DashoVidya
The Learners' Platform

NCERT Learning Program

Relevance of NCERTs

- Complete coverage of UPSC syllabus
- Helps in building conceptual clarity
- Simple & Lucid explanation
- Direct questions in Prelims & Mains exam
- Authentic & Reliable source

Coverage

- ✓ Chapterwise Summary of all relevant NCERTs from class 6th to 12th
- ✓ Coverage of all topics & Subheads of each chapter
- ✓ MCQs & Explanations for Prelims based on each chapter
- ✓ Mains questions wherever necessary
- ✓ Audio Visual Explanations

Unique Features

- ✓ Relevance rating at the beginning of each chapter
- ✓ Contents aligned as per the UPSC requirements
- ✓ Simple language and effective presentation
- ✓ Use of flow charts, tables, diagrams etc. for better clarity.
- ✓ Key Takeaways from each chapter

Summary - Geography

Class 8th: Resource and Development

Message to aspirants

Dear Aspirants,

A warm welcome to you from team DashoVidya!!!

We are extremely grateful to you for showing trust in us and choosing this summary book to complement your preparation and make your UPSC preparation journey smooth.

We are aware with the fact that NCERT is an important book to provide the fundamental understanding of the core concepts which are mentioned in the UPSC syllabus. Direct questions from NCERTs are also being asked in UPSC prelims and Mains exam on a regular basis. But the irony is, most of the students either skip reading NCERTs or they refer it in the later stage of their preparation.

We do understand the practical difficulties faced by the students in referring NCERTs as it becomes a lengthy and time consuming process to cover all the subjects from class 6th to 12th.

Keeping all these factors in mind, we have tried to make the NCERT reading easy and effective with our Summaries. These summaries cover all the topics of the chapters and, are drafted and explained in a simple and lucid manner with some unique features like relevance rating, key takeaways etc. We have tried to keep the essence of NCERTs intact by keeping some of the tables, graphs etc. in the same manner so as to emphasize their significance in the UPSC exam.

In order to make these summaries more relevant w.r.t. UPSC exam, we have supplemented them with MCQs (covering previous year ques; if any) and their explanations along with Mains questions wherever necessary.

Students, you have already chosen a challenging path of preparing for one of the toughest exam, therefore, we have tried our best to provide you with an exclusive and unique material to make your journey effective and goal-oriented.

Your valuable input in the form of feedback is really important to us. You can mail us @ *dashovidya.upsc@gmail.com* or contact us @ 895852855.

Best Wishes!!!

Thank You.

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CHAPTER 1– RESOURCES

Relevance rating: 2/5

- Civil Service syllabus: Economic Geography
- This chapter forms the base for learning about concepts related to resources and sustainable development which are explained further in higher classes.
- Conceptual understanding is needed for prelims and content enrichment in mains answers as well.
- Applied Questions have been asked from this chapter repeatedly in prelims as well as mains (Refer page 3)

Chapter Overview:

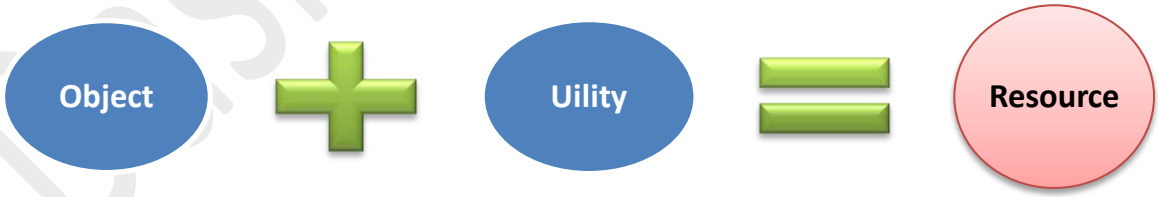
This chapter deals with

- Concepts of resource and value.
- Types of resources.
- Conservation of resources.
- Basic concept of sustainable development.

Note: This summary should be supplemented with basic reading of NCERT.

