all its related aspects.
- Fiscal policy is the policy related with the income and expenditure of the government.

A. Objective Answer Type Questions :

1. Fill in the Blanks

(i) The word Economics has been taken from ..... language.

(ii) The Greek language word for Micro economics is ..... .

(iii) Consumption is related to ..... various goods and services.

(iv) The word Inflation has been taken from ..... word.

(v) The government budget is presented every year in the parliament on ..... .

(vi) Fiscal Policy is the policy related with ..... and ..... of the Government.

2. Multiple Choice Questions

(i) Wealth Definition of Economics was given by:

(a) Alfred Marshall (b) Adam Smith

(c) A.C.Pigou (d) Samuelson

(ii) Material welfare Definition of Economics was given by:

(a) Alfred Marshall (b) Adam Smith

(c) A.C.Pigou (d) Samuelson

(iii) What are the various sources of Public Debt?

(a) Internal Sources (b) External Sources

(c) Both a and b (d) None of These

(iv) Balance of Payment is related with :

(a) Open Economy (b) Closed Economy

(c) Private Economy (d) Free Economy

(v) Monetary policy of the Government deals with:

(a) Income of the government (b) Expenditure of the government

(c) Demand and Supply of Money (d) Balance of Payment

3. True/False Type Questions

(i) Micro Economics deals with the study of the whole economy. (True/False)

(ii) The word Macro Economics is taken from the Greek word MACROS. (True/False)

(iii) Supply of Money is a stock variable. (True/False)

(iv) Deficit financing is the process of printing new currency notes by the Government. (True/False)

(v) Saving is that part of income which is not spent. (True/False)

4. Very Short Answer Type Questions

Answer to these questions should be given in one word or in one sentence.

(i) What do you mean by Economics?

(ii) What do you mean by scarcity?

(iii) What do you mean by Micro Economics?

(iv) What do you mean by Macro Economics?

(v) What is consumption?

(vi) Who is a consumer?

(vii) What is an investment?

(viii) What is meant by saving?

(ix) Define Inflation.

(x) Define Money supply.

(xi) Define government budget.

(xii) List some of the items of government's income.

(xiii) List some of the items of government's expenditure.

(xiv) What do you mean by deficit financing?

(xv) What do you mean by public finance?

(xvi) What is public debt?

(xvii) What do you mean by growth rate?

(xviii) What do you mean by Balance of Payment?

(xix) What is monetary policy?

(xx) What do you mean by Fiscal policy of the government?

B. Short Answer Type Questions :

Answer of these questions should be given between 50-60 words.

1. Discuss wealth definition of Economics.
2. Discuss material welfare definition of Economics.
3. What is the difference between Micro Economics and Macro Economics?
4. What do you mean by the government budget? State various sources of income and expenditure of the government.
5. What do you mean by public finance? List the various items included in public finance?
6. What is meant by growth rate? How it can be measured?
7. What do you mean by Public debt? Discuss its various sources.

2

DEVELOPMENT AND ITS MEASUREMENT

2.1 INTRODUCTION

Dear students, as we know that change is the law of nature as every one of us wants change in our life, so that we can become better than befores in life and develop overselves . Our development depends upon the fulfilment of our desires in life. When we look around, we find that we all have desires in life about what we want to do and how we want to live. For example:

- A rickshaw puller who lives in a slum and drives a rented rickshaw disires desire to have a rickshaw of his own and a small place where he can live peacefully.
- A Landless labourer desires for more days of work and better wages to provide quality education to his children.
- A farmer from Punjab wants the government to set a good price for his crops so that he can get more income and he will be able to settle his children abroad.
- An urban educated unemployed youth desires to find a good job to earn his livelihood.
- A girl from a rural family desires to pursue her education and have freedom just like her brother.

Similarly we have ideas about what a country should be like i.e. how it can be better than what it is in present or can life be better for all? So, development involves thinking about these questions and about the ways in which we can work towards achieving these goals.

2.2 DIFFERENT DEVELOPMENTAL GOALS

Different people have different desires for their development or progress in life as we have seen in the examples given before. They seek different things that are most important to them. They seek those things which can fulfil their desires. At times, two persons or groups of persons may seek things which are conflicting in nature. For example:

- A Builder would like to build a shopping mall adjacent to a religious place, but devotees who visit that religious place daily may not like it as it would harm their peace of mind.
- Again, a colonizer would like to seek more land where he can build houses and multi-storeyed flats. But the farmers whose lands may be acquired for such projects would resist the development of such colonies as that would deprive them of their age-old source of living.

So, we see that different persons can have different developmental goals and what may be development for one may not be development for the other. It may even be destructive for the others.

Discuss

1. What are your goals for the development of your family?
2. Give more examples explaining that development goals can be conflicting.
3. What can be the developmental goals of a boy or a girl belong to a rich urban family?

2.3 DEVELOPMENTAL GOALS AND INCOME

In the examples that we have read, earlier we notice that people desire for regular work, better wages and decent prices for their crops or products. Though developmental goals may be different for different groups of people, one thing common to all is that they want more income. ***Thus income is the most important component of development.***

Money or material things that one can buy with it, is one factor on which our life depends. Besides this, quality of our life also depends upon non-material factors such as equal freedom and treatment, security and respect for all etc. People also seek absence of discrimination, peace, employment, pollution free environment and good health.

So, development means more income, greater security, better education, better health facilities, better conditions of work etc.

Some components of development, like money and income are measureable while some other components cannot be measured even though they mean a lot to our lives and cannot be ignored. Let's Consider an another example. Before accepting a job at a far off place, you will consider many factors apart from your income. These factors may include facilities available to your family, working conditions, distance of the work place from your living place etc. Many people prefer jobs with low salary and better quality of life, job security than a job offering high salary with no job security and time for their family.

So, we see that different people have different notions of development because the life situations of the people are not similar.

Activity

1. People have different development goals. Give examples.
2. Give some examples that show that the factors other than income are more important to our lives.

2.4 NATIONAL DEVELOPMENT

Now, just look around yourself. Have you noticed poverty, unemployment, starvation, illiteracy, low standard of living of people etc.? If Yes! then you can't call your country a developed one. But, if there are good transportation facilities, high standard of living of people, full employment, and good educational and health facilities etc. then you can call your country a developed one. But all these facilities can't be achieved overnight rather it is a long term process in which a country has to work for years in order to achieve the above mentioned goals and this is the reason that development is considered as a long term process.

Development is not a new concept. Its origin is about 200 years back. But this concept gained popularity just 100 years back. The great depression of 1929-32 and the Second World War caused a great loss to all the countries of the world and there became a big issue in front of them to regain their standards. This condition attracted the attention of the economists towards the issue of development. In the initial years, the major development goal was to eradicate poverty and backwardness. But at present, it has become a multidimensional phenomenon.

Sometimes, economic development is considered as increase in the gross domestic product of a nation for a long period of time. For example, if the GDP of a country rises at a very high rate, then the country is said to be economically developed. But increase in GDP is just one of the aspects of economic development. It doesn't show complete economic development in itself. For example, if a country is very rich in terms of income, but there are disparities in the distribution of income and most of its people are living a very miserable life, then the country cannot be termed as developed. So, a country can be called developed only when there is a consistent rise in its GDP along with an improvement in the quality of the life of all the people of the country, so that the benefits of development can be enjoyed by all.

Economic Development

Economic development can be defined as a long term process in which there is a continuous rise in gross domestic product of a country along with a change in the quality of life of its people.

Concept of Gross Domestic Product

Gross domestic product of a country consists of three words namely **Gross** which means **Total**, **Domestic** which means **Domestic Territory of the country** and **Product** which means **Production**. So, gross domestic product of a country means total production of various final goods and services within the domestic territory of a country in an accounting year.

1. Write a note on the depression of 1929-32 with the help of your teacher.
2. How things other than GDP are important for us in order to be called developed?
3. Why development is considered as a process?
4. Why it is said that development is a long term phenomenon?

2.5 ECONOMIC DEVELOPMENT SHOULD NOT BE CONFUSED WITH ECONOMIC GROWTH

Sometimes, economic growth and economic development are used interchangeably. But these concepts are quite different from each other. Economic growth means only quantitative changes in the country i.e. only more goods and services are being produced in the country. But Economic development includes both quantitative and qualitative aspects in which qualitative aspects includes change in social, moral, religious, political structures of the country etc. As we know that in the developed countries all types of qualitative changes have already been taken place and there is only one possibility left i.e. to increase their GDP. So, the concept of economic growth is used for developed nations. But in developing and under developed nations, there is still a possibility of change in their social, political, religious and moral areas along with an increase in their GDP. So, the word economic development is used for under developed and developing countries.

2.5.1 Difference between Economic Growth and Economic Development

Some notable differences between Economic Growth and Economic Development are :

Sr. No.	Economic Growth	Economic Development
1	It is single dimensional.	It is multidimensional.
2	It includes only quantitative changes in a country	It includes quantitative and qualitative changes in a country.
3	This concept is used for developed nations.	This concept is used for under developed and developing nations.
4	There is a possibility of economic growth without economic development.	Some level of economic growth is essential for economic development as we know that if we want to bring qualitative changes in the country, then we must have some money i.e. economic growth.

1. Prove that economic growth is a part of economic development.
2. How Economic growth is necessary for economic development?
3. Can there be economic development without economic growth?
4. Comment on the Topic 'India-Towards Economic Growth or Economic Development' with the help of your teacher.

2.6 SUSTAINABLE DEVELOPMENT

Today the issue of environmental protection has been gaining so much popularity. This is because we are at the edge of environmental degradation. In the lust of increasing our GDP and to call ourselves developed; whatever policies are adopted by us ultimately results in environmental degradation. We have polluted our environment up to that extent from where it is not possible to repair the damage. In nutshell, we can say that we have ruined our future as well as the future of our next generations.

It is a moral duty of the present generation to provide a better and healthy environment to the future generations. But, what we have left for our future generations : It is polluted air, polluted water, polluted land and an earth which is empty in terms of natural resources. We have done this for our betterment, our future, our standard of living etc. But we completely forget about its impact on our future generations.

The result is in front of us. Today we are facing the problems of air pollution, smog, water deficiency, water pollution, climate change, deficiency of coal and petroleum products etc. As we know that in 2017, in Punjab, the problem of SMOG became so grave that the government had to shut down all the schools and colleges and in New Delhi the ODD-EVEN system had to be introduced. This is the reaction of the nature towards our exploitative policies.

So, nowadays, the matter is not of development, but is to maintain the pace of the development, so that the benefits will be more appropriate here of development are not only enjoyed by the present generation, but by the future generations as well. It shifts the attention of the economists from development to sustainable development. A developmental policy that makes development a long term phenomenon in which not only the present generation, but the future generations also enjoys the benefits of development is called sustainable development.

Sustainable Development

The word Sustainable Development was first of all used by the 'World Conservation Strategy' presented by the 'International Union for the Conservation of Nature and Natural Resources' in 1980. Sustainable development is that process which takes care the needs of the present and future generations along with the protection of environment i.e. by not deteriorating the quantity and quality of environmental resources.

2.6.1 Need for Sustainable Development

There is a dire need of sustainable development among society in order to :

- Save the environment from degradation.
- Maintain biodiversity i.e. to maintain the diversity among living creatures.
- Maintain quality of life of the present and the future generations.
- Save ourselves and the future generations from the ill effects of climate change.
- Remove the inequalities in the distribution of resources.

2.6.2 Difference between Economic Growth and Sustainable Development

The difference between the two concepts is clear from the given picture. On one side, there is a heavy industrialization leading to environmental degradation by polluting it. No doubt, it leads to high level of income and production in a country, but at the same time, it leads to deteriorating the quality of life of the present and future generation. On the other hand, there is greenery and clean environment which helps to make the quality of life of the people much better. This is called sustainable development. It is true that economic growth is essential for a country, but if we don't have a clean environment to live, clean air, pure water etc. then what the benefit of this economic growth is. So, now we have to focus on sustainable development to make our life better than before.

Pic 2.1

Activity

1. Is India fulfilling the essentials of Sustainable Development? Comment.
2. Suggest some of the strategies essential for Sustainable Development.
3. Are the developed nations are causing more harm to the environment or the underdeveloped nations? Comment.
4. Watch 'Seechewal Development Model' video from YouTube. Video link: https://www.youtube.com/watch?v=29XNCfwidMI

2.7 MEASUREMENT OF ECONOMIC DEVELOPMENT

Some of the main criterions provided by the economists to measure economic development are given as:

2.7.1 Measurement on the basis of National Income

Many economists hold the view that the criteria to measure economic development should be national income of a country. The more national income means the higher level of economic development and vice versa. It is because the country with high national income can spend more money and thus can attain higher levels of economic development and vice versa. But, it should be kept in mind that the increase in national income should be for a long period of time because development is a long term phenomenon and if the national income rises for a long time, only then it is possible to plan various developmental policies and to implement them in order to ensure economic development.

But the composition of production should also be taken into consideration i.e. what is being produced by a country? For example, if a country is successful in increasing its national income by producing more of war goods or produced goods with the help of machines and the level of employment and standard of living of people are not increased or the increased income is concentrated in the hands of a few, then it will not be called development.

2.7.2 Measurement on the basis of Per Capita Income

If, we closely analyse the process of economic development, we can say that its real meaning is to increase the standard of living of the people of a country. The standard of living depends upon the amount of goods and services purchased by the people which ultimately depends upon their per capita income. Per capita income means per person's average income. It can be calculated by dividing the National Income with the Population of the country.

$$\textbf{Per Capita Income} = \frac{\textbf{National Income}}{\textbf{Population}}$$

So, if there is a long term increase in the per capita income of a country, then we can say that the country is successful in making its economic development possible.

More per capita income means that we can purchase more goods and services and thus can have more facilities and more facilities means high standard of living. This can be called development as the people can enjoy more benefits.

But it should be kept in mind that per capita income is only an average income and it doesn't mean that every citizen of a nation is getting an income equal to it. So. if there are income inequalities, then it will not be called development. For example, if the national income of India is ₹ 1000 and the population of India is 100, then per capita income will be equal to:

$$\textbf{Per Capita Income} = \frac{₹1000}{100} = ₹\ 10$$

But it doesn't mean that every Indian gets an amount equal to ₹ 10. It is just an average. If the rich people are getting a major part of this income and the poor are getting a little, then it will not be termed as development.

2.7.3 Measurement on the basis of Infant Mortality Rate

Infant mortality rate is a social indicator of economic development as its shows how good the social infrastructure is especially the health infrastructure of a country. It refers to the number of deaths of infants below the age of one year per 1000 live births. The infant mortality rate of the world in 2022 was 27.695 according to United Nations Report. The countries with Infant mortality rate above this standard can be termed as underdeveloped and countries with Infant mortality rate below this standard can be termed as developed one.

As we know that in developed economies. the level of health facilities is very advanced. As a result, the infants are given proper care and infant mortality rate is very low. But on the other hand, in under developed countries, the situation is totally reverse. Due to the lack of proper health

facilities, their unequal distribution, lack of awareness among the masses and lack of government initiatives, this rate is very high. This is the reason that these counties are not able to take proper care of their infants. So, on the basis of this rate, we can judge the level of economic development of a country.

Infant Mortality Rate and Child Mortality Rate are Two Different Concepts.

Infant mortality rate refers to the number of deaths of infants below the age of one year per 1000 live births. Whereas Child mortality rate refers to the number of deaths of child below the age of 4 years per 1000 live births.

Activity

1. Why is it important to include social indicators along with economic indicators?
2. Comment on the pattern of infant mortality rate in rural and urban India with the help of your teacher.

2.7.4 Measurement on the basis of Sex Ratio

Sex ratio is also a social indicator of economic development. It refers to the number of females per thousand males. Generally, in underdeveloped countries, this ratio is found to be very low as the status of women in these countries is miserable. This is due to illiteracy, narrow thinking and lack of awareness among the people. Due to these reasons, these people prefer a male child. So, the sex ratio is found to be against the females. While in developed countries, this ratio is very high. So, this criterion can also be used as an indicator of economic development of any country.

For instance, according to the Census 2011, India's sex ratio is 943 female per thousand males. On the other hand, the sex ratio of USA is 1050 females per thousand males at the same time. So we can say that in India, sex ratio is biased against female as India is short of 57 females against 1000 male population. So, India needs to improve its sex ratio to be called as a developed nation.

Activity

1. Why sex ratio is found to be biased against female in India?
2. Comment on the trends of sex ratio in rural and urban India.
3. Is it true that sex ratio is improving in India in the past few years?

2.7.5 Measurement on the Basis of Standard of Living

Some economists believe that the ultimate goal of the process of economic development is to raise the standard of living of the people. So, this measure can also be used as an indicator of economic development. Accordingly, if the standard of living of majority of the people of the country is high and they are enjoying the most of the facilities of life, then the country is said to be economically developed. It is a fact that in underdeveloped countries, the standard of living of majority of the people is very low and they are able to enjoy only a few facilities of life. So, based upon this indicator, the level of economic development of a country can be assessed.

1. Differentiate among the national income, per capita income and standard of living criterion which are the measurement tools of economic development.
2. Write a note on the relative change in the standard of living of Punjabis in the recent past with the help of your class teacher.

2.8 MODERN MEASURES OF ECONOMIC DEVELOPMENT

As we have seen that the traditional methods for the measurement of economic development are not satisfactory in nature as they concentrate upon only one aspect of economic development. So, keeping this in mind, many modern measures of economic development are designed by various economists which incorporates more indicators of economic development. Two such measures are explained as below:

2.8.1 Physical Quality of Life Index (PQLI)

This measure of economic development was designed by Morris D. Morris in 1979. He argued that the earlier measures of economic development include only economic measures. So, there is a need to incorporate the social measures as well. So, he included life expectancy indicator, infant mortality rate indicator and basic literacy indicator in PQLI. He provided every indicator, a rank between 0 to 100 in which 0 shows the worst performance and 100 shows the best performance on that selected indicator. After that a simple arithmetic mean of these ranks was calculated and value of PQLI is calculated. The basic information of the indicators included in PQLI is given below:

(A) **Life Expectancy Indicator:** It refers to the average life of the people of that country i.e. up to what year of age their life sustains. This indicator has a positive relationship with the level of development of the country. The higher life expectancy of the people; the better will be the value of PQLI and vice versa.

(B) **Infant Mortality Indicator:** It refers to the death of the infants of below the age of one year per 1000 live births. This indicator has a negative relationship with the level of development of a country. The higher the infant mortality rate; the lower will be the value of PQLI and vice versa.

(C) **Basic Literacy Rate :** It refers to the number of literate persons per 100 persons. It is always measured in percentage. This has a positive relationship with the development of a country. The higher the basic literacy rate; the higher will be the value of PQLI and vice versa.

Calculation of PQLI

After the calculation of these three indicators separately on a rank of 0 to 100, their simple arithmetic mean is calculated in order to get the value of PQLI:

$$\text{PQLI} = \frac{\text{Rank on LEI} + \text{Rank on IMI} + \text{Rank on BLI}}{3}$$

PQLI = Physical quality of life index

LEI = Life Expectancy Indicator

IMI = Infant mortality indicator

BLI = Basic literacy indicator

It should be noted that the welfare of the people is directly related to the value of PQLI. Higher value of PQLI is an indicator of higher level of welfare of the people and vice versa.

2.8.2 Human Development Index (HDI)

Human Development index is an another measure of economic development which is considered as an improvement over PQLI. The major improvement is that this measure takes into account not only the non-income measures of economic development, but the income based measures also. This measure of economic development was designed and prepared by United Nations Development Programme in the year 1990. This measure works between 0-1 scale in which 0 shows the worst performance and 1 shows the best performance of a country on that particular indicator.

Indicators of HDI

HDI includes the following three indicators of economic development:

(A) **Longevity of Life Expectancy Indicator (LEI):** It means life expectancy at birth. It refers to the number of years a newly born baby is expected to live. This indicator has a positive relation with HDI value as the higher longevity of life; the better will be the value of HDI of that country and the higher will be the level of economic development of that country and vice versa.

(B) **Educational Attainment Index (EAI):** It means the status of education of the people of a country. This measure also has a positive relation with HDI value as the higher educational attainment implies the better value of HDI of that country and the higher will be the economic development of that country and vice versa. This indicator includes two variables:

(a) **Adult Literacy Rate:** It refers to the literacy rate of the people of age 15 and above. Here, literacy means the ability to understand, read and write. So, if a person is able to write one's name in the form of a signature, but is not able to read and write simple sentences, then that person will not be called a literate.

(b) **Gross Enrolment Ratio:** It refers to the total number of students enrolled at different levels of education i.e. primary, secondary and tertiary out of the total child population. Here, Primary education means education up to 5th class, secondary education means education up to 10th class and tertiary education means education of college and university level.

In order to calculate gross enrolment ratio, the number of students enrolled up to these three levels are calculated and added and then divided by the total child population of that country.

$$\text{Gross Enrolment Ratio} = \frac{\text{No. of students enrolled at each level of Education}}{\text{Total Child Population of the Country}} \times 100$$

For example, if the total number of students enrolled at each level of education in a country is 20 crore and the total child population is 40 crore, then Gross Enrolment ratio will be:

$$\text{Gross Enrolment Ratio} = \frac{\text{20 Crore}}{\text{40 Crore}} \times 100 = 50\ \%$$

This measure has a positive relationship with the HDI value of the country. The higher level of educational attainment of a country, the better will be the value of HDI of that country.

(C) **Real Per Capita GDP**: It refers to the goods and services which the people can purchase with their money income. It is because the standard of living of the people doesn't depend upon the money income they have, but on what amount of goods and services this money income can purchase for them. For example, if a person has ₹ 100 as money income with him and the price of any good is ₹ 5, then his purchasing power or real income will be 20. If we want to calculate the real per capita GDP of a country, then we have to divide its Real GDP with its total population, so that real per capita GDP of a person can be calculated. So, we can say that

$$\text{Real Per Capita GDP} = \frac{\text{Real Gross Domestic Product of a Country}}{\text{Total Population}}$$

Construction of HDI

After the calculation of these three individual indicators on a rank of 0 to 1, a simple average of these three indicators will be calculated in the following way:

$$\text{HDI} = \frac{\text{LEI} + \text{EAI} + \text{RPC GDP}}{3}$$

HDI = Human Development Index
LEI = Life Expectancy Indicator
EAI = Educational Attainment Indicator
RPC GDP = Real Per Capita Gross Domestic Product

For example, if LEI of a country is 0.58, EAI is 0.68 and RPC GDP is 0.52, then its HDI is:

$$\text{HDI} = \frac{\text{LEI} + \text{EAI} + \text{RPC GDP}}{3}$$

$$= \frac{0.58 + 0.68 + 0.52}{3}$$

$$= 0.593$$

It should be noted that the welfare of the people is directly related to the value of HDI. The higher value of HDI is an indicator of the higher level of welfare of the people and vice versa. HDI rank of India in 2021 was 132.

2.9 COMPARATIVE STUDY OF THE DEVELOPMENTAL EXPERIENCES OF KERALA, PUNJAB AND BIHAR

As we know that India is a country of diversity and these diversities are found not only at economic basis, but at social, political, religious and on several other grounds. In the following

section, a comparative analysis of the three selected states of India namely Kerala, Punjab and Bihar is provided. This comparison is done by considering various indicators of economic development in order to make it more comprehensive in nature.

Table 2.1 : Comparative analysis of Kerala, Punjab and Bihar on income and non-income based indicators.

Indicator	State		
	Kerala	Punjab	Bihar
Income Based Indicators of Development			
Per Capita Income	50146	44769	12090
BPL Population	7.05%	8.26%	33.74%
Non-Income Based Indicators of Development			
Sex Ratio	1084	895	918
Infant Mortality Rate	12	30	44
Maternal Mortality Rate	66	155	219
Literacy Rate	94.00%	75.84%	61.80%

Source: Census of India, 2011.

We compared the development level of the three selected states of India on the basis of two types of indicators out of which one are income based and other are non-income based. These are as follows :

2.9.1 Income Based Indicators :

In the income based indicators, we include two types of indicators, which are Per capita income and BPL population. On the basis of these two indicators the comparison of these three states is as under:

2.9.1.1 Per Capita Income : Per capita income refers to per person availability of average income. It can be calculated by dividing total national income with the total population of the country. It is an indicator of standard of living of the people. If this income is more, then the standard of living of the people will be high and vice versa. On the basis of this indicator, we can conclude that the per capita income of Kerala and Punjab is much more than Bihar which shows the superiority of these two states over Bihar.

2.9.1.2 BPL Population : It refers to that part of the population which is not able to meet their basic necessities of life and live under abject poverty. In India, poverty line is measured in terms of monthly per capita consumption expenditure. According to the census of 2011, 21.9% population of India is living below poverty line. On the basis of this line, the BPL population of Kerala and Punjab is much less than Bihar. In Bihar, 33.74% population is BPL in comparison to 7.05% in Kerala and 8.26% in Punjab.

2.9.2 Non-Income Based Indicators :

In the non-income based indicators, we analyse several social indicators of development and compare the status of development of these three states as:

2.9.2.1 Sex Ratio :

It refers to the number of female per thousand of male population. In this aspect Kerala is much ahead of Bihar and Punjab as in this state the sex ratio is in favour of female as there are 1084 female per 1000 of male. In Bihar and Punjab, this ratio is against the female and in Punjab there are only 895 females per 1000 male population while in Bihar it is 918 females per 1000 male population.

2.9.2.2 Infant Mortality Rate :

It refers to the number of deaths of infants of below the age of one year per 1000 live births. In Kerala, this rate is only 12, while in Punjab, it is 30 and in Bihar, it is 44. The data shows the advanced level of health care facilities in Kerala while it is not as good in Punjab and Bihar.

2.9.2.3 Maternal Mortality Rate :

It refers to the number of deaths of mothers while giving birth to the child per 1,00.000 females giving birth to the child. In Kerala, this rate is only 66, while in Punjab, it is 155 and in Bihar, it is 219. The data shows the level of health care facilities provided to mothers while giving birth to the child in the hospitals in these three states and these facilities are very good in Kerala and are not as good in Punjab and Bihar.

2.9.2.4 Literacy Ratio :

It refers to the percentage of population who can understand. read or write. It is an indicator of the level of educational attainment of an area. In Kerala, this rate is 94.00%, in Punjab, it is 75.84% while in Bihar, it is 61.80%. From this rate, we can compare the level of educational achievement of these three states that Kerala is much advanced in providing educational facilities to its masses as compared to Punjab and Bihar.

In the end, it can be concluded that Kerala is performing much better than Punjab and Bihar on all the selected indicators and due to this reason we can term Kerala as a relatively developed Indian state. Punjab is at the midst of the level of development and this is the reason that it can be termed as a developing state and Bihar is far lagging behind on these indicators and that is why it is not as relatively developed as Kerala and Punjab.

1. Select some other states of India and compare them on the above mentioned indicators.
2. Can there be some other indicators of development? If yes, then compare these three states on those indicators and evaluate the results?
3. What are the various reasons behind this discrepancy in the level of development of these three states?

- Economic Development can be defined as a long term process in which there is continues and persistent rise in Gross Domestic Product of a country as well as a change in their quality of life.

- Sustainable Development is that process which takes care the needs of the present and future generations in lieu of environmental protection.
- Per capita income means per person's average income. It can be calculated by dividing the National Income with the Population of the country.
- Infant Mortality Rate refers to the number of deaths of infants below the age of one year per 1000 live births.
- Maternal Mortality Rate refers to the number of deaths of mothers while giving birth to the child per 100,000 females giving birth to the child.
- Sex Ratio refers to the number of females per thousand of male population.
- PQLI includes life expectancy indicator, infant mortality rate indicator and basic literacy indicator as social indicators of development.
- HDI includes longevity of life expectancy indicator, educational attainment index and real per capita GDP for the measurement of economic development.
- BPL Population refers to that part of the population which is not able to meet their basic necessities of life and live under abject poverty.

A. Objective Answer Type Questions :

1. Fill in the Blanks

(i) The concept of sustainable development was first of all given in the year ..... .

(ii) For economic development, national income should be increased for a ..... time.

(iii) Per capita income means.....income of a person.

(iv) Infant Mortality rate of India, according to the census of 2011, is ..... .

(v) Sex ratio in India, according to the census of 2011, is ..... .

(vi) Literacy rate in India, according to the census of 2011, is ..... .

(vii) PQLI was designed by ..... .

(viii) PQLI used ..... indicators of economic development.

(ix) HDI was designed by ..... .

(x) HDI used ..... indicators of economic development.

2. Multiple Choice Questions

(i) Economic Development Includes:

(a) Quantitative Changes (b) Qualitative Changes

(c) Both a and b (d) Standard of Living

(ii) Infant mortality rate is the number of deaths of infants of below the age of:

(a) One Year (b) Two year

(c) Three Years (d) Four years

(iii) PQLI was designed by:

(a) Morris D. Morris (b) UNDP

(c) UNO (d) UNICEF

(iv) What is the HDI rank of India in 2021?

(a) 129 (b) 130

(c) 131 (d) 132

(v) What is the BPL population of Kerala?

(a) 6.05% (b) 7.00%

(c) 7.05% (d) 8.26%

(vi) What percentage of India's population lives under BPL according to 2011 cencus ?

(a) 20.9% (b) 21.9%

(c) 22.9% (d) 23.9%

(vii) Maternal mortality rate is measured as the number of deaths of mothers while giving birth to ..... number of child.

(a) 1000 (b) 10000

(c) 100000 (d) 1000000

3. True/False Type Questions

(i) Economic development is a continuous process. (True/False)

(ii) Economic growth and Economic Development are identical terms. (True/False)

(iii) Gross Domestic Product is a good indicator of Economic Development. (True/False)

(iv) The word Sustainable Development was first of all used by the World Conservation Strategy. (True/False)

(v) Per Capita Income is the average income of all the residents of an economy. (True/False)

(vi) PQLI was designed by United Nations Development Programme. (True/False)

(vii) HDI includes only income based indicators of economic development. (True/False)

(viii) Punjab is performing well on BPL population as compared to Bihar. (True/False)

(ix) In Bihar, sex ratio is in the favour of females. (True/False)

(x) Kerala is performing well on literacy ratio as compared to Punjab and Bihar. (True/False)

4. Very Short Answer Type Questions

Answer to these questions should be given in one word or in one sentence.

(i) What do you mean by Economic Development?

(ii) What do you mean by Economic Growth?

(iii) What is meant by sustainable development?

(iv) What do you mean by National Income?

(v) What do you mean by Per Capita Income?

(vi) What is infant mortality rate?

(vii) What do you mean by sex ratio?

(viii) What do you mean by the standard of living of the people?

(ix) Expand PQLI.

(x) What do you mean by life expectancy?

(xi) What is meant by literacy rate?

(xii) Expand HDI.

(xiii) Define poverty line.

(xiv) How poverty line is determined in India?

(xv) According to the census of 2011, what percentage of Indian population is living below poverty line?

(xvi) What standards of poverty line are fixed for rural and urban areas of India?

(xvii) On the basis of per capita income and BPL population, which Indian state out of Kerala, Punjab and Bihar has the superiority?

(xviii) On the basis of sex ratio and literacy ratio, which Indian state out of Kerala, Punjab and Bihar has the superiority?

(xix) On the basis of infant mortality rate, which Indian state out of Kerala, Punjab and Bihar has the superiority?

(xx) On the basis of maternal mortality rate, which Indian state out of Kerala, Punjab and Bihar has the superiority?

B. Short Answer Type Questions :

Answer of these questions should be given between 50-60 words.

1. Differentiate between Economic Development and Economic Growth.
2. What do you mean by sustainable development? Why is it necessary?
3. Write a note on the need for sustainable development.

4. How can we measure the level of economic development by using national income indicator?
5. How can we measure the level of economic development by using per capita income indicator?
6. How can we measure the level of economic development by infant mortality rate indicator?
7. How can we measure the level of economic development by sex ratio indicator?
8. How can we measure the level of economic development by standard of living criterion?
9. What do you mean by PQLI? Explain various indicators used by this measure for the evaluation of economic development.
10. What do you mean by HDI? Explain various indicators used by this measure for the evaluation of economic development.
11. Write a note on Gross Enrollment Ratio. Also write down its components.
12. Compare Kerala, Punjab and Bihar on income-based indicators of economic development.
13. Compare Kerala, Punjab and Bihar on non- income-based indicators of economic development.

3

MONEY AND FINANCIAL SYSTEM

3.1 INTRODUCTION

Money is regarded as one of the three great inventions (fire, wheel and money) of mankind. All modern economies are using money/currency in which goods and services are exchanged with the use of money. Looking around us, we could easily be able to identify various transactions involving money in our daily life. In this chapter, we will discuss about the Barter System of Exchange and the difficulties which lead to the evolution of money. In addition to this, we will also study the different forms of money, the working of modern banking and financial system etc.

3.2 BARTER SYSTEM OF EXCHANGE

Barter system was that system in which goods were exchanged for goods. When the needs of the people for goods and services were limited in the society, they easily used to exchange their **goods and services with each other.** In the ancient times, when a cobbler made shoes and wanted to exchange his shoes for wheat grown by a farmer, then he had to search a farmer who wanted to exchange his wheat with the cobbler's shoes. This means that both the cobbler and the farmer are agreed to sell and buy each other's commodities. Similarly, a farm worker got food grain as a reward for his labour and a black smith was also paid in the form of grain for making agricultural tools. This system was also called C-C System means Commodity for Commodity system.

3.2.1 Demerits of Barter System

When the needs of the people increased, it became difficult for them to exchange their goods with goods with other people and thus this system of exchange did not prevail for too long. The major limitations of barter system are explained as follows:

i. Barter system demands double coincidence of wants. **Double coincidence of wants means what a person wants to sell is exactly what the other wishes to buy and what the second person wants to sell, the first person wants to buy.** For example, if a person has wheat and he wants rice in return of wheat, then he has to find a person who has rice and who wants wheat in return for his rice. But it was very difficult to find such person. For example, a weaver wants to exchange cloth in exchange of wheat. But the farmer wants to exchange his wheat for shoes and at the same time, the shoe maker wants to exchange his shoes for cow. Then how can anyone satisfy each other's wants? In such situation barter system got failed.

ii. Apart from this, one person had to wait for so long in order to find the other person who was ready to purchase his product in return for what was needed by him. Sometimes, this involved a long time. So, a person had to face inconvenience in this exchange.

iii. It was not possible to store goods for a long time as they can be depreciated with the passage of time.

iv. Transportation of goods involves a lot of difficulties with respect of cost. For example, if a person had 100 tonnes of wheat, it was very difficult to move this wheat from one place to another and it also involved a huge amount of cost.