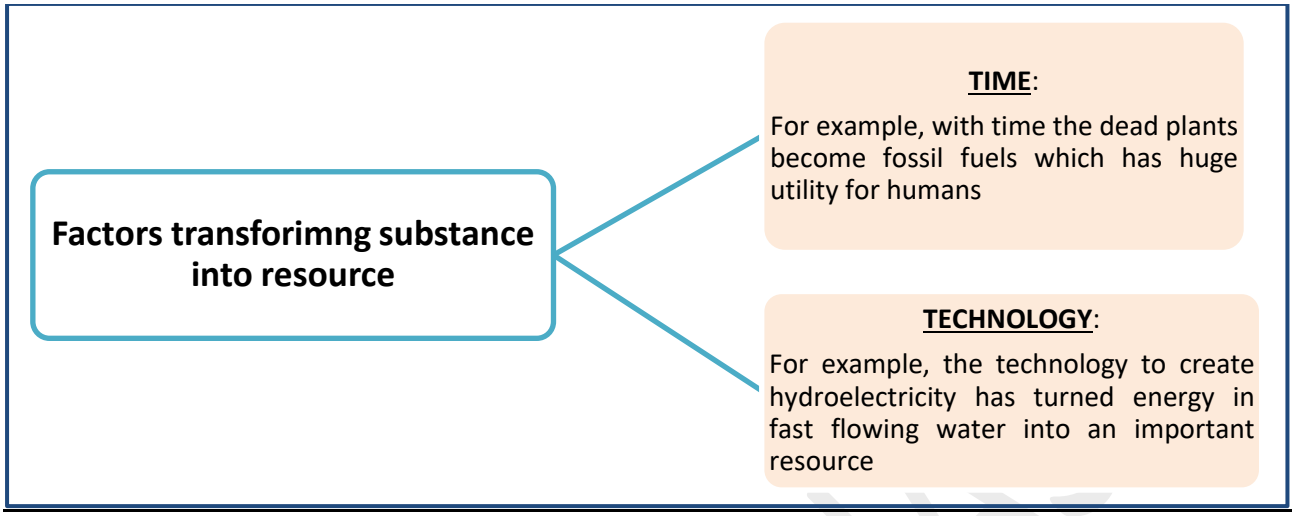
❖ Resource

- Anything that can be used to satisfy a need is called a resource.
- The difference between object and resource is in its utility.
- Things become resource when they have a value.

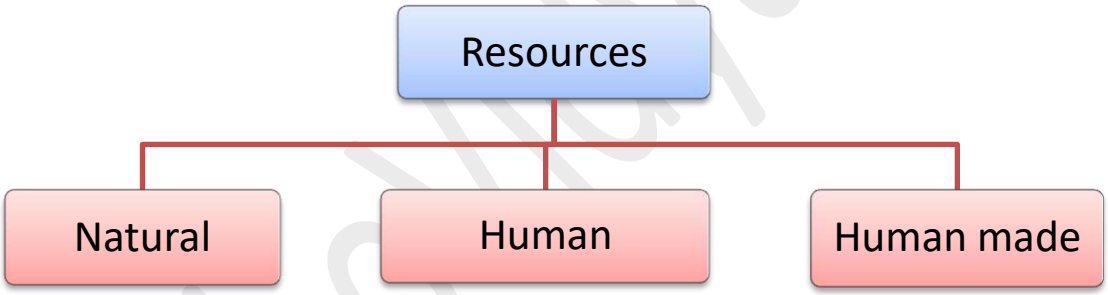


❖ Value

- It means worth.
- The utility of the object gives it a value.
- Value might be economic or non-economic. For example, metals may have an economic value, a beautiful landscape may not. But both are important and satisfy human needs.
- The value changes with time also. For example, the house bought 10 years ago will be having a different value today.



❖ Types of Resources:



- **Natural resource**- Drawn from nature and used without much modification. Eg.- air, water, soil. Distribution of natural resources depends upon number of physical factors like terrain, climate and altitude. The distribution of resources is unequal because these factors differ so much over the earth.

  Natural resources are subcategorised into two parts:

  a) Renewable resources – which get renewed and replenished quickly. Eg solar energy and wind energy. Some them are unlimited like wind but some are limited also like forests, soil etc.

  b) Non-renewable resources - which have a limited stock. Once the stocks are exhausted it may take thousands of years to be renewed or replenished. Eg coal, petroleum and gas.

- **Human resource –** Knowledge + Skills. It refers to the number (quantity) and abilities (mental and physical) of the people. Further, improving the quality of people's skills so that they are able to create more resources is known as **Human Resource Development**

- **Human made resource** – When humans change the original form of natural substances to make them usable. For example, iron ore was not a resource until people learnt to extract iron from it. People use natural resources to make buildings, bridges, roads, machinery and vehicles, which are known as human made resources. Technology is also a human made resource.