Keeping in view all these difficulties, money was introduced in the system. Now, it is no longer necessary for the weaver to look for a farmer who will buy his cloth and at the same time will sell him the wheat. Once, he has exchanged his cloth for money, he can purchase wheat or any other commodity in the market, according to his own choice. Thus money has made the process of exchange of goods easier by becoming a medium of exchange.

3.3 EVOLUTION OF MONEY

The term ***MONEY*** is derived from the word 'Moneta' in Mesopotamia in 3000 BC. Moneta is another name of Goddess 'Juno' of Rome where, in the temple of Goddess 'Moneta' or 'Juno' metal coins were introduced for the first time. So, on the name of the goddess MONETA, the word MONEY came into existence.

Pic 3.1

First of all, money was introduced in the form of coins which were made of Gold, Silver, Copper, Brass etc. After that coins were made of alloy. But these coins were used to make payment

of only small denomination. After that in order to make payment for more denomination, paper currency was invented. At present all the countries of the world are using paper currency as will as plastic money in the form of Debit and Credit cards. Along with these, digital transactions are made with electronic money which is also called E-Money. Nowadays, the concept of cryptocurrency has also been introduced.

Remember!

Cryptocurrency is a digital currency in which transactions are verified and records are maintained by decentralised control which means that they are not controlled by one person or a government.

3.4 MODERN FORMS OF MONEY

As we know, money is commonly accepted as a medium of exchange. Before the introduction of coins, a variety of objects were used as money, such as grains, cattle, tool sets etc. After that metal coins of gold and silver were introduced and subsequently, alloy metal came to be used for coinage. Besides, paper money was also introduced. In the modern times, there is a trend of plastic money in the form of debit cards and credit cards. The following are the various forms of money:

Pic 3.2

3.4.1 Currency: Currency is a modern form of money which includes paper notes and coins. Unlike earlier times, modern currency is not made of precious metals such as gold, silver and copper and it is also not like the currency in the form of grains and cattle. The modern currency is authorised by the government of a country and hence, it is accepted as a medium of exchange. This is called **representative money.**

Remember!

Representative money is that money whose commodity value is much less than its face value. Face value is that value which is written on a coin or a currency note. For example, the face value of ₹ 5 note is 5 and ₹ 500 note is 500 as ₹ 5 and ₹ 500 are written on it. Commodity value is the value of the commodity with which this money is made of. For example, all the notes in India are made of paper and whatever is the value of that paper, is the commodity value of that currency note. But in British era, the coins were made of silver and if ₹1 was written on that coin, then the value of silver equal to would be ₹1. So, the face value and commodity value were same and this was called full bodied money. But nowadays, the paper is just representing face value of currency e.g. ₹ 5 or ₹500 notes are called representative money.

Every country has its own currency unit. Like the name of Indian currency is Rupee, American currency is U.S. Dollar, currency of England is Pound Sterling and so on.

Activity

List the name of currencies of the countries given below:

Sr. No.	Country	Name of Currency
1	Pakistan	
2	Bangladesh	
3	Sri Lanka	
4	China	
5	Japan	
6	Nepal	

In India, the Reserve Bank of India issues currency notes on the behalf of Government of India. All coins and one-rupee notes are issued by the Ministry of Finance, Government of India. The currency notes above of this denomination like currency notes of ₹ 2 and above are issued by Reserve Bank of India. No other individual or organisation is allowed to issue currency as per the Indian law. We can check it from the currency notes and coins that on one rupee note. Government of India is written on the top of it and it bears the signature of Finance secretary and on all the notes above this denomination, Reserve Bank of India is written and they bears the signature of the Governor of RBI.

Activity

Take out any Rupee note and note down the following important features on it :

1. Picture of our Father of Nation.
2. Name of the issuing authority i.e. Reserve Bank of India or Government of India.
3. Promise by the Governor of RBI or Finance Secretary along with the signature.
4. National emblem of India.
5. Discuss more about features and their importance with your teacher.

3.4.2 Deposits with Banks:

The other form of money is deposits with banks. For instance, after satisfying their day to day needs, people have some extra money left with them. What do people do with this extra cash? They deposit it in the banks by opening a bank account in their name and when, they are in need of cash, they can withdraw their money from the banks. So, whatever deposits people have in the bank is also considered as a form of money. In this way people's money is safe with the banks and they also earn some rate of interest as well. Deposits with the banks are of two types :

i. **Demand Deposits**: These are the depostis in the banks in which the customers are given full freedom to withdraw their money anytime by issuing a cheque against their account or from the ATM by using a Debit card. They can also transfer money from their account to another person's account similarly by issuing a cheque in his name or by using fund transfer facility from the ATM or from internet banking etc. Normally, low rate of interest is provided on these types of deposits.

ii. **Time Deposits**: These are those deposits with the banks in which the money is deposited for a fixed period of time. Normally, higher rate of interest is provided on these types of deposits.

Pic 3.4

Remember!

A cheque is specially printed form which instruct the bank to pay the stated amount from the account of the person who issues it. A person can legally refuse to accept payment through cheques. A person who issues cheques for the demand of his payment must make sure that he has enough money in his bank account. In case of insufficient money in his bank account, his cheque will BOUNCE which is legally punishable.

Look at the Cheque and answer the following

1. Write the date and the number of the cheque.
2. What is the account number of the account holder?
3. How much money is to be paid?
4. On whose name money will be paid?
5. What is the meaning of A/C Payee written on the check?

3.4.3 Types of Loans Provided by Banks

As we know that our needs are different and we need different types of loans to meet them. These loans are described below :

1. Home Loan : A huge amount of money is required to build a house. This shortage of funds is met by the bank by providing loans.

2. Personal Loan : This loan is given by the bank to meet the individual needs of the people.

3. Vehicle Loan : This loan is given by the bank to the people to purchase a car or a motorcycle.

4. Education Loan : This loan is given by the bank to those students who want to pursue higher education.

5. Loan on gold : To get this loan, the person pledges his gold to the bank and the bank provides a certain percentage of that gold amount as loan to the person.

6. Loan for agrculture : This is loan is given by the bank to the farmers for the development

of agriculture. With this loan, farmers can purchase fertilizers, medicines, agricultural implements, new land, etc.

7. Over Draft : In this, the bank provides a facility to some of its special customers that they can withdraw more than the amount deposited in their account.

8. Business Loan : This loan is provided by the bank to those people who want to expand their existing business or start a new business.

3.5 FUNCTIONS OF MONEY

William Stanley Jevons mainly analysed money in terms of four functions; a medium of exchange, a measure of value, a standard of deferred payments and a store of value. These functions are explained as under;

i. **Medium of Exchange:** Exchange means buying and selling related activities. When money is used to buy and sell goods and services, it performs a function as a medium of exchange. It thereby avoids the problem of 'double coincidence of wants'. People can exchange their money to purcahse various types of goods and services and no one can refuse to accept money in this exchange system.

ii. **Measure of Value:** Value means price. The money is also used to measure the value or the price of various goods and services. The value of all goods and services is always measured in terms of money like the value of a fan can be ₹ 2000 or the value of a pen can be ₹10 etc. By this function, money has made it easy to determine the value of all goods and services which was not so easy in the barter system of exchange.

iii. **Standard of Deferred Payments:** Deferred Payments means payments to be made in future. Money is also used for making those payments which are to be paid in future. It is easy to make such payments in monetary units rather than in goods and services, because it was not possible to make payments in terms of wheat or rice etc. in the future, because their quality can change in the future.

iv. **Store of Value:** Money can also be used as a store value. It is easy to store money as compared to goods and services in the barter system. For example, we can easily store ₹2 Crore in terms of money. But it is very difficult to store horses of the same value. Thus money requires less space to store.

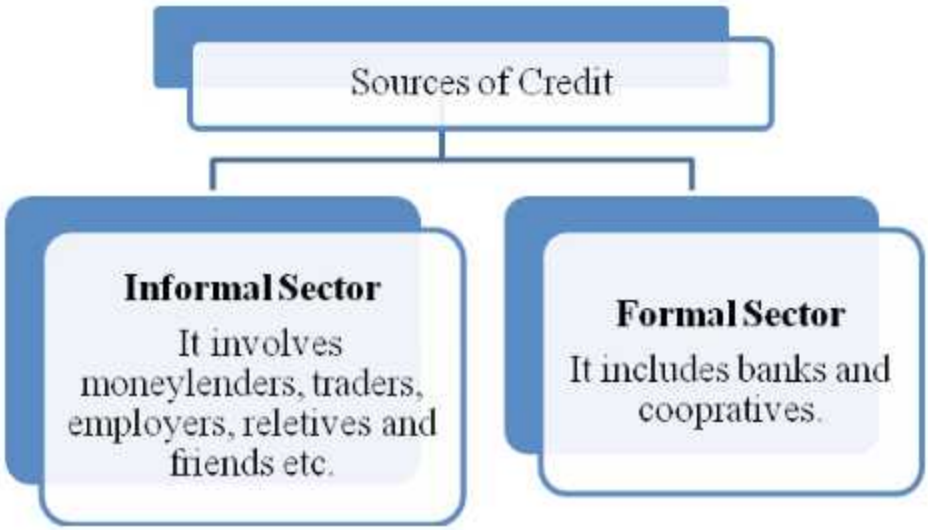
3.6 FINANCIAL SYSTEM

Every country wants to become economically developed. The development of any country not only depends upon the amount of financial resources it has, but also on the proper utilization of these resoures. If a country is successful in making full and efficient utilization of its financial resources, only then it can be termed as a developed one. Now the question arises, how the financial resources of a country can be fully and efficiently utilized? The answer to this question is that a country needs a system which can perform this task and that system is called **FINANCIAL SYSTEM**.

Financial system is that system which provides short term and long term finance to various sections of the society and also accepts deposits in various forms. It includes both formal and informal sources of credit.

3.6.1 Sources of Credit:

Credit means lending. Many a time, people need credit to meet their needs and for that they require a source from where they can get this credit. These sources are called sources of credit. So, we can say that sources of credit means various sources from where money or credit can be taken for various purposes at some rate of interest. These sources are of two types:



(A) **Non-Institutional (Informal)Sources:** Informal sources of credit means those sources which do not follow any rules and regulations while providing credit to the people and the terms of credit like amount of loan, duration of loan, rate of interest etc. are decided by themselves on their own discretion. It includes moneylenders, traders, employers, relatives and friends etc. According to an estimate, most the loans of the poor households in the rural areas are taken from informal sources whereas the rich households get only 10 percent of their loans from the informal sources. These sources charge very high rate of interest on their lending. Higher cost of borrowing means a larger part of the earnings of the borrower is used to repay the loan. Hence, borrower have less income left for themselves. So they are not able to meet their needs and again they have to take credit from these people and thus they fall in the vicious circle of debt and are never able to free themselves from this debt trap.

(B) **Institutional (Formal) Sources:** Formal sources of credit are those sources which have to follow certain rules and regulations regarding amount of loan given, duration of loan, rate of interest charged etc. and they can't overlook these rules and regulations. It includes banks and cooperative societies. The share of formal sources in providing loans is increasing

day by day. This sector is playing a vital role in the development of the country. Formal sector provides cheaper loans as compared to informal sector. Thus, credit from this sector will benefit the poor and raise their standard of living. The rich households in the rural areas avail cheap credit from formal sources whereas the poor households pay a large amount for their borrowing to the informal sources.

The Reserve Bank of India which is the apex bank of the country, supervises the functioning of formal sources of credit. It has full control over their activities. It ensures that these sources of credit follow proper rules and regulations as directed. It also ensures timely and proper availability of loans to all the sections of the society particularly poorer and the rural section for their productive needs. Thus for the development of the economy, it is necessary that:

(a) Formal sources (Banks and Cooperative societies) should increase their lending particularly in the rural areas, so that the dependence of the rural people on the informal sources of credit can be reduced.

(b) Formal sector loans need to be expanded and they should be available for everyone.

(c) Formal credit should be equally distributed so that the poor can be benefitted from the cheaper loans.

(C) Loans from Cooperatives: Cooperatives are another major sources, besides banks, of cheap credit in rural areas. Farmers, weavers, industrial workers from their own cooperatives make their own deposits and using these deposits as collateral, they can obtain loans from cooperative banks. The success of the cooperative depends upon the integrity of the members. Farmers cooperatives provide loans for the purchase of agricultural implements, for cultivation, fishery, construction of houses etc. AMUL (Anand Milk Union Limited) is one of the successful stories of cooperatives by small dairy owners.

Pic 3.6

(D) Self-Help Groups for The Poor: In recent years, people are trying to find out some newer ways of getting credit facility and one such way is Self Help Groups (SHGs). As the name suggests, the members of these groups help each other in meeting their credit needs. A typical SHG has 15-20 members, usually belonging to one neighbourhood, who meet and save regularly. Saving per member varies from ₹ 25 to ₹ 100 or more, depending on

their ability to save. Members can take small loans from the group to meet their regular needs. The group also charges rate of interest on these loans, but this is still less than what the moneylenders charges from them.

After a year or two, if the group becomes regular in saving, it becomes eligible for availing loans from the bank. Loan is sanctioned on the name of the group and is meant to create self-employment opportunities for its members. For instance, small loans are provided to the members for releasing mortgaged land, for meeting working capital needs (i.e. for buying seeds, fertilizers. raw materials like bamboo and cloth), for acquiring small assets like sewing machine, handlooms, cattle etc.

Working Capital

Working capital means the money required for fulfilling daily needs of the people. If we take the example of a farmer, his daily needs are to purchase seeds, fertilizers, pesticides, payment of wages to daily workers etc. For all these purposes, whatever money is required is called working capital.

The most important decisions regarding the savings and loan activities are taken by the group members. The group decides about the loans to be granted, the purpose of loan, rate of interest to be charged, repayment schedule etc. The case of non-repayment of loan by any member of the group is followed up seriously by the other members of the group. Because of this feature, banks are willing to lend to the poor women, when organised in SHGs even though they do not have any collateral assets.

Thus, the SHGs helps the borrowers to overcome the problem of lack of collateral. They can get timely loans for a variety of purposes and at reasonable interest rate. Besides helping women to become financially self-reliant, the regular meeting of the SHG also provides a platform to discuss and act on a variety of social issues such as health, nutrition, domestic violence etc.

3.6.2 Terms of Credit:

Lender gives credit to the borrower and charges interest along with the repayment of the principal amount. But sometimes, situations arise when borrowers are unable to pay back the credit. In these cases, the lender cannot afford non-payment. So, in addition to the interest, the lender may demand some security referred to as ***COLLATERAL*** against the loans.

COLLATERAL

Collateral is an asset that the borrower owns (such as land, building, vehicle, live stocks, deposits with banks) and use these as a guarantee to a lender until the loan is repaid.

The lender has the right to sell the asset or collateral to obtain payment in case the borrower fails to repay the loan.

For example, Satnam has taken a loan of ₹10 Lakh from the bank to purchase a house in his small town. This loan is to be paid in the monthly instalments within 15 years. He submitted his

employment records and monthly salary statements to the bank. The bank retained the papers of the new house as collateral, which will be returned to Satnam only when he repays the entire loan with interest. Satnam cannot exercise property right over the house unless the loan is repaid. In case of non-payment of loan, the bank can dispose the house and recover the due amount.

So, the terms of credit are:

a. Interest rate

b. Collateral and documentation requirement and

c. The mode of payment

The terms of credit vary from one credit arrangement to another depending upon the nature of the credit, the lender and the borrower.

1. Find out the various credit arrangements that exist in your area.
2. Name the people who provide credit?
3. Who are the borrowers and for what purpose they need credit?
4. What are the terms of credit?

3.6.3 Critical appraisal of Credit system:

A critical appraisal of the credit system includes both merits and demerits of the credit system. A systematic analysis of the credit system is given below:

3.6.3.1 Merits of Credit System:

There are various merits of the credit system. Some of them are listed below:

(a) Credit helps entrepreneurs to increase their earnings, leaving them better off than before because with the help of credit they can start new business units and earn good income.

(b) Taking credit can benefit small traders, businessman, entrepreneurs, students and many types of people in society, if used productively.

(c) Credit is now available at reasonable rate of interest and terms from banks for building houses, purchasing cars, professional education, etc.

(d) Credit is also beneficial to increase demand in the society as the people can purchase various goods from the market with the help of credit which they can't afford otherwise.

(e) Students can also take education loans from the bank and make their career.

3.6.3.2. Demerits of Credit System:

There are also some demerits of the credit system. Some of these are listed below:

(a) As we often see in life, loans are not equally beneficial to everyone. If loans are taken from a money lender, they are relatively costlier for the people because money lenders charge very high rates of interest. When a borrower fails to generate surplus income from his

business to repay the loan, he falls into a debt-trap. In agriculture sector of India, this situation is prevailing for a fairly long time.

(b) In rural areas, the main demand for credit or loan is usually for crop production, to buy seeds, fertilizer and pesticides etc. Farmers usually take crop loans at the beginning of the season and repay the loan after harvest. Repayment of loans fully depends on the income from farming. Crop failure due to natural calamities such as drought, floods etc. make it impossible to repay the loan.