❖ Conserving resources:

- Using resources carefully and giving them time to get renewed is called **Resource Conservation**.
- There are many ways of conserving resources. Each person can contribute by reducing consumption, recycling and reusing thing.

❖ Sustainable development:

- Balancing the need to use resources and also conserve them for the future is called **Sustainable Development**.
- It aims at meeting the requirements of present and not compromising with the requirements of the future generation.

Some Principles of Sustainable Development

- ✓ Respect and care for all forms of life
- ✓ Improve the quality of human life
- ✓ Conserve the earth's vitality and diversity
- ✓ Minimise the depletion of natural resources
- ✓ Change personal attitude and practices towards the environment
- ✓ Enable communities to care for their own environment.

Key Takeaways:

- Resources are any objects which have certain use.
- The value of a resource can be economic or non-economic.
- Primarily there are three type of resources –
  a) Natural resource
  b) Human resource
  c) Human made resource
- Reduce, reuse and recycling are the basic pillars of resource conservation.
- Sustainable development is balancing the needs of present as well as future generation.

CHAPTER 2-Land, Soil, Water, Natural Vegetation and Wildlife

Relevance rating: 2.5/5

- Civil Service syllabus: Economic Geography
- This chapter forms the base for learning about concepts related to some of the natural resources.
- Conceptual understanding is needed for prelims and content enrichment in mains answers as well.
- Questions have been asked from these concepts in prelims as well as mains.

Chapter Overview:

This chapter deals with

- Land as a resource and changes in land use
- Soil. Its formation and conservation
- Water as a resource and its conservation
- Natural vegetation, wildlife and its distribution.

***Note**: This summary should be supplemented with basic reading of NCERT.*

❖ LAND

- A natural resource.
- Covers only about 30% of the total area of the earth's surface.
- 90% of the world population occupies only 30% of land area. The remaining 70% of the land is either sparsely populated or uninhabited.
- Rugged topography, steep slopes of the mountains, low-lying areas, desert areas, thick forested areas are normally sparsely populated or uninhabited.
- Plains and river valleys offer suitable land for agriculture and are densely populated.

➢ Land Use

- It means the purpose for which land is being used, e.g. - agriculture, mining, roads etc.
- Dependent upon physical as well as human factors.
- Physical factors = topography, soil, climate, minerals and availability of water.
- Human factors = Population and technology.

➢ Change in land use

- Growing demand of people has led to rampant encroachment of land and consequent change in land use pattern.
- Agriculture and construction activities have led to land degradation, soil erosion, desertification and landslides.

The above figure shows how once open green agricultural land has been converted into congested concrete urban landscape.

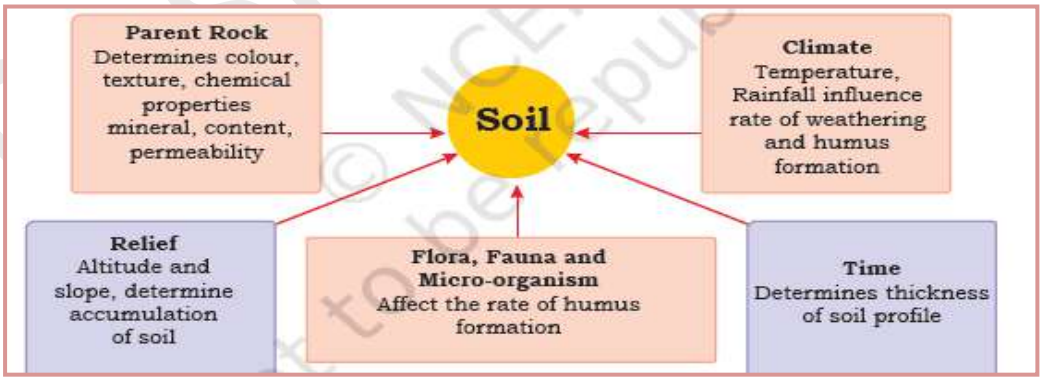
➢ Conserving land resources

- Afforestation – planting trees in areas where there were no trees earlier.
- Land reclamation – improving the land to make it more usable.
- Regulated use of chemical pesticides – to retain the natural quality of the soil.
- Checks on over grazing – to reduce erosion.