(c) Sometimes, the loans are taken for productive purpose, sometimes it don't turn out to be productive. It also increases the burden of loans on the farmers. As a result, a farmer often has to sell part of his land to repay the loan. Thus, instead of helping these farmers, credit or loans make their condition worse. Thus it pushes the borrower into a situation from where the recovery is very painful. This situation has become very much serious in India from the last many years. Consequently, many farmers have committed suicides due to debt.

3.7 MODERN FINANCIAL SYSTEM

Modern financial system involves the use of electronic delivery channels while providing financial services to the bank customers. This use of E-Delivery channels leads to E-Banking. E-Banking is also known as electronic banking, online banking or internet banking. It is an electronic payment system that enables customers of a bank or other financial institutions to conduct a range of financial transactions through the financial institution's website.

To access a financial institution's e-banking facility, a customer having internet facility will need to register one's account with the institution.

E-Delivery Channels

E-Delivery Channels are all those channels that provide E-Banking facility. These channels include ATM, debit card, credit card, internet banking, mobile banking, tele-banking etc.

The customer visits the financial institution's secure website and opts for the online banking facility. The types of financial transactions which a customer may transact through online banking are obtaining account balances, a list of the recent transactions, electronic bill payments and funds transfers between a customer's accounts to any other account etc. Banks also facilitate their customers to download copies of bank statements. E-Banking facility also enables the customer to order a cheque book, statement, reports, loss of credit cards, stop payments on a cheque, change of address and other routine actions via online.

Today all the banks have E-Banking facility. With this facility, these banks have made the banking facilities available at the door step of the customers. They can perform all their banking operations without going to the bank branch and these are as safe as the traditional banking system. The banks provide safe password and secure websites in order to provide safety to their customers. This also enhances the reputation of the bank.

3.7.1 Advantages of E-Banking

(a) E-Banking provides 24/7 service to bank customers.

(b) Customers can make some of the permitted transactions from their office or from their home or while travelling via mobile telephone.

(c) It helps the banks in establishing better customer relationship and attracting new customers.

(d) It reduces customer's visits to the bank branch and thus make banking more convenient for them.

(e) It avoids all cost and risk problems involved in handling cash.

(f) E-Banking and e-commerce also improves transparency in transactions.

3.8 Central Bank

The Central Bank is said to be pivot of the banking system of any country. The first Central Bank in the world was established in Sweden in 1656 AD. But if seen from the perspective of modren Central Banks, the world's first developed Central Bank was established in England in 1694 AD named **BANK OF ENGLAND**. The Central Bank of India is called the Reserve Bank of India, which was established on 1 April 1935.

3.6.8.1 Functions of Central Bank

Main functions of Central Bank are as follows :

1. Issuing notes
2. Acting as the bank of the government
3. Acting as the bank of banks
4. Supervising the banking system
5. Acting as a lender of last resort
6. Acting as a custodian of the country's foreign exchange reserves

- Barter system is that system in which goods are exchanged for goods. This is also called C-C system i.e. commodity for commodity system.
- Double coincidence of wants means what a person wants to sell is exactly what the other wishes to buy and vice versa.
- Money is anything that serves as a common unit of medium of exchange, a unit of account and a store of value.
- The term money is derived from the word 'Moneta' which is the other name of the Goddess JUNO.
- In India, the Reserve Bank of India, which is the apex bank of the country, issues currency notes on behalf of the Central Government. All coins and one rupee notes are issued by the Ministry of Finance, Government of India.

- Demand Deposits are those deposits in the banks in which the customers are given full freedom to withdraw their money anytime.
- Time Deposits are those deposits in the banks in which the money is deposited for a fixed period of time and customer is not allowed to withdraw his money before the expiry of that time period.
- Money acts as a medium of exchange, store of value, measure of value and as a standard of deferred payments.
- Financial system is that system which provides short term and long term finance to various sections of the society and also accepts deposits in various forms.
- Informal sources of credit include moneylenders, traders, employers, relatives and friends.
- Institutional (Formal) Sources include banks and cooperatives.
- E-Banking is an electronic payment system that enables customers of a bank or other financial institutions to conduct a range of financial transactions through the financial institution's website.

A. Objective Answer Type Questions :

1. Fill in the Blanks

(i) In the barter system, goods were exchanged for..... .

(ii) Barter system was replaced with..... system.

(iii) Money acts as a .....of exchange.

(iv) The word money has been derived from the word..... .

(v) .....bank in India issues currency notes.

(vi) In India, all type of coins and one rupee notes are issued by..... .

(vii) Money lenders are .....sources of credit.

(viii) Banks and cooperatives are the ..... sources of credit.

(ix) The word E in E-Banking stands for ..... .

(x) Internet banking is a form of .....

2. Multiple Choice Questions

(i) At what time, the customers are allowed to withdraw money from their Demand deposits?

(a) Anytime (b) Before the expiry of the time

(c) After the expiry of the time (d) Never

(ii) Which one of the following is not a functions of money?

(a) Medium of Exchange (b) Measure of Value

(c) Store of Value (d) Saving account

(iii) Which one of the following is not a formal source of credit?

(a) Nationalized Bank (b) Cooperatives

(c) Private Banks (d) Mahajans

3. True/False type Questions

(i) Barter system is a system in which goods were exchanged for goods. (True/False)

(ii) Double coincidence of wants is a common feature of barter system of exchange. (True/False)

(iii) Money does not serve as a medium of exchange. (True/False)

(iv) Paper money was introduced in the 13th century in Europe. (True/False)

(v) Currency as a modern form of money includes paper notes only. (True/False)

4. Very Short Answer Type Questions

Answer to these questions should be given in one word or in one sentence.

(i) What do you mean by barter system?

(ii) What is the meaning of double coincidence of wants?

(iii) Before the introduction of coins, which types of objects were used as money?

(iv) What are the formal sources of credit?

(v) What are the informal sources of credit?

B. Short Answer Type Questions :

Answer of these questions should be given between 50-60 words.

1. What are the demerits of barter system?
2. What do you mean by Money?
3. What are the main functions of money?
4. What are the modern forms of money?
5. Explain different sources of credit.
6. What do you mean by Self Help Groups?
7. How the credit can be useful for the customers?
8. What is E-Banking?

4

SERVICE SECTOR IN INDIAN ECONOMY

4.1 INTRODUCTION

Dear students, if you are asked to define Economy, then generally, you correlate it with an area in which various types of economic activities are performed. For example, if we talk about Indian Economy, then generally it means the area which comes under the political boundary of India, according to the map of India. But according to Economics, this is a narrow concept as Economy can't be confined to a certain specific area. Actually, Economy is a system according to which all the economic activities of a country are managed or controlled. In some countries, these are managed and controlled by the government sector while in others the private sector dominates or in some countries both these sectors are working in tandem with each other. In some countries, agriculture is given importance as an economic activity and in some others, industry or trade holds the important place.

Economy

Economy refers to a system of performing various types of economic activities. It provides us knowledge about the nature and level of economic activities. It should not be confined to a certain specific area or boundary. Nature of economic activities means which type of economic activities are being performed and level of economic activities means up to which level i.e. big or small, they are being performed.

4.2 SECTORS OF AN ECONOMY

Students, just looked around the place where you live in. You will find farmers cultivating their fields, teachers going to school to teach, shopkeepers selling their products in their shops, Gur (Jaggery) being prepared from sugarcane, trucks carrying goods from one place to another etc. So, we see different people are carrying on different kind of activities which are known as economic activities and you have studied these activities in your previous class also. These activities are being carried out with a purpose to earn money. Every person performs these economic activities by working into one field or the other and on the basis of these fields, every economy is divided into various segments called sectors. These sectors can be framed keeping in mind some various aspects. Some of these aspects are as under:

4.2.1 On the Basis of Ownership:

Ownership means which sector is the owner of the factors of production or which sector is carrying out economic activities in the economy. On this basis, there are three types of sectors in any economy which are as follows:

(A) **Public Sector :** Public sector is also called the government sector. It includes all those areas of ownership in which the government or any agency appointed by the government has full control. It is because the government as a welfare agency wants to provide minimum basic goods to all the people and wants to save them from the exploitation of the private sector. In this, all the decisions are taken by the government sector. For example, in India, Government has full control over atomic energy and has partial control over railways, education, health and energy sectors. So, all these constitutes the public sector.

(B) **Private Sector :** Private sector is also called capitalistic sector. It includes all those areas of ownership in which the private sector has full control and it works for the sole motive of profit maximization. The private sector has been given full freedom to perform various economic activities and all the decisions are taken by the private sector.

(C) **Mixed Sector :** Mixed sector is that sector in which the public and the private sector work in collaboration with each other. The most important areas of production are kept by the government with itself and the less important areas are provided to the private sector. So, both these sectors jointly take the decisions. India is an example of mixed economic system.

4.2.2 On the Basis of Working Conditions :

Working condition means terms and conditions designed for the workers to work i.e. whether the workers are working under some pre-defined rules and regulations or not. On this basis, there are two sectors in an economy:

(A) **Organized Sector :** As the name suggests, organized sector is that sector which is fully organized i.e. the workers in this sector works under specific rules and regulations. There are fixed salaries, allowances, working hours, holiday rules, pension and other social security benefits etc. So, they are much more protected and safe as they are working in a

well managed and controlled sector. Often workers working in Government and Semi-Government institutions come under this category.

(B) Unorganized Sector : It is totally inverse of organized sector in terms of rules and regulations regarding salaries, allowances, working hours, holiday rules, pension and other social security benefits as these are not fixed in this sector. The terms and conditions and other rules and regulations entirely depend upon the will of the employer. He takes work from the labourers according to his own will and pays them as he wants. The workers do not get permanent work, fixed salary and other social security benefits. They do not get holiday benefits and proper working conditions. In general, unorganised sector covers most of the rural labour and a substantial part of urban labour. Small and marginal farmers, landless agricultural labourers, contract and casual labourers, domestic workers, fishermen, vegetable and fruit vendors, newspaper vendors, etc., belong to this category.

4.2.3 On the basis of Nature of Economic Activities:

On this basis, the people are classified according to the nature of their economic activity i.e. what type of economic activity they are performing. On this basis, an economy can be divided into these sectors:

(A) Primary Sector: Generally, primary sector is only elated with agriculture. But it is a very narrow concept. Actually, Primary sector is that sector which is concerned with those activities which directly depend upon environment as this sector uses earth's natural resources such as land, water, vegetation, building materials and minerals for production. So, the sector which uses natural resources for production is called primary sector. It includes hunting and gathering, rural activities, fishing, forestry, agriculture, mining and quarrying etc.

Pic 4.1

(B) Secondary Sector: Secondary sector is also called manufacturing sector. It is that sector which uses raw material provided by the primary sector and through a production process, it converts that raw material into final goods. For example, it takes raw cotton from the primary sector and converts into clothes or it takes sugarcane from the primary sector and

converts it into sugar. Similarly, it also takes many types of minerals from the primary sector and converts these into finished goods. The main examples of this sector are: Small workshops producing pots, artisan production, mills producing textiles, factories producing steel, chemicals, plastic, car, etc.

Pic 4.2

(C) **Tertiary Sector or Service Sector**: Tertiary sector or service sector is the third most important sector of an economy. This sector is not concerned with the direct production of goods. This sector only provides its services in order to help the primary and secondary sector to produce and distribute goods and services. For example, primary sector produces sugarcane which is being used as a raw material by the secondary sector in order to produce sugar. The service sector provides its help to the primary and secondary sector in the form of finance from the banks, so that they can produce goods and services and after that in the form of transportation services, so that they can distribute the same across different parts of the country and abroad. This sector basically includes banking services, insurance services, transportation services, communication services etc. It also includes the services of a teacher, doctor, architect etc. who are involved in the direct production of services.

Pic 4.3

4.2.3.1 Interdependence among the Sectors:

After having discussed various sectors of an economy, it should be kept in mind that these three sectors namely primary, secondary and tertiary are not independent sectors as all these three depends upon each other to a great extent. Their interdependence is shown as:

(A) Primary sector provides raw material to the secondary sector for the production of goods and it is with this raw material that the secondary sector is able to produce final goods.

(B) Primary sector is also a buyer of the products of secondary sector and services of the service sector. If primary sector of a country is developed, then the income of the people working in primary sector will be more and thus they demand more goods produced by the secondary sector and more services produced by service sector. So, primary sector also creates a demand for their products and thus helps in the development of these sectors.

(C) Primary sector provides various types of food items such as wheat, rice, pulses etc. for the people working in secondary and service sectors.

(D) Primary and service sectors need new technology for their development and this technology is being provided by the secondary sector. Secondary sector produces tractors, combines, motors etc. for the primary sector and means of transport like buses, trains, aeroplanes etc. and proper banking instruments like ATMs, computers etc. for the service sector.

(E) Secondary sector provides better seeds, pesticides, fertilizers etc. to the primary sector, so that this sector can be developed.

(F) Secondary sector provides employment to the additional labour force available in the primary sector means those labourers, who do not get work in agriculture sector. Thus secondary sector helps in solving the problem of disguised unemployment found in agriculture sector.

(G) Secondary sector also provides various types of goods like refrigerator, T.V., car, air conditioner, cooler etc. to the people working in primary and service sector, so that they can enjoy the facilities of life.

(H) Primary and secondary sectors need finance for their development and this financial facility is being provided by the service sector with the help of banks, insurance companies and other financial institutions.

(I) Service sector also helps primary and secondary sector with its transportation facilities, so that their products can be made available everywhere.

(J) Service sector also provides communication services to the primary and secondary sector, so that they will be made well informed about the market conditions.

(K) There are also certain important services such as teaching, medicine, law and information technology which may not directly help in the production of goods, but are essential for the production in primary and secondary sectors.

Activity

1. Why Government takes control of economic activities in the public sector?
2. "Private Sector is also very necessary for the development of the country." Comment.
3. Why people have been forced to work in an unorganized sector? Give reasons.
4. Why India is still not successful in transferring its workforce from the unorganized sector to organized sector?
5. Make a comparative analysis of primary, secondary and tertiary sectors on the basis of economic activities performed by them.

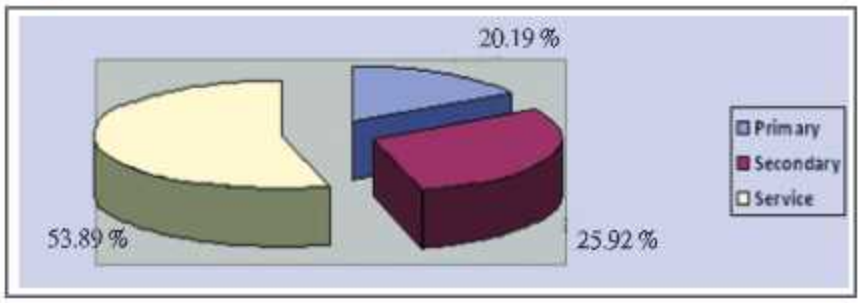
4.3 IMPORTANCE OF SERVICE SECTOR IN THE GENERATION OF INCOME AND EMPLOYMENT

As far as the development of economy is concerned, it depends upon the generation of income and employment opportunities and the above mentioned three sectors namely primary, secondary and tertiary have their contribution in it. But with passage of development, the relative importance of these three sectors has changed as the importance of service sector has increased and that of primary and secondary sector has decreased. It is because of the following reasons:

(A) **Provides Employment to Additional Workforce of Primary and Secondary Sector:** In the initial years of development of a country, most of the economic activities are carried out with the use of labour, so there is more requirement of manpower in the primary and secondary sector. But with the development of technology, machinery is being used in the place of labour. So, now there is a less need of manpower in the primary and secondary sector and the workers started migrating to tertiary sector in search for jobs. So, with the passage of time, the importance of service sector in providing employment opportunities has increased. In 2018-19, service sector has provided employment to almost 34 percent of the total workforce.

(B) **Contribution to GDP:** The most important contribution that service sector has made in Indian Economy is that it is the major sector as far as the percentage share of different sectors in India's GDP is concerned. The share of service sector in India's GDP (at constant prices) which was 28.5 percent in 1950-51 has increased to 53.89 percent in 2020-21. It means that this sector is contributing more than half of India's GDP.

Percentage contribution of different sectors in GDP of India in 2020-21



Pie Chart 4.1

(C) **Provides Higher Growth Rate to the Economy**: The importance of this sector is also clear from the higher growth rate of this sector as compared to other sectors. The annual growth rate of this sector was 6.65 percent in 1950-51 which has increased to 7.50 in 2018-19. Its overall growth rate during the planning period is almost 9 percent which is much higher than the primary and secondary sector which has an average growth rate of 4 percent and 6 percent respectively.

Graph 4.1 Percentage growth rate of different sectors in India during planning period

(D) **Contributes to India's Foreign Trade**: The service sector is also playing an important role in the foreign trade of India. In 2018-19, the total amount of exports by the service sector was US $208 billion and the total amount of imports by the service sector during the same time period was US $126.1 billion. The growth rate of exports by the service sector during this time period was 6.6 percent while the growth rate of imports by the service sector during this time period was 7.3 percent.

(E) **Contributes in the Development of Human Capital**: The development of human capital is a pre-condition for the economic development of any country. Service sector is also contributing in the development of human capital in India. This sector is providing its valuable services in terms of health, education, information technology, skill development, tourism, sports, cultural services etc. which are largely responsible for the development of human capital and improvement in the quality of life of the people.

Human Capital

Human Capital means the total stock of expert and skilled persons in an economy. It includes all those people who have the skills, ability and expertise in order to produce more of such type of people. It is the human capital of a country which contributes in the proper utilization of the resources of a country and thus in the economic development. This human capital stock includes doctors, engineers, teachers, lawyers and architects etc.

(F) **Helpful in FDI Inflows in the Country** : India is very rich in terms of its natural resources, but despite of this, India is still a developing nation. The major problem of India is not the lack of natural resources, but the underutilization of these natural resources. In this case, FDI (Foreign Direct Investment) can help India in the proper utilization of its

resources and can ensure its economic development. It is the service sector that can attract major FDI in India. Foreign investments in the service sectors increased to 63.7 per cent in 2018-19.

(G) **Contributes in the Development of Infrastructure and Communication Services:** Service sector has also been playing an important role in development of infrastructure in the country with a special emphasis on development of transportation and communication services like super fast trains, 5G mobiles and very high speed internet facility etc. With the help of these services, India can better integrate itself with the Global Economy.

(H) **Provides Stability to the Economy:** As we know that the people working in agriculture sector are at the mercy of Monsoon. If the Monsoon favours them, then they can expect a good income. So, the income of the people working in primary sector is not stable. But in service sector, there is no such role of Monsoon and thus the people working in this sector can get a stable income. Thus, this sector can provide stability to the economy by providing a fixed stable income to the working population.

1. Why the share of service sector is increasing in GDP of India and that of the other sectors is falling?
2. Why is a migration of workforce from primary to secondary and from secondary to tertiary sector taking place?
3. "FDI is the need of the hour for Indian Economy". Write in the support of this statement.
4. "Only Human Capital can ensure the economic development of a nation." Defend or Refute? Give reasons.

4.4 CAUSES FOR THE DEVELOPMENT OF SERVICE SECTOR IN INDIA

The development of service sector in India can be witnessed from its growing contribution in GDP of India, in the generation of employment opportunities, in providing various valuable services to the people of the country etc. There are many reasons responsible for the growing importance of this sector with the passage of time. Some of these reasons are explained as:

(A) **Increasing Demand of Essential Services by the People:** As a country progresses, the demand of essential services like education, health, transportation, communication, administrative services, defence, banking, finance etc. increase as all these facilities become an essential part of the life of the people. As these facilities of life cannot be provided by the primary sector, so, in order to fulfil the demand of these essentials, the development of service sector becomes inevitable.

(B) **Demand of New Services by the People:** Besides the demand of essentials, the demand for many new type of services rise with the development. These new services

include demand for better and advanced communication, transportation, banking and other services. These ever increasing demands of the people can only be satisfied with the development of service sector in the economy.

(C) **Development of New Areas:** Similarly, with development, the income of the people starts increasing and they demand new facilities and as a result many new type of production areas have started developing. For example, with the development of transportation services, people's demand for tourism has started developing and many new tourist places have started developing. Similarly, restaurants, hotels, private hospital. private schools, amusement parks etc. have started taking place. For the development of these new areas, the development of service sector becomes necessary.

(D) **Development of Other Sectors of the Economy:** Service sector also helps in the development of other sectors of the economy like primary and secondary sector. For example, service sector provides finance to these sectors for investment, transportation services to distribute their products to the remote places, storage facilities to protect their products etc. If the development of service sector is ensured in an economy, then the development of these sectors can also be ensured.

Activity

1. How the development of service sector affects the Indian Economy?
2. Does the development of service sector decrease the importance of other two sectors? Comment.
3. How the service sector of India can be gainfully utilized?
4. Prepare an assignment on the topic: "Service Sector of Indian Economy: The Path Ahead."

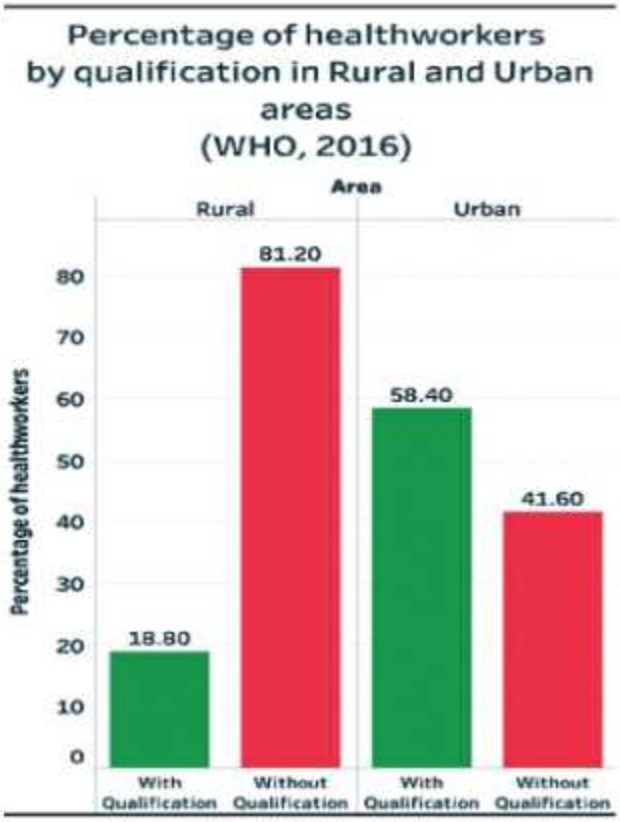
4.5 NEED FOR PUBLIC INVESTMENT IN EDUCATION AND HEALTH

Education and Health are considered to be the two most important needs of a person. It is really impossible for the people to live a healthy and prosperous life in the absence of these facilities. So, it becomes utmost important for the government to ensure proper availability of these to all the citizens of the country. But as far as Indian Economy is concerned, it is very sad on this part that the government is still not able to ensure proper availability of these facilities to all the people of the country especially to the rural people and people living in remote areas. They still feel themselves deprived from these facilities. The following reasons make it clear to raise the amount of public investment in health and educational facilities:

(A) **Extreme Poverty:** In India, there is an extreme poverty. Poverty is the cause of low literacy rate and less availability of health facilities i.e. on one hand, it deprives one to acquire education and health and on the other hand, it pushes up the poverty level. There is still 21.9% of population living below poverty line (as per the census of 2011). If the government wants to improve the standard of living of the people, it has to ensure proper availability of education and health facilities to all its citizens and for that, huge amount of

investment is required on the part of the government, so that these facilities can be made with in the reach of the people.

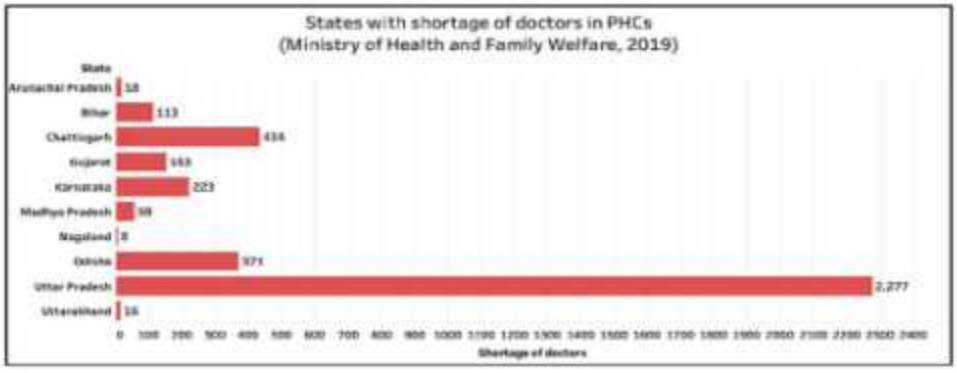
Graph 4.2



(B) **Urban Biased:** In India, the major problem regarding health and educational facilities is their urban biasedness as they are more concentrated in the urban areas and in rural areas, people are still suffering of their non-availability. In rural areas, there are only high or senior secondary schools and they have to rush to the cities for higher educational facilities. Similarly, there are only primary health care centres which can provide only first aid to the patients and in case of emergency; the rural people have to rush to big hospitals situated in the cities. So, it is the duty of the government to make these facilities available in the rural areas, so that these people can also enjoy the benefit of these services and it will be possible only when government makes investment in these areas at a large scale.

(C) **Regional Biasness:** All the states of India are not performing equally well on health and educational grounds. Certain states like Maharashtra, New Delhi and Punjab are performing quite well in providing these facilities to their masses. But certain other states like Chatisgarh, Odisha and Uttar Pradesh etc. are not performing well. As these facilities are the rights of the people and the prime responsibility of the government, so the government has to take initiatives by increasing its investment in these areas, so that all the regions of the country can be made equally well as far as these facilities are concerned.

Graph 4.3



(D) Lack of Infrastructural Development and Facilities: India substantially lacks significant infrastructural development and facilities. The Student-Teacher ratio in primary education is as low as 24:1. Similar is the case of health facilities in India, there is less than one doctor on 1000 patients. In 2019, the Doctor-Patient Ratio in India was 1:1456 and there is less than one bed on 1000 patients. In order to fulfil the deficiency of these services, a huge amount of investment is required on the part of the government.

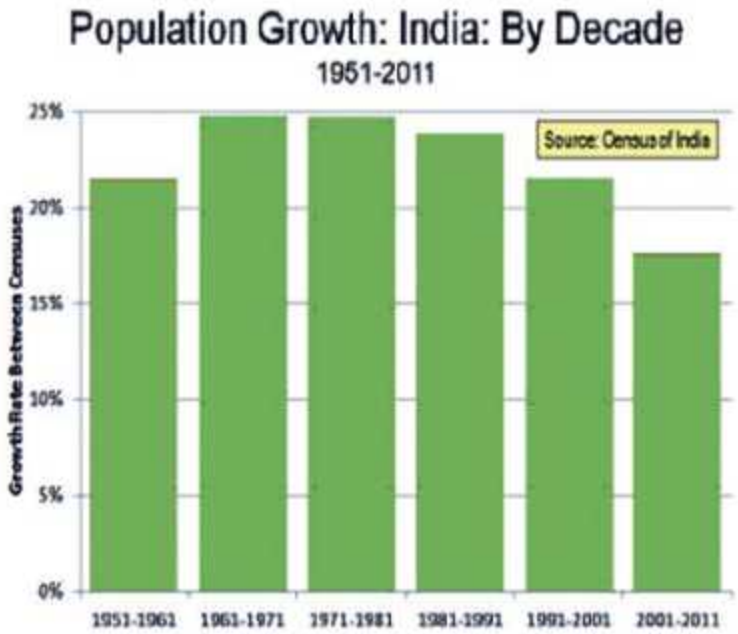
Student Teacher Ratio in Different Countries in 2019

Sr. No.	Country	Student-Teacher Ratio
1	India	24:1
2	Brazil	19:1
3	China	19:1
4	Britain	16:1
5	Sweden	12:1
6	Russia	10:1
7	Canada	9:1

***Source**: World Bank Data, 2019*

According to the data provided by Ministry of Health and Family Welfare in Lok Sabha, there are 11.59 lakh registered allopathic doctors in India as on 31 March 2019. The Ministry further stated that since the population of India is a staggering 1.35 billion, the doctor patient ratio is 1:1456, implying that there is one doctor for every 1456 people in the country. As per the recommendations of the World Health Organisation, the ideal doctor patient ratio of a country should be 1:1000 and India lags behind the WHO norm. India would need around 5 lakh more doctors to meet the WHO norms.

Graph 4.4



***Source**: Census of India, 2011*

(E) High Population Growth Rate: India's annual average population growth rate is 1.7% which is very high. This has resulted in shortage of existing education and health facilities. The preference for

male child and many other reasons have further added to high population growth rate. So, it becomes necessary on the part of the government to make arrangements of health and educational facilities for this growing population, so, that they can be provided at least the basic necessities of life. For this, it is necessary that government should make continuous and huge amount of investment in these areas.

(F) **Low Socio-Economic Status of Women:** In India, the female literacy rate is really poor which lowers the socio-economic status of women. She is facing educational and health issues. She is not allowed to talk freely on her health issues and health problems. She has to face them silently because she is not educated enough to understand them and as a result she cannot take proper care of herself and of her child. If the mother is educated, she can better take care of herself and her child on these issues. So, there is a need for making adequate investment by the government in order to educate the females.

(G) **Costly Health and Educational Facilities under Private Sector:** As we know that private sector works for the sole motive of profit maximization and these facilities of health and education which are provided by the private sector are too costly and beyond the reach of a common man. Some of the private schools and private hospitals have better facittities than government institutions. So, the government should make required amount of investment in these areas in order to compete with the private sector and to benefit the masses with these facilities.

Pic 4.4

(H) **Low Government Expenditure on Education and Health:** According to the Education and Health Commission, atleast 6 percent of the GDP should be spent on education and health so as to improve their status. However, at present only about 4 percent of the GDP is being spent on these sectors by the government. Thus, the government should spare more funds to provide more facitities of education and health.

(I) **Emergence of Many Communicable Diseases:** Nowadays, many new types of communicable diseases like Corona, HIV, Cancer, etc. are emerging as a big threat to the health of the people of our country. The treatment of these new diseases is very costly in private hospitals. So, there is a need of government investment in this sector, so that the people can be cured and their health status can be maintained properly.

Activity

1. What were the trends of population growth of India from 1971 to 2011 ?
2. Why should the government educate the females ?
3. List some of the communicable diseases.

Summary

- Economy refers to a system of performing various types of Economic Activities. It provides us the knowledge about the nature and level of economic activities. It should not be confined to a certain specific area or boundary.
- On the basis of ownership, sectors of the economy can be divided into three parts i.e. Public Sector, Private Sector and Mixed Sector.
- On the basis of working conditions, sectors of the economy can be divided into two parts i.e. organized sector and unorganized sector.
- On the basis of nature of economic activities, sectors of the economy can be divided into three parts i.e. primary sector, secondary sector and service sector.
- The share of service sector in India's GDP (at constant prices) which was 28.5 percent in 1950-51 increases to 53.89 percent in 2020-21.
- The overall growth rate of service sector during the planning period is almost 9 percent.
- Service sector is contributing almost 20 percent in India's foreign trade.
- The student teacher ratio in India is 24:1 which is high as compared to other countries.
- In 2019, the Doctor-Patient Ratio in India was 1:1456 and less than one bed on 1000 patients.
- At present only about 4 percent of the GDP is being spent on education and health by the government.

Exercise

A. Objective Answer Type Questions :

1. Fill in the Blanks

(i) On the basis of ownership economy is of ..... types.

(ii) On the basis of nature of economic activities, economy is of ..... types.

(iii) On the basis of working condition, the economy is of ..... types.

(iv) The government has full control over the economic activities in ..... sector.

(v) ..... sector works for the sole motive of profit maximization.

(vi) The growth rate of primary sector in India in 2018-19 was ..... .

(vii) The growth rate of secondary sector in India in 2018-19 was ..... .

(viii) The growth rate of service sector in India in 2018-19 was..... .

(ix) The stock of expert and able people of a country is called ..... capital.

(x) According to the census of 2011, there was ..... percentage of people living below poverty line in India.

2. Multiple Choice Questions

(i) Which types of economic activities are included in secondary sector?

(a) Mining (b) Manufacturing

(c) Transportation and Communication (d) All of These

(ii) The contribution of service sector in India's GDP in 2020-21 is:

(a) 50.4% (b) 51.3% (c) 52.8% (d) 53.89%

(iii) Overall growth rate of service sector during the planning period is:

(a) 8% (b) 9% (c) 10% (d) 11%

(iv) Human capital includes:

(a) Teachers (b) Doctors (c) Engineers (d) All of These

(v) Which sector provides stability to the economy as far as income is concerned?

(a) Primary and Secondary sector (b) Primary and Service sector

(c) Secondary and Service Sector (d) Government Sector

(vi) The average annual growth rate of population in India is:

(a) 1.6% (b) 1.7% (c) 1.8% (d) 1.9%

(vii) The amount of government expenditure on health and education facilities is almost:

(a) 4% (b) 5% (c) 6% (d) 7%

(viii) Service sector is contributing almost.....percentage in India's foreign trade.

(a) 19% (b) 20% (c) 21% (d) 22%

3. True/False Type Questions

(i) Government sector works for the sole motive of welfare of the people. (True/False)

(ii) Workers in unorganized sectors have fixed salaries and rules of working. (True/False)

(iii) With development, the relative importance of Primary sector increases. (True/False)

(iv) Service sector includes the activities which uses natural resources. (True/False)

(v) Foreign Direct investment is made by the private sector of a country. (True/False)

(vi) The educational and health facilities in India are urban biased. (True/False)

4. Very Short Answer Type Questions

Answer to these questions should be given in one word or in one sentence.

(i) What do you mean by Economy?

(ii) What do you mean by Public Sector?

(iii) Name any two areas of production that comes under public sector.

(iv) What do you mean by Private sector?

(v) What is meant by organized sector?

(vi) What is meant by unorganized sector?

(vii) Which type of workers comes in the category of unorganized sector?

(viii) What do you mean by primary sector?

(ix) Name any two activities performed by primary sector.

(x) What do you mean by secondary sector?

(xi) Name any two activities performed by secondary sector.

(xii) What do you mean by service sector?

(xiii) Name any two activities performed by service sector.

(xiv) What do you mean by foreign trade?

(xv) What is meant by human capital?

(xvi) Expand FDI.

(xvii) What are the new areas that have developed with the development of service sector?

(xviii) Name two states which are developed in terms of health and educational facilities?

(xix) What is the percentage expenditure of Government of India of its GDP on health and educational facilities?