❖ SOIL

- The thin layer of grainy substance covering the surface of the earth **made up of organic matter, minerals and weathered rocks found on the earth.**
- Soil fertility depends upon the ratio of minerals and organic matter present in the soil

Factors of soil formation:



Deforestation, overgrazing, overuse of chemical fertilisers or pesticides, rain wash, landslides and floods are degrading the soil.

➢ **Steps to conserve soil**

- *Mulching*: The bare ground between plants is covered with a layer of organic matter like straw. It helps to retain soil moisture.
- *Contour barriers*: Stones, grass, soil are used to build barriers along contours. Trenches are made in front of the barriers to collect water.
- *Rock dam*: Rocks are piled up to slow down the flow of water. This prevents gullies and further soil loss.
- *Terrace farming*: Broad flat steps or terraces are made on the steep slopes so that flat surfaces are available to grow crops. They reduce surface run-off and soil erosion.
- *Intercropping*: Different crops are grown in alternate rows and are sown at different times to protect the soil from rain wash.
- *Contour ploughing*: Ploughing parallel to the contours of a hill slope to form a natural barrier for water to flow down the slope.
- *Shelter belts*: In the coastal and dry regions, rows of trees are planted to check the wind movement to protect soil cover.

Terrace farming

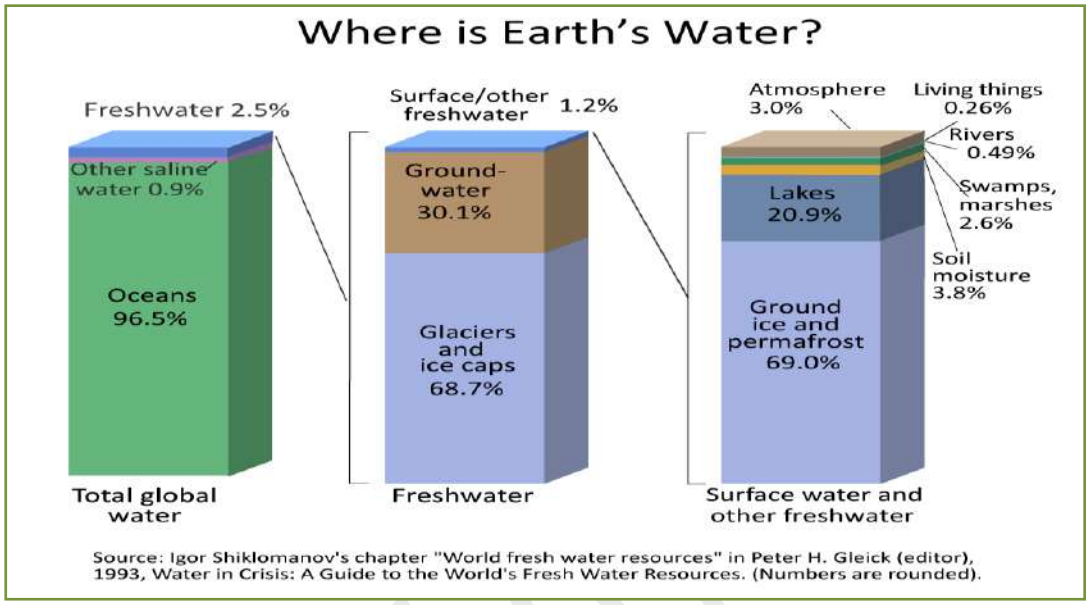
Contour bunding

Shelter Belts

❖ **WATER**

- Renewable natural resource.
- 75% of the earth's surface is covered with water therefore the earth called the 'water planet'.
- **Oceans cover 66% of the earth's surface**. The ocean water is however saline and not fit for human consumption.
- **Fresh water accounts for only about 2.7 %**. Nearly 70% of this occurs as ice sheets and glaciers in Antarctica, Greenland and mountain regions. Due to their location they are inaccessible.

- **Only 1% of freshwater is available and fit for human use**. It is found as ground water, as surface water in rivers and lakes and as water vapour in the atmosphere.
- Water can neither be added nor subtracted from the earth. Its total volume remains constant.
- Its abundance only seems to vary because it is in constant motion, cycling through the oceans, air, land and back again, through the processes of evaporation, precipitation and run-off. This is referred to as the 'water cycle'.