(xx) Name any two communicable diseases emerged in the recent past.

B. Short Answer Type Questions :

Answer of these questions should be given between 50-60 words.

1. Describe the types of economy on the basis of ownership.
2. Describe the types of economy on the basis of working condition.
3. Write a note on the working condition of the people employed in unorganized sector.
4. Differentiate between organized and unorganized sector.
5. Describe the types of economy on the basis of nature of job.

6. Write a note on the contribution of service sector in GDP of India.
7. Write a note on the relative importance of different sectors of an economy.
8. Write a note on the contribution of service sector in the foreign trade of India.
9. Write a note on the contribution of service sector in the formation of human capital.
10. Write a note on the contribution of service sector in increasing the inflow of FDI.
11. Write a note on the contribution of service sector in the development of infrastructure.
12. How service sector can provide stability to the economy?
13. What are the various reasons for the development of service sector in India?
14. What is the need of government investment in the field of education?
15. What is the need of government investment in the field of health facilities?
16. How extreme poverty is a hurdle in the development of service sector in India?
17. Prove that education and health facilities in India are urban biased.
18. Prove that there are regional disparities in terms of health and educational facilities in India.
19. How population growth is a big challenge in the development of service sector in India?
20. How lack of infrastructure is a hurdle in the development of service sector in India?

5

GLOBALISATION

Dear students, can you ever think of living in isolation? your answer to this question will be definitely in negative, because it is not possible for every one of us to live in isolation in which we don't have any contact with anyone other. We need the help of others to fulfil our wants as well as others also need our help to fulfil their wants. Thus this mutual dependence leads to the interconnection among persons, areas and countries. As a result of this fact, the idea of an open economy emerges. This phenomenon of open economy has many dimensions like economic, political, social and cultural. This chapter throws light particularly on some aspects of its economic part which is basically connected with globalisation. In this chapter, besides the meaning of globalisation, factors that led India towards globalisation, impact of globalisation on Indian Economy and need of fair globalisation will also be discussed.

Open Economy

Open economy can be compared with an open room with open doors in which anyone can enter or exit. It is that type of economy, in which, there is free trade of goods and services with other countries means there are no restrictions on the imports and exports.

5.1 MEANING OF GLOBALISATION

As per Oxford dictionary, "Globalisation is the process by which businesses or other organizations develop international influence or start operating on international scale." Globalisation can also be termed as an opening up of native/domestic economy for rest of the world mainly through foreign trade and foreign investments by Multi National Corporations (MNCs). In globalisation, foreign companies, institutions and other agencies come to the native country for their business activities as well as the companies, institutions and other agencies of the native country work abroad and thus develop a relationship between them on both sides.

Multi National Corporation

A Multi National Corporation, as the name suggests, is a business company that has its head office at one country, but it operates its business activities in many countries at the same time or it is a company that has business activities in more than one country. Their main purpose is to compete with domestic producers and to sell their products at a cheaper rate, but still try to earn profits.

Two to three decades back, most regions of the world were not in a closer contact with each other. It is because of MNCs that interconnection among different nations of the world developed. Due to which foreign trade between countries has been rising rapidly. Today, a large part of the foreign trade of the world is controlled by MNCs.

Pic 5.1

A view of call centre, equipped with telecom facilities and access to internet to provide the information and support to customers within the country and/or abroad.

Usually, an MNC sets up its production units in a country keeping in view the availability of skilled and unskilled labour, raw material and other factors of production at low costs. Production units are mostly located nearby to the markets. Favourable policies of the concerned government also attract MNCs.

For instance, Ford Motors in India (Tamilnadu, Gujarat, etc) not only produces cars for Indian market but also exports to rest of the word. Similarly, the car manufacturing plants (Manesar and Gudgaon in Haryana) of Maruti Suzuki India Limited, besides selling cars in the domestic market, it also exports cars to other countries of the world. It also exports car accessories and parts to its many factories set up in different countries around the world. Likewise, a large number of MNCs are engaged in substantial trade of goods as well as in services among the countries of the world. As a result, foreign investment and foreign trade in greater amount take place and bring about greater integration of markets across the countries. This indicates that MNCs are playing a major role in the globalisation process.

Let's work out the following-

1. In general, where do the MNCs set up their production units?
2. List some of the names of MNCs operating in India.
3. How MNCs can play a role in the process of globalisation?

5.2 FACTORS THAT LED INDIA TOWARDS GLOBALISATION

Globalisation is not an end result in itself, rather it is a continuous process as it took several years to be a reality. Same is the case of India. The fact to be addressed here is how the trend of globalisation came into India or what are the factors that have led India towards globalisation? The list of such factors is long, but there are certain important factors which made globalisation a reality in the Indian context like technology, liberalisation of foreign trade and foreign investment policy and World Trade Organisation (WTO). These are discussed as under:

5.2.1 Technology

Rapid improvement in technology in every field is considered as the major force that has stimulated the process of globalisation. For example, rapid growth in technology in transportation in the form of waterways, air travel, railways and road transport have made global travel easier. This also has made faster and safer delivery of goods and people across long distances possible at lower costs than earlier. This enables the countries to be in contact with each other much easier and that results in better coordination among them.

Goods for trade being loaded in ships at harbour

Pic 5.2

Improved sea transport and infrastructural facilities at harbours helped the trade growing in the international market. Increased number of ships and size as well lead to more trade among the countries. The increased volume of trade has also brought down the transportation costs which benefited the consumers in the form of availability of cheaper and variety of goods in the market.

Technological developments in the areas of telecommunications, computers, internet, mobile phones, fax etc. have also helped to contact one another around the world to access the information instantly. It has also made possible to access the rural pockets of the countries located remotely. In today's world with the help of internet and various gadgets, people obtain and share information on almost everything. Moreover, by using internet on gadgets like computers (desktop, laptop, tablets, etc), smart phones, etc. One can send instant electronic mail (e-mail) and talk (voice mail) across the world at very low costs. This also makes it possible to establish contact with others faster, easier and cheaper which is a pre-condition for globalisation.

5.2.2 Liberalisation of Foreign Trade and Foreign Investment Policy

The trade which takes place between countries is known as foreign trade and foreign investment is the investment which is carried out by one country or its individuals in another country to earn income/profits. In other words, foreign trade is the trade which is done by a country with other countries of the world in the form of exports and imports. Every country has its policy regarding this

trade, and this policy is called foreign trade policy of that country. This policy includes various types of rules and regulations regarding the types of goods and services to be imported and exported and from which country these goods and services are to be imported and exported, in which amount. These goods and services to be imported and exported and what amount of taxes should be imposed on these imports and exports are all the parts of the foreign trade policy of that country.

It depends upon a country that which type of foreign trade policy will be adopted by it and it is also not necessary that every time same type of foreign trade policy will be adopted by a country and India is a clear cut example of it. As we know that India has been under British control for a fairly long period of time and has been exploited on economic grounds due to which the economic condition of our domestic producers became weak and they were not in a position to compete with the foreign traders or producers. So, in order to protect them from foreign competition, after independence, government of India had put barriers on foreign trade and foreign investment. Since the beginning of five year plans (Year 1951) till adoption of new economic policy (Economic Reforms) in 1991, industries did not face any competition from abroad as India just allowed imports of only essential items such as machinery, fertilizers, petroleum, etc. in its foreign trade policy. Though along with development of economic plans number and quantity of goods to be imported kept on rise. This economic scene remained almost more or less same till 1991. But this economic scenario could not be continued for longer period. In the year, 1991, requirement of economic reforms emerged in Indian economy. The main reasons for this were as under-

- Government of India incurred huge amount of expenditure on public sector undertakings, but the income received from these units was very low. So, the gap between income and expenditure of the government started increasing which led the government towards huge fiscal deficit. To manage this deficit, adoption of economic reforms became essential.

Fiscal Deficit

The word FISCAL has been borrowed from the word FISC which means TREASURY. So, Fiscal deficit is the deficit in the treasury of the government. It happens when the total expenditure of the government in an accounting year is more than its total income.

Fiscal Deficit = Total Expenditure – Total Income

- Deficit in balance of payments also mounted high. To meet this deficit, government had to depend upon external borrowings. These borrowing became so huge that it turned out difficult for the government to pay for these. So, the adoption of new economic policy became essential.

Balance of Payment

It is a systematic record of all the economic transactions of a country i.e. imports and exports with rest of the world . Deficit in balance of payment means that value of the imports of a country is more than the value of exports and if this deficit occurs, the government of that country has to take loans or to borrow to make payment for the excess imports.

- The production done by the public sector units was very less and as a result it could not meet the rising demand of goods in the market. So, the prices of goods in the market started rising and as a result, the rate of inflation reached to the level of 16.7 percent. So, the government was left with no other option to change its economic policy.
- As the public sector units were not able to meet the domestic demand of goods and services. So, the government had to import huge amount of goods and as a result import bills were increased and the decreasing exports at the same time led to fall in export income. Due to which foreign exchange reserves decreased to the pitiable state. This crisis was so serious that the government had to mortgage gold reserves with other countries to pay off interest and foreign debts. It worked as a push factor for India to adopt new measures to accumulate foreign exchange reserves.
- Poor performance of the public sector units also forced the country to adopt the policy of privatisation.
- Iran-Iraq war in 1990-91, known as Gulf war led to sharp rise in price of petrol in the international market. As India imports huge amount of petroleum products from these countries, thus import bill of these products rose and at the same time India's exports to Gulf countries fell steadily, making the balance of payment position further gloomy.

All these factors compelled the Indian government to adopt new economic policy. known as L-P-G (Liberalisation-Globalisation-Privatisation) policy in 1991. In the wake of launching this policy it was decided that the time had come for Indian producers to compete with the producers of other countries in the international market. It was also felt that this competition would improve the performance of producers within the country as well as in international market by improving the quality of their products. Thus under this policy, barriers on foreign trade and foreign investment were removed to a large extent. This made the process of imports and exports easier than before and foreign companies started setting up their factories and offices in India for production in view to sell them. Removing these barriers or restrictions set up by the government is known as **Liberalisation** as now the government has become more liberal in the imposition of these. In **Privatisation**, the government allows the private sector to set up their business units in the areas which were reserved for the public sector earlier. Now foreign and private companies can also set up their business units in these areas as well. These two measures adopted by the government led to the greater integration of Indian economy with rest of the world called **Globalisation**.

Foreign Trade Policy

Foreign trade and foreign investment policy is a government's regulation or law that can encourage or discourage foreign trade and investment in the local economy. Let us take the example of imports of Chinese toys, tools, kitchen ware and electronic goods. It is generally seen that price of these Chinese products is relatively lower than the products of India. It means that the taxes imposed by Indian government on these are relatively low. Suppose the Indian government imposes a high tax on imports of these goods, then actual

price of these goods will increase and the Indian people will become hesitant to pay a higher price on these imported goods. Consequently, the demand for these Chinese goods will fall and imports from China will automatically decline and foreign investment by China in India will also diminish. On the contrary, if the government of India wants to make more availability of these goods to Indian markets, then the tax rate will be lowered and as a result, prices of goods will fall and foreign trade and foreign investment by China will rise in India.

Pic 5.3

Tax imposed by Indian government on imports from any country is an example of trade barrier. Government uses trade barriers to increase or decrease the volume of foreign trade. By this the government also decides the kind of goods and the quantity to be imported.

Let's work this out-

1. How foreign trade is different from foreign investment?
2. How does the liberalisation of foreign policies lead to globalisation in India?
3. Discuss with your teacher the nature of policy of Indian government before and after the New Economic Policy of 1991.

5.2.3 World Trade Organisation

The economic history of the world witnesses that the liberalisation of foreign trade and investment in India was supported by some very powerful international organisations. According to these organisations, barriers to foreign trade and investment are not beneficial for the world economy. They are of the view that there should be no barriers on the trade among countries. All countries in the world should liberate their foreign policies in order to promote foreign trade and foreign investment.

World Trade Organisation (WTO) is one of the major international organisations which aims to reduce various tariffs and non-tariff barriers on international trade in order to promote free trade of goods and services. WTO establishes rules regarding international trade and has an eye that these rules must be obeyed. As on July 2016. 164 countries of the world are the members of the WTO.

Afghanistan became 164th member of this organisation on July 29, 2016. India has been a WTO member since January 1, 1995.

5.2.3.1 Objectives of WTO

The WTO has six key objectives:

- To set and enforce rules for international trade.
- To provide a forum for negotiating and monitoring further trade liberalisation.
- To resolve trade disputes.
- To increase the transparency of decision-making processes.
- To cooperate with other major international economic institutions involved in global economic management.
- To help the developing countries to take full benefit from the global trading system.

Let's surf the internet to answer the following :

1. Make a list of any 10 countries that are the members of WTO.
2. Make an assignment with the help of your teacher on the topic, "What are the impacts of WTO on Indian economy?

5.3 IMPACT OF GLOBALISATION ON INDIA

Globalisation, in context of India, has brought significant impact on consumers and producers in the last twenty years or more. Some of the areas of its impact are discussed as under:

5.3.1 Impact on Consumers

Globalisation has led to intense increase in international trade. As a result, there is a greater choice of goods before the consumers. Besides, now they can enjoy improved quality at a lower price for several products of international brands which was not so easy before. But it has also been clarified that mainly well off sections of the society have benefited from it. These people enjoy relatively higher standard of living than earlier, but there is not so much change in the choices of weaker section of the society.

Pic 5.4 :Consumers have a greater choice of goods in the market

5.3.2 Impact on Investment and Production by MNCs

Due to adoption of liberal policy for foreign investment and trade under globalisation, MNCs has increased their production in India manifold in the past 20 years and earned a huge amount of profits. They have been interested mainly in industries such as cell phones, automobiles, electronics, soft drinks, fast food, medicines or services such as banking and insurance in urban sector. India is a large market place for these products. In addition, the local firms supplying raw material and intermediate goods to these MNCs have also prospered.

5.3.3 Impact on Top Indian Companies

The advent of globalisation has increased competition among the producers in India. The top Indian companies have now been forced to upgrade themselves or they will be out of the market due to this cut throat competition from the foreign companies. So, the Indian companies raised their production standards by investing in new technology and production methods. Moreover, some Indian companies made successful collaborations with foreign companies and some large Indian companies emerged as MNCs themselves. Some examples of these companies are Asian Paints Limited (Paint), Ranbaxy Laboratories Limited (Medicines), Tata Motors Limited (Automobiles), Infosys (IT), Sundaram Fasteners (Nuts and bolts), Tata Tea Limited (Tea) and The Indian Hotels Company Limited (Hotels) etc. These companies are spreading their operations worldwide.

5.3.4 Impact on Companies related to Informatin Technology

A large amount of Foreign Direct Investments (FDI) came to India that created new opportunities for companies providing services, particularly those involving Information Technology (IT). The Indian company producing (publishing) a magazine for the London based company and call centres are some of the examples of it. Besides, services such as data entry, accounting, administrative tasks, engineering, etc, are now being done cheaply in countries such as India and are exported to the developed countries.

Difference between Foreign Direct Investment and Portfolio Investment

In these both types of investment, foreign companies came to the native country and invest their money. But the difference is that in FDI, foreign companies set up their own business units and they have full control over it like opening of stores by Wallmart in India is called FDI. But in Portfolio investment, foreign companies do not set up their own business units, but they invest in the domestic business units in the form of purchase of shares. Like if a foreign company comes to India and invest by purchasing shares of TATA Company, then it is called portfolio investment. In this type of investment, the business control remains in the hands of the domestic producers like TATA Company in the above example.

5.3.5 Impact on Small Producers and Traders

The policy of globalisation has adversely affected the small producers and the traders. Many of such local producers whose products were similar to that of imported ones could not compete in producing and maintaining the quality of their products and as a result have to lose their business.

Rising Competition

Harjeet Singh (hypothetical name) started a small unit of producing/making wooden toys in a village located near Barnala city in Punjab by taking loan from the bank. He made variety of wooden toys like buses, tractor-trolleys, trucks, motorcycles, bullock carts, etc. and earned profits after selling them. Within four to five years from the beginning, he was able to expand production and had ten workers under him. Harjeet Singh did not expect that he would have to face a crisis in the early phase of his working life as a small producer.

His problem to run his firm began at the time when the Indian government removed restrictions on imports of products as per WTO agreement. Under this process, many types of toys from our neighbouring country, China had started coming to India at cheaper rates. Baby toys, electric toys, remote control toys, action games, educational games, dolls, riding vehicles, musical toys, are some examples of imports that hit the sale of Harjeet Singh's products badly. Besides cities, these toys are made available soon for sale even in remote/ rural areas at village fairs and they are also sold by vendors often. Moreover, due to this process local buyers have a greater choice of toys at lower prices and they started purchasing these Chinese toys. In this way the imports of Chinese toys hit the businesses being run at rural/remote areas too. Due to lack of buyers or less demand of his toys, Harjeet Singh started producing almost half the number of toys than he produced five years back and has only four workers working under him. Many of small producers of this category shut down their units for not earning normal profits.

Imported toys for sale in India

A unit of wooden toys' production at a village in Punjab

Pic 5.5

The inflow of toys, tyres, batteries, sewing machine parts, auto parts, sanitary products, etc. are some examples of industries where the small manufacturers have been hit hard due to competition from these products. Besides policies related to globalisation, inadequate working capital, expensive bank loans, lack of infrastructure, insufficient marketing facilities and weak bargaining power of local producer compelled them either to shut down their production units or to contract the business. This phenomenon also left rendering many workers jobless.