Increasing population, rising demands for food and cash crops, increasing urbanisation and variation in seasonal rainfall are negatively impacting the quantity as well as quality of water as a resource.

➢ **Water conservation**

- **Forest and other vegetation cover** slow the surface runoff and replenish underground water.
- **Water harvesting** is another method to save surface runoff.
- **The canals** used for irrigating field should be properly lined to minimise losses by water seepage.
- **Sprinklers** effectively irrigate the area by checking water losses through seepage and evaporation.
- In dry regions with high rates of evaporation, **drip or trickle irrigation** is very useful.

❖ NATURAL VEGETATIION/ WILDLIFE AND DISTRIBUTION

- Depends primarily on temperature and moisture.
- Major vegetation types of the world are grouped as forests, grasslands, scrubs and tundra.
- In areas of heavy rainfall, huge trees may thrive. The forests are thus associated with areas having abundant water supply.
- As the amount of moisture decreases the size of trees and their density reduces.
- Short stunted trees and grasses grow in the regions of moderate rainfall forming the grasslands of the world.

- Thorny shrubs and scrubs grow in dry areas of low rainfall. In such areas plants have deep roots and leaves with thorny and waxy surface reduce loss of moisture through transpiration.
- Tundra vegetation of cold Polar Regions comprise of mosses and lichens.

➢ **Conservation of natural vegetation and wildlife**

- Increasing awareness - Awareness programmes like social forestry and *Vanamohatasava* should be encouraged at the regional and community level
- Establishing protected areas – national parks, wildlife sanctuaries and biosphere reserves.
- Conserving creeks, lakes and wetlands.

Additional Information ***(Important for Prelims)***

- **National Park**
  A natural area designated to protect the ecological integrity of one or more ecosystems for the present and the future generations
- **Biosphere reserves**
  Series of protected areas linked through a global network, intended to demonstrate the relationship between conservation and development.
- **CITES (The Convention on International Trade in Endangered Species of Wild Fauna and Flora)**
  It is an international agreement between governments. It aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. Roughly 5,000 species of animals and 28,000 species of plants are protected. Bears, dolphins, cacti, corals, orchids and aloes are some examples.

Key Takeaways:

- Land, water, soil, natural vegetation and wildlife are key natural resources of great human importance.
- All of these resources are available in plenty but human factors are causing their depletion in qualitative as well as quantitative terms.
- These resources require multidimensional conservation strategy focussing on passing suitable legislations, reducing human needs, reforming agriculture practices and establishing protected areas.
- **CITES** is an important international convention to conserve wildlife.

CHAPTER 3-MINERAL AND POWER RESOURCES

Relevance rating: 3.5/5

- Civil services syllabus – Economic geography
- The concepts of this chapter make you understand the basics of minerals and power resources.
- Nowadays UPSC is focussing on sustainable development and understanding the nature of mineral and power resources form an important component of this.
- From the Indian perspective also, transformation in energy and mineral technologies is one of the important policy initiatives.

Chapter Overview:

This chapter deals with

- Types, distribution of minerals across the globe
- Conservation of minerals
- Conventional and non-conventional power resources
- Important characteristics of power resources and their distribution across the world.

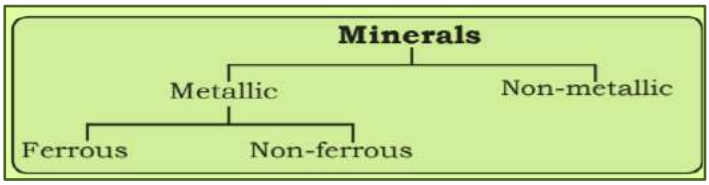
***Note**: This summary should be supplemented with basic reading of NCERT.*

❖ MINERALS

- **A naturally occurring substance** that has a definite chemical composition created by natural processes.
- **Unevenly distributed**, formed in different types of geological environments, under varying conditions
- **Concentrated in a particular area or rock formations**
- **Identified on the basis of their physical properties** such as colour, density, hardness and chemical property such as solubility.