Let's work on the following :

1. How do the imports from developed country affect the producers of a developing country?
2. How can a government protect the local producers from cheap imports?

5.4 NEED OF FAIR GLOBALISATION

Now the question arises whether globalisation is good or bad for the economy? Because often it is blamed that this policy has been only benefitting the developed nations and the developing and under developed countries have been the sufferers. In this regard, it can be said that a fair policy for globalisation can help in benefitting each and every nation.

Fair globalisation means all countries in the world should be equally benefitted. But the evidences highlight that everyone has not benefited equally from it. Only countries having skills and wealth in a greater amount has availed the new opportunities from the globalisation process and made best use of them. But many other countries have not shared the benefits of globalisation. Today, there is a great need of fair globalisation in which opportunities mainly for employment are created for all and benefits are also shared better.

In a developing country like, India, this process should be monitored by the government by making relevant policies to protect the interests of various segments of the country.

A fair policy of globalisation should include the following :

- It should not harm the interests of the poor nations.
- It should make proper use of available resources of all the nations.
- It should not be exploitative in nature.
- It should be based upon mutual understanding and co-operation among the nations.
- It should ensure proper availability of goods and services in all the countries.
- It should ensure equal opportunities of employment for all the people in each country.
- The under developed and developing nations with similar interests should form a group to protect their rights against the dominated countries in WTO.

- Globalisation is opening up of native/domestic economy for rest of the world mainly through foreign trade and foreign investments by Multi National Corporations (MNCs).

- A Multi National Corporation is a business unit that operates in many different countries at the same time or it is a company that has its business activities in more than one country.
- Technological developments, liberalisation of foreign trade and foreign investment are some of the notable factors that lead to globalisation.
- Liberalisation means removal of all the barriers or restrictions on trade set up by the government.
- WTO stands for World Trade Organization. It was established in 1995. As on July 2016, 164 countries of the world are the members of the WTO.
- WTO aims at reducing tariffs and non-tariff barriers on the international trade.

A. Objective Answer Type Questions :

1. Fill in the blanks

(i) India adopted new economic policy in the year of ..... .

(ii) MNC stands for..... .

(iii) Consumers have greater ..... of goods in globalisation.

(iv) Removing barriers or restrictions on trade set up by government is known as ..... .

(v) Fair globalisation would create opportunities for ..... .

2. Multiple choice questions :

(i) The trade which takes place among countries is known as :

(a) foreign trade (b) regional trade

(c) both a and b (d) none of the above

(ii) What was/were the major reasons to adopt new economic policy ?

(a) deficit in balance of payment (b) hike in inflation rate

(c) decrease in foreign exchange reserves (d) all of the above

(iii) When did India become a member of WTO?

(a) January 1, 1994 (b) January 1, 1995

(c) January 1, 1996 (d) January 1, 1997

(iv) What are the benefits of globalisation?

(a) Equal benefits for all

(b) new opportunities for skilled and unskilled labour

(c) Both a and b

(d) None of the above

3. True/False type questions

(i) An MNC establishes its business only in one country.

(ii) Technology emerged as a major force that led to globalisation.

(iii) The trade which takes place between Punjab and Haryana is an example of foreign trade.

(iv) India adopted new economic policy in 1995.

(v) There is a great need of fair globalisation in countries like India.

4. Very Short Answer Type Questions

Write answer of these questions in one word or in one sentence.

(i) What do you mean by globalisation?

(ii) What do you mean by a Multi National Corporation?

(iii) What is the meaning of liberalisation?

(iv) What is foreign trade?

(v) What is meant by foreign investment policy ?

A. Objective Answer Type Questions :

Write answer of these questions in 50-60 words.

1. Why did the Indian government put barriers on foreign trade and investment in the beginning of five year plans?
2. When did the Indian government remove the barriers on foreign trade and investment and why? Explain.
3. Why did India adopt new economic policy in the year 1991? State reasons.
4. What has been the impact of globalisation on small producers in the country?
5. 'The impact of globalisation has not been uniform on everyone'. Explain this statement.
6. How the liberalisation of foreign trade and investment policies have helped the globalisation process?
7. Explain the factors that led to globalisation.

Discuss with your friends about some branded products that you use everyday (toothpaste, soaps, shampoos, electronic goods, etc). Check, which of these are produced by an MNCs.

6

CONSUMER EXPLOITATION AND PROTECTION

6.1 INTRODUCTION

Consumer is always a king in the market as the market runs according to the demands of the consumers. All the goods and services available in the market are due to the fact that consumer demands these items. Hence, it is very necessary that the consumer should be protected from various types of malpractices in the market, so as to maximize his satisfaction. It becomes imperative to aware the consumer about his rights in the market. In this chapter different concepts related to consumer awareness will be explained. We will examine different forms of consumer exploitation, its types and also discuss various factors responsible for it. Beside this, we will also study the concept of consumer awareness and remedial measures that a consumer must keep in mind in order to protect himself from exploitation. Finally, consumer rights and duties along with laws and bodies related to consumer awareness enacted by the government will also be discussed. Now we will start depicting an incident related to consumer exploitation and hope you too might have experienced a similar one.

Pic 6.1

Gauri lives in a village as a housewife. Every day while cooking, she realises the need for a mixer grinder. To buy it, she plans a visit to the city which is 5 Km away. She is highly delighted to purchase a mixer grinder at a discounted rate due to the festival season. But when she returns home, she found that the press-buttons of mixer grinder are broken and

even the blade is also twisted. The next day, she again goes to the shopkeeper and complains to him about the problem. She also requested to get it replaced, but the shopkeeper refuses to accept her request to replace the mixer grinder. Gauri is left dejected. Finally, Gauri returns back home and ask her neighbourers for some advice.

1. As a sympathetic neighbourer, what do you think Gauri should do?
2. What advice would you give to her?

In the above case study, Gauri is a consumer,but what do you mean by a consumer? Are you a consumer or your parents are consumers?For example, you purchase books from a book store or buy movie tickets. In both these cases you are a consumer. Your parents buy vegetables from market and they are also consumers. From these examples we can conclude that ***a person who consumes various types of goods and services for the direct satisfaction of his wants is called a consumer***. Consumption does not only mean to eat something, but also it is to use various goods and services. If a person is using anything for his satisfaction, he is consuming that thing and thus he is called a consumer.

Government provides us with a number of essential services such as wateher, electricity, sewerage system, etc., which we consume for our personal use.

1. Take a few minutes, look around and notice which things you are consuming right now ?
2. Even when we watch TV, we are a consumer, but what do we consume in this case? Discuss it in the class.

Brain Exercise

Let us examine this concept in detail and study some confusions related to the above definition. Suppose you buy a mini-van to move goods from one place to another. Are you a consumer? Well, it depends on how you use your mini-van. If you are using it for yourself then yes, you are a consumer. If you are using it on a large commercial scale with the purpose of generating profit then you are not a consumer rather you are a producer because in this case you are not using your mini-van for your satisfaction, but for earning profits and those people who does anything for earning profits are called producers.

6.2 CONSUMER EXPLOITATION

After Gauri's incident you might have noticed that a particular item which you had bought was damaged and you wished to return it or a particular good was not of the standard as stated on its packaging and when you went to return it, the shopkeeper refused to take it back. Such an instance leads to exploitation of the consumer as she/he does not get the goods or services as promised by the shopkeeper for the money that the consumer had paid for those goods and services.

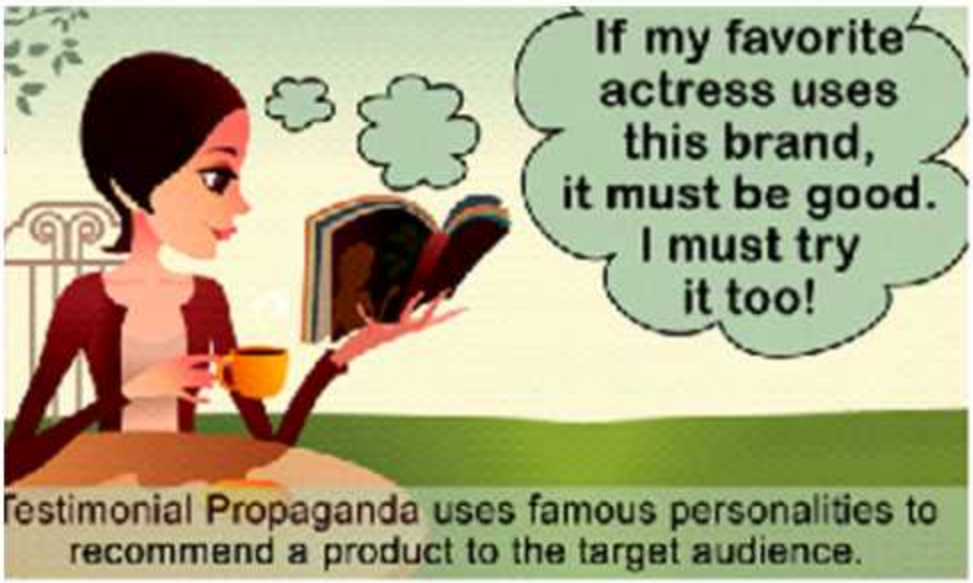
As a consumer we need protection from such malpractices, but we can protect ourselves only after we know the ways in which we are exploited.

6.2.1 Types of Consumer Exploitation

There are various forms by which a consumer can be exploited. Some of these forms are given as below:

(A) **False Advertising:** There may be companies which advertise that their product is healthy for kids to eat, but in practice they use unhealthy ingredients. Or in some cases, a mobile network company advertises to have the fastest network but in practice it is not so. In both the cases companies defend themselves by claiming that the results are valid under certain conditions. Such instances fall under the category of false advertising. Consumers are misled in believing that the product has certain qualities while it actually does not have those qualities. Companies also advertise their product by displaying endorsement of famous personalities to attract consumers.

Pic 6.2



Pic 6.3

(B) **Monopoly Power:** Monopoly form of market is yet another cause of exploitation of the consumer. If there is a single seller of the product in the market, he can exploit the consumers by charging more price from them.For example, the OPEC countries have transformed themselves in a cartel creating a monopoly over the world for the supply of petroleum products. So, now they are charging whatever the price they want to charge and are exploiting the consumers.

Cartel

Cartel is a group of traders in which many traders unite themselves in order to avoid competition among themselves and thus fixes a higher price with mutual consent and hence exploits the consumers by this policy. For instance, the photographers and the medicine sellers in your city may make unions and fix a single rate to avoid competition among themselves, is an example of Cartel.

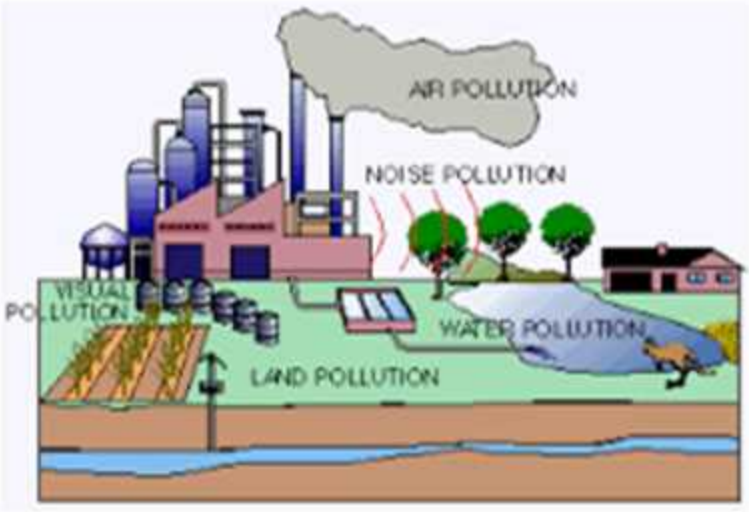
In agriculture also there is a practice of hoarding and black marketing. Traders come together and work as one entity to exploit the consumer. They hold the stock of essential commodities to create artificial scarcity in the market, so that they can sell their commodities at higher prices. As we have seen in the previous chapter that money lenders in the informal sector especially in the rural areas exploit the farmers and labourers by charging very high rate of interest on loans without following any rules and regulations. Thus they are exploiting the consumers.

(C) **Sub-standard Goods and Services:** Impure and adulterated food items, underweight and under-measurements are some of the ways by which; a seller tries to exploit the consumer. For instance, we buy vegetables and the seller may use sub-standard weight to measure the vegetables. So, we buy lesser vegetables for more amounts. Another aspect of this kind of exploitation is either lack of safety devices or their being sub-standard. For example, in a cooker the safety valve is the most critical piece of the utensil. We will never be able to test the safety valve before we buy and use it. So the seller may sell us cooker with a faulty safety valve and this may lead to a great harm for us when we actually use it.

Pic 6.4

(D) **Incomplete Information:** You might have read in the newspapers that certain restaurants were charging 'service charges' from their consumers. At that time many consumers did not know that this is an optional charge. This is an example of deceptive billing. Or at times the price quoted on the bill is more than the MRP. Sometimes information related to quality, expiry date, reliability, life cycle, durability and some conditions are written in small letters, so the consumer is not able to get complete information about these products. Another example is that very few consumers are aware that the big shopping malls and shops cannot charge any price for carry bags provided by them. Due to lack of knowledge, consumers usually pay the price charged to them by the shopkeepers.

E) Environmental hazards: The increase in industrialization has led to environmental degradation. A producer may cause environmental hazards like air, noise and water pollution during the production of their goods. Such actions pose environmental threats to the consumers and thus exploiting them indirectly.



Pic 6.5

(F) Unsatisfactory after-sale service: After sale service means the services which are provided to the customer by the seller after the sale of the product like warranty, guarantee, servicing of the product after sometime etc. Mostly expensive goods such as Cars, air conditioners, televisions etc. require constant and regular after sale services. Sometimes, the consumers are not provided with the promised after sale services and the consumer cannot do much about it, since he has made the full payment when he purchased the product.

Pic 6.6

(G) Duplicate Products: Many manufacturers and sellers sell fake and duplicate items in the name of the original items. Such types of goods are sold mostly in small towns and villages where people are relatively less educated and are not much aware about the quality of the products.

6.2.2 Factors Responsible for Consumer Exploitation

In the above section we have explained the different types of consumer exploitation. But the question arises, why such consumer exploitation takes place ? There are certain factors which are responsible for consumer exploitation. These are given as below :-

(A) **Unethical Business Conduct**: In the rat race of increasing profit and defeating business rivals, a businessman may choose to exploit the consumers by using tactics like hoarding, selling sub-standard quality goods, false advertisement etc.

(B) **Consumer Unawareness**: Often when we go to a market being unaware about the features of the product and we take the word of seller for granted to purchase the product. We don't know the ways in which we can be cheated and also lack the knowledge about our rights as a consumer. Consumer unawareness allows the seller to fearlessly exploit consumer and he is not afraid of the repercussions.

(C) **Lack or Absence of Laws Protecting Consumers**: Adequate laws can help the consumer to fight against a corrupt seller. However, these laws may not be updated as frequently as new products enter the market. Many a time, the seller knows how to find loopholes within the laws to exploit the consumer.

(D) **Lack of Coordination among Consumer, Government and Seller**: As far as consumer's safety is concerned, there is a lack of coordination among consumers, sellers and the government. Due to this, some sellers are able to exploit the consumers by availing undue advantage.

1. Have you ever witnessed any one or more of the above types of exploitation? Discuss.
2. What remedial measures do you suggest for avoiding the consumer's exploitation ?

6.3 CONSUMER PROTECTION

As discussed above there are number of ways in which a consumer can be exploited, but why can't market forces help the consumer to protect him against this exploitation. The seller meets a number of consumers in a day and may not see them again for a year. He sells the product on his terms and conditions. Consumer needs the product and buys it at whatever terms and conditions the seller dictates. To check this asymmetry there must be rules and regulations which ensure that consumer has the power to keep the seller under

Pic 6.7

check. Such rules help to protect consumer. **Thus, consumer protection is the process of saving the interest of consumer against exploitation by the traders.**

Consumer awareness is about making the consumer aware of his/her rights and responsibilities. He/She must exercise his power to choose a product with careful consideration. One must report any case of exploitation to the requisite appellate body so that the mis-deeds of the seller can be checked. In the absence of any legal system to protect the consumers from the exploitation, the consumers just avoid purchasing from adulterated shops or keep themselves away from products which do not give them required satisfaction and happiness. It took many years for organizations in India to create awareness amongst consumers. Continuous food shortage, adulteration of food and edible oil and dissatisfaction of the consumer due to the unfair practices by the seller gave birth to **consumer movement** in an organized form in 1960s in India. More recently, India saw an increase in the number of consumer goods and this is the reason that now a day, there is a great need to protect the consumers from the malpractices than ever before.

Consumer Protection Act, popularly known as COPRA was passed by the Indian Government in 1986.

We need consumer protection to ensure that our rights as a consumer are protected, so that we don't become the victim of a fraud. Now let us learn about consumer rights and duties.

Remember! In 1985, United Nations adopted the UN guidelines for Consumers Protection.

6.3.1 Consumer Rights

(A) **Right to safety:** There are many goods and services which may become risky for the health of the consumer, if the products do not follow the recommended safety measures. For example, pressure cooker, geyser, gas-stove, etc. Thus consumer has the right to be safe while using these commodities.

For example, Surinder Kaur was admitted in the hospital for the treatment of an ailment. She was operated upon by one of the best doctors of the hospital and was discharged from the hospital after two days as her condition was stable. But after that Surinder Kaur

Pic 6.8

suffered from different kinds of problems and was again hospitalized. After the conduction of some tests, it was found that she was suffering from jaundice. It was also found that the doctor who did the operation did not follow proper procedure and also did not conduct the required tests before the operation and it was confirmed from the tests that she was suffering from jaundice prior to operation. After a month, Surinder Kaur died due to multiple organ faliure. After her death, her husband filed a complaint in the State Consumer Dispute Redressal Commission which held the doctor and the hospital responsibe for medical negligence, due to which Surinder Kaur died. It directed the doctor to pay ₹10,00.000 and the hospital to pay ₹6,00,000 as compensation.

So, while using many goods and services, we as consumers have the right to be protected against the marketing of goods and delivery of services that are unsafe to life and property.

(B) **Right to choose:** Sometimes gas supply dealers ask you to buy gas-stove along with new gas connection. Consumer is left with no other choice but to buy the gas-stove, which may be of no use to him. In this way, sometimes we are forced to buy such things which we may not wish and we are left with no other choice. Actually, the consumer must has the right to choose to buy or not to buy the things offered by a seller.

Pic 6.9

(C) **Right to Information:** Consumer must know about the ingredients of the product he is consuming. For example, a Consumer must know that the amount of calories, vitamins, minerals, etc. he is consuming while drinking canned juice, cold drink etc. The red or green dot on food items inform you whether the item is suitable to people having preference for Non-vegetarian or Vegetarian. Further, you must find information like price, batch number, date of manufacturing, date of expiry and address of manufacturer etc.

The Government of India enacted a law known as Right to Information Act (RTI). Under RTI, all citizens have the right to know about the functions of various government departments. Citizens can know from the department of the government about the progress of their cases lying with them.

Pic 6.10

(D) **Right to Consumer Education:-**The right to consumer education states that consumer should be able to acquire knowledge and skills needed to make him informed. confident about choice of goods and services, while being aware of basic consumer rights and responsibilities and how to act on them.

(E) **Right to be Heard:-**Consumers have a right to give their opinion about the quality and price of goods and services. The opinion of the consumer deserves due consideration for the seller and manufacturer. Many businessmen have set up consumer grievances department to improve the quality of the product after getting feedback from the consumers.

(F) **Right to Seek Redressal:** If the consumer faces unfair trade practice or gets damaged product, he has right to get relief in the following way:

- o Commodity can be repaired free of cost;
- o Commodity can be replaced;
- o Full refund of the paid price can be provided;
- o Compensation equal to the loss can be provided.

Pic 6.11

6.3.2 Consumer Responsibilities

While we know the rights of consumers, we must know that there are certain responsibilities of the consumer also. To avoid the exploitation by the seller or manufacturer of the goods and services, the consumer should have the knowledge of the following duties.

(a) Ask Yourself!

(b) Be Critically Aware

(c) Be Involved

(d) Be Organized

(e) Practice Sustainable Consumption

(f) Be Responsible to the Environment

Consumer protection act is good not only for the consumers but also for businessmen since it ensures fair trade. Hence, it creates a level playing field not only between consumer and businessesman but also among different business competitors. There are a number of ways in which government ensures that markets maintain healthy competition and economy functions optimally.

6.4 LAWS AND BODIES ENACTED BY THE GOVERNMENT

You would have heard of District courts, High courts and the Supreme Court. But have you heard about Consumer court! In the case-study, given in the earlier section of the chapter, Gauri was a consumer. Let's see how consumer courts could help Gauri.

(A) Consumer Protection Act (COPRA, 1986): Consumer protection act was enacted on December 24, 1986 by Indian parliament to protect the consumers from the exploitation of the producers and the sellers.It is regarded as the Magna Carta in consumer protection in India, as it ensures the availability of consumer courts and forums all across India. It covers all sectors-private, public and co-operative. It provides 6 consumer rights and 6 consumer responsibilities. It establishes a Consumer Protection Authority to investigate into consumer complaint. COPRA established a three-tier system which is quasi-judicial which includes district level consumer courts, state level consumer courts and national level consumer courts. At present cases upto ₹20 lakhs are dealt by district level consumer courts, ₹20 lakh to ₹1 crore by state level consumer court and claims exceeding ₹1 crore are dealt by national level consumer court.

Pic 6.12

Activity

1. How Gauri is exploited while purchasing mixer grinder? Where she should go for redressal? Discuss in class.

(B) Standardisation of Products: To ensure that a product meets quality standards set by the government, several government organisations check this and issue certification stamps. Appearance of such logos or mark helps the consumer to purchase product with assurance of quality. ISI mark is a certification mark for industrial products in India. It is awarded by Bureau of Indian Standards, the national standards body, after the product qualifies to its given standard. Agmark certification applies only on agricultural products, whereas Hallmark assures standardization of gold jewellery products.

Pic 6.13

The name ISI is an abbreviation of Indian Standards Institute, the former name of the Bureau of Indian Standards.

(C) Other bodies and movements:

(a) Consumer International: It believes in a world where everyone has the access to safe and sustainable goods and services. It works in more than100 countries to empower the rights of consumers everywhere. It operates in India through a society named Consumer Coordination Council (CCC).

Pic 6.14

Pic 6.15

(b) World Consumer Rights Day: World Consumer Rights day is celebrated every year on 15th March. India celebrates 24th December as National Consumer Day. On this day Indian parliament enacted the Consumer Protection Act in 1986. The main purpose behind celebrating this day is to make the consumers aware about their rights and responsibilities. For this many types of slogans like **JAGO GRAHAK JAGO** and TV advertisements are prepared and propagated by the government.

Summary

- Consumer is a person who consumes or uses various types of goods and services for the direct satisfaction of wants.
- Consumer exploitation means a consumer is not given as promised by the producer or the seller and he is provided with wrong type of products.
- A consumer can be exploited by false advertising of the product, monopoly power of the producer, by providing sub-standard products, incomplete information about the product, non-satisfactory after sale services etc.
- Consumer protection is the process of saving the interest of consumers against exploitation by the traders.

- Consumer awareness is about making the consumer aware of his/her rights and responsibilities.
- A consumer has six rights.
- A consumer has six duties.
- Consumer Protection Act (COPRA), 1986 is regarded as the Magna Carta in consumer protection in India, as it ensures the availability of consumer courts and forums all across India.
- At present cases of consumer exploitation up to ₹ 20 lakh are dealt by district level consumer courts, ₹ 20 lakh to ₹ 1 crore by state level consumer court and claims exceeding ₹1 crore are dealt by national level consumer court.
- World consumer rights day is celebrated every year on 15th March. India celebrates 24th December as National Consumer Day.

A. Objective Answer Type Questions :

1. Fill in the Blanks

(i) A consumer needs ..... to save himself from exploitation.

(ii) Sometimes a consumer has to pay higher price than the MRP due to .....

(iii) ..... is the process of saving interests of the consumers.

(iv) ..... is the right in which the consumers gets opinion about the quality and price of goods and services.

(v) A consumer has ..... rights.

(vi) A consumer has ..... duties.

(vii) Right to Service act includes ..... number of services.

(viii) World consumer Day is celebrated every year on ..... .

2. Multiple Choice Questions

(i) In, India 'National Consumer's Day' is celebrated every year on:

(a) 15 August (b) 26 January

(c) 24 December (d) 15 March

(ii) AGMARK is a logo for:

(a) Safety Products (b) Jewellery

(c) Agricultural Products (d) Processed Food

(iii) COPRA was enacted in the year:

(a) 1985 (b) 1960

(c) 1947 (d) 1990

(iv) National Level consumer courts deals with the claims of rupees (₹) exceeding:

(a) 25 Lakh (b) 1 Crore

(c) 50 Lakh (d) 5 Lakh

3. True/ False Type Questions

1. Consumer should not go to court for compensation as the process is very difficult. (True/False)
2. Hallmark is the certificate for the standardization of Jewellery. (True/False)
3. BIS means Basic Indian System. (True/False)
4. Consumer has a right to choose. (True/False)

4. Very Short Answer Type Questions

Answer to These Questions will be given in one word or in one sentence.

(i) Expand COPRA.

(ii) What is meant by a consumer?

(iii) Can a producer be a consumer as well? Explain.

(iv) When consumer protection act was framed?

(v) What do you mean by ISI?

(vi) If you are using your computer for searching some information, then what are you consuming?

B. Short Answer Type Questions :

Answer of these questions will be given between 50-60 words.

1. What do you mean by COPRA? Explain.
2. Is all advertising being reliable? Explain with the help of an example.
3. What type of information of the product you want to be mentioned on it?
4. Explain the three tier system of consumer courts in India.
5. What are the important logos used for the standardization of different types of products?
6. Write a note on the Rights of the consumers.
7. Write a note on the duties of the consumers.

7

FINANCIAL AWARENESS

7.1 INTRODUCTION

At present, everyone wants to increase the amount of money they have, so that they can lead a prosperous life. Therefore, one needs to invest one's money at the right place and in the right amount, so that these investments made in the present can provide more income in the future. Therefore, it is very important to have financial awareness. This lesson provides information on financial awareness and various concepts related to it.

7.2 FINANCIAL AWARENESS

Financial Awareness means using your knowledge and skills to manage your financial resources properly. Financial awareness enables a person to decide how much he will consume, How much will be seved, Where and how much of the saved money will be invested, etc. Financial awareness makes a person self-sufficient in financial matters and aware him to use his money properly.

7.3 CONCEPTS RELATED TO FINANCIAL AWARENESS

Financial awareness includes awarenss related to of a number of Financial concepts. The main points of these concepts are explained as follows.

7.3.1 Insurance

Insurance refers to an agreement in which the insurance company pays a fixed amout to the person, firm or company from which it has insured itself, in case of any loss, illness or death. It provides assurance of payment in order to provide financial security to that person or firm or organization. This includes illness insurance, accidental insurance, fire insurance or theft insurance etc.

7.3.1.1 Benefits of Insurance

It is generally said that we should all get our insurance. These are the benefits of insurance, described as follows :

1. Benefits to an Individual : The main benefit of insurance is that it reduces the uncertainties in our lives. There is no assurance of human life. Anything can happen to us at any time i.e. we can face any disease, accident etc. at any time or we may even die. In this case the expenses of the rest of the family go up a lot and the sources of income go down or sometimes we have to face losses due to fire, breakage or theft in our business. Insurance helps us in all these unpleasant situations and provides us financial security.

2. Benefits to Society : When we get help from insurance in adverse circumstances, it does not reduce a person's income. This increases his productivity and standard of living and he can work better for the development of the society.

3. Benefits to the Economy : The government needs money to develop the country's economy. Therefore, all the people who get their insurance from these insurance companies have to pay their insurance premium to the insurance company which generates the income for these companies. The government receives this money from these companies for the development of the country such as road construction, bridge construction, construction of schools and colleges, provision of health facilities etc. and by investing this money, the country develops respidly.

7.3.2 Stock Exchange Market

The amount of investment in industries and services sector has increased tremendously at present and it is no longer possible for an individual to invest in such a huge amount. At the same time, the amount of risk has also increased due to increase in competition in the market. Therefore, no entrepreneur is willing to take all the risk while opening a company. So, he sells shares of his company to manage funds for his company and reduce his risk amount. The people who buy the shares of that company become shareholders in that company and in this way money is arranged for the entrepreneur and the amount of risk is distributed among all these stakeholders. For example, if Amit owns shares of a company worth Rs. 5 lakh, it means that Amit has a stake of Rs. 5 lakh in that company. If that company makes a profit, then Amit will also get a share of the profits according to his share in his company and if that company goes into loss, then Amit will also have to share in its losses.

Meaning of Stock Exchange Market

Stock Exchange market is that market in which all those companies, which get themselves registered in this market, sell their shares in this market. In other words, it is a market in which buyer and seller of shares met and make sale and purchase of shares.

7.3.2.1 Types of Stock Exchange Markets

There are several types of Stock Exchange Market in India. But out of these, two stock exchange markets are the most important. They are described as follows :

1. Bombay Stock Exchange : It was established in 1875 at Dalal Street, Mumbai. It is one of the oldest stock exchanges in the world and is currently the 10th largest stock exchange in the world. Its performance is measured by SENSEX.

SENSEX

The full form of the SENSEX is 'Stock Exchange Sensitive Index'. It is used to track fluctuations in the Bombay Stock Exchange. You may have heard that the Bombay Stock Exchange has gone up or down today. This is determined on the basis of the value of Sensex. If its value goes up, the Bombay Stock Exchange goes up and if it goes down, the Bombay Stock Exchange goes down. An increase in its value reflects an increase in the share price, which provides benefits to the people who buy the shares and a decrease in its value indicates a decrease in the share price, which provide loss to the people who buy the shares.

2. National Stock Exchange : It was established in 1992 in Mumbai. It is currently the 12th largest stock exchange in the world. Its performance is measured by NIFTI.

NIFTI

The full form of the NIFTI is 'National Stock Exchange Fifty'. It is used to track fluctuations in the National Stock Exchange. If its value goes up, the National Stock Exchange goes up and if the goes down, the National Stock Exchange goes down.

7.3.2.2 Things to know before investing in Stock Exchange Market

Investing in the stock market involves risks and sometimes even it leads to losses. Therefore, if an investor wants to invest in the stock exchange market, it is important for him to keep in mind the following things :

1. Investing in the stock exchange market is one of the different types of investments. This is not the only means by which you can invest your money. Apart from this we can also invest our money in bank deposits, purchase of real estate, purchase of gold etc.

2. When we invest in the stock exchange market, we need to remember that the purchse of our shares will never be without risk. In a market, where rising stock prices are profitable, falling stock prices are likely to be a loss.

3. Before investing in the stock exchange market, you need to open an account with a brokerage firm. A brokerage firm is a firm that buys and sells shares for you in the stock exchange market after receiving instructions from you. You have to deposit some money in this firm and with this money, it buys and sells shares for you and in return you have to pay a required fee or comminssion to that firm.

4. Never invest in shares of any one company because if that company goes into loss, all your money will sink. Therefore, one should invest a small amount in the shares of many companies, so that if there is a loss from one company, profit can be made from another company because the shares of all the companies never go into a loss together or into profit together.

7.3.2.3 Significane of Stock Exchange Market

The importance of the Stock Exchange Market has increased tremendously in the present times. Its significance is described as follows :

1. It helps companies to raise funds to expand their productivity. In this market, companies issue their shares and the various investors, who are interested in the shares of these companies, buy these shares and this gives the company their required funds, which are used to open new factories, to install machines, to hire new workers, etc.

2. This market also allows a common man, who does not have a large amount of money, to invest his money. In this market, small investors can buy shares of companies of their choice according to the money they have and can increase their earnings. It also increases the number of investors and contributes to the rapid growth of the economy.

3. The stock exchange market helps people convert their savings into investments. This increases the mobility of capital because the capital that people have idle at home is invested for the development of the country.

4. The stock exchange market acts as an indicator of the economic growth of an economy. If this market goes up, it is seen as the rapid rate of economic growth of that country and if this market goes down, then it slows down the rate of economic growth of that country.

- Financial awareness means using one's knowledge and skills to manage one's financial resouces properly.
- Insurance means to agreement between the insurance company and the person who

purchases that insurance. In this, the insurance company provies assurance to compensate for various types of losses accruing to the person or company purchased that insurance.

- Stock exchange market means the market in which shares are traded. India's major stock exchange markets are the Bombay Stock Exchange and the National Stock Exchange.
- The fluctuations of the Bombay Stock Exchange Market are measured by SENSEX and the fluctuations of the National Stock Exchange Market are measured by NIFTI.

A. Objective Answer Type Questions :

1. Fill in the Blanks

(i) Insurance means an ..... .

(ii) The National Stock Exchange Market is located in ..... .

(iii) The volatility of the Bombay Stock Exchange market is measured by .....

2. Multiple Choice Questions

(i) Which of the following is the benefit of insurance ?

(a) It provides protection in times of risk.

(b) It helps in buying and selling of shares.

(c) From this, a person can get moeny whenever he wants.

(d) It does not leave a person short of money.

(ii) Which of the following reflects the importance of a stock exchange market ?

(a) It provides funds for the growth of companies

(b) It increases the level of economic activities

(c) It increases productivity of the country

(d) All the above

(iii) Which of the following should be kept in mind before investing in the stock exchange market ?

(a) All money should not be invested in one company.

(b) The help of brokerage company should to taken

(c) Estimate of risk should be made

(d) All of the above

3. True/ False Type Questions

(i) The Bombay Stock Exchange was established in the year 1975. (True/False)

(ii) The National Stock Exchange is the 12th largest stock exchange market in the world. (True/False)

(iii) Only large investors can invest in the stock exchange market. (True/False)

4. Very Short Answer Type Questions

These questions should be answered in one word or in one sentence.

(i) What is meant by financial awareness ?

(ii) What is meant by insurance ?

(iii) What is meant by stock exchange market ?

(iv) Write the names of the two major stock exchange markets in Inida.

(v) Write the full form of SENSEX.

(vi) Write the full form of the NIFTI.

B. Short Answer Type Questions :

These questions should be answered in 50-60 words.

1. Describe the benefits of insurance in your own words.
2. Explain the two main types of stock exchange market in India.
3. What are the things to know before investing in the stock exchange market ?
4. Describe the importance of the stock exchange market.