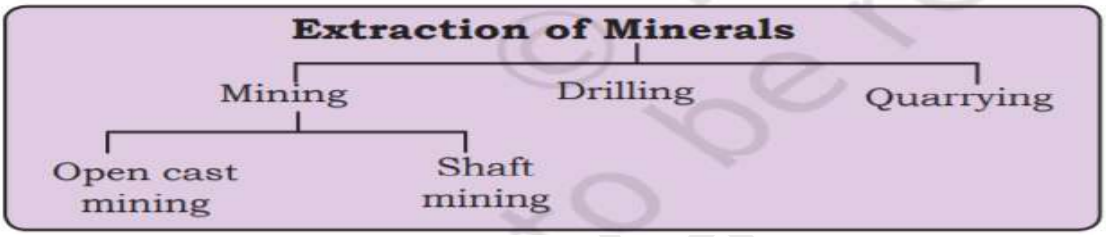
➢ Types of minerals

- On the basis of composition, minerals are classified mainly as **metallic and non-metallic minerals.**



- **Metallic minerals contain metal in raw form**. Metals are hard substances that conduct heat and electricity and have a characteristic lustre or shine. Iron ore, bauxite, manganese ore are some examples.
  Metallic minerals are of two types:
  1. Ferrous: These minerals like iron ore, manganese and chromites contain iron.
  2. Non-ferrous mineral: It does not contain iron but may contain some other metal such as gold, silver, copper or lead.
- **Non-metallic minerals do not contain metals** e.g. Limestone, mica and gypsum. The mineral fuels like coal and petroleum are also non-metallic minerals.

▪ **Techniques for extraction of minerals**



Mining: The process of taking out minerals from rocks buried under the earth's surface.
- Open-cast mining: Minerals that lie at shallow depths are taken out by removing the surface layer
- Shaft mining: Deep bores (shafts) have to be made to reach mineral deposits that lie at great depths.

Drilling: Petroleum and natural gas occur far below the earth's surface. Deep wells are bored to take them out.

Quarrying: Minerals that lie near the surface are simply dug out by this process.

➢ **Worldwide distribution of minerals:**

- Metallic Minerals: These minerals are thin Generally and are found in igneous and metamorphic rock formations that form large plateaus
  E.g. Iron-ore in north Sweden, copper and nickel deposits in Ontario.
- Non-Metallic Minerals: Sedimentary rock formations of plains and young fold mountains contain like limestone.
  E.g. Limestone deposits of Caucasus region of France, manganese deposits of Georgia and Ukraine

ASIA:

- *Iron ore deposits* - China and India
- *The world's leading tin producers* - China, Malaysia and Indonesia.
- China also leads in production of lead, antimony and tungsten.
- Asia also has deposits of manganese, bauxite, nickel, zinc and copper.

EUROPE:

- Europe is the *leading producer* of iron-ore in the world.
- The countries with large deposits of iron ore are Russia, Ukraine, Sweden and France.
- Minerals deposits of copper, lead, zinc, manganese and nickel are found in Eastern Europe and European Russia

NORTH AMERICA:

- Iron ore, nickel, gold, uranium and copper are mined in the Canadian Shield Region, coal in the Appalachians region.
- Western Cordilleras have vast deposits of copper, lead, zinc, gold and silver.

SOUTH AMERICA:

- *Brazil is the largest producer of high grade iron-ore in the world.*
- Chile and Peru are leading producers of copper.
- Brazil and Bolivia are among the world's largest producers of tin.
- South America also has large deposits of gold, silver, zinc, chromium, manganese, bauxite, mica, platinum, asbestos and diamond.
- Mineral oil is found in Venezuela, Argentina, Chile, Peru and Columbia.

AFRICA:

- It is the *world's largest producer of diamonds, gold and platinum*.
- South Africa, Zimbabwe and Zaire produce a large portion of the world's gold.

- The other minerals found in Africa are copper, iron ore, chromium, uranium, cobalt and bauxite.
- Oil is found in Nigeria, Libya and Angola.

AUSTRALIA:

- Australia is the largest producer of bauxite in the world.
- It is a leading producer of gold, diamond, iron ore, tin and nickel.
- It is also rich in copper, lead, zinc and manganese.
- Kalgoorlie and Coolgardie areas of Western Australia have the largest deposits of gold.

ANTARCTICA:

- The geology of Antarctica is sufficiently well known to predict the existence of a variety of mineral deposits, some probably large.
- Significant size of deposits of coal in the Transantarctic Mountains and iron near the Prince Charles Mountains of East Antarctica is forecasted.
- Iron ore, gold, silver and oil are also present in commercial quantities.

➢ **Multiple uses of minerals:**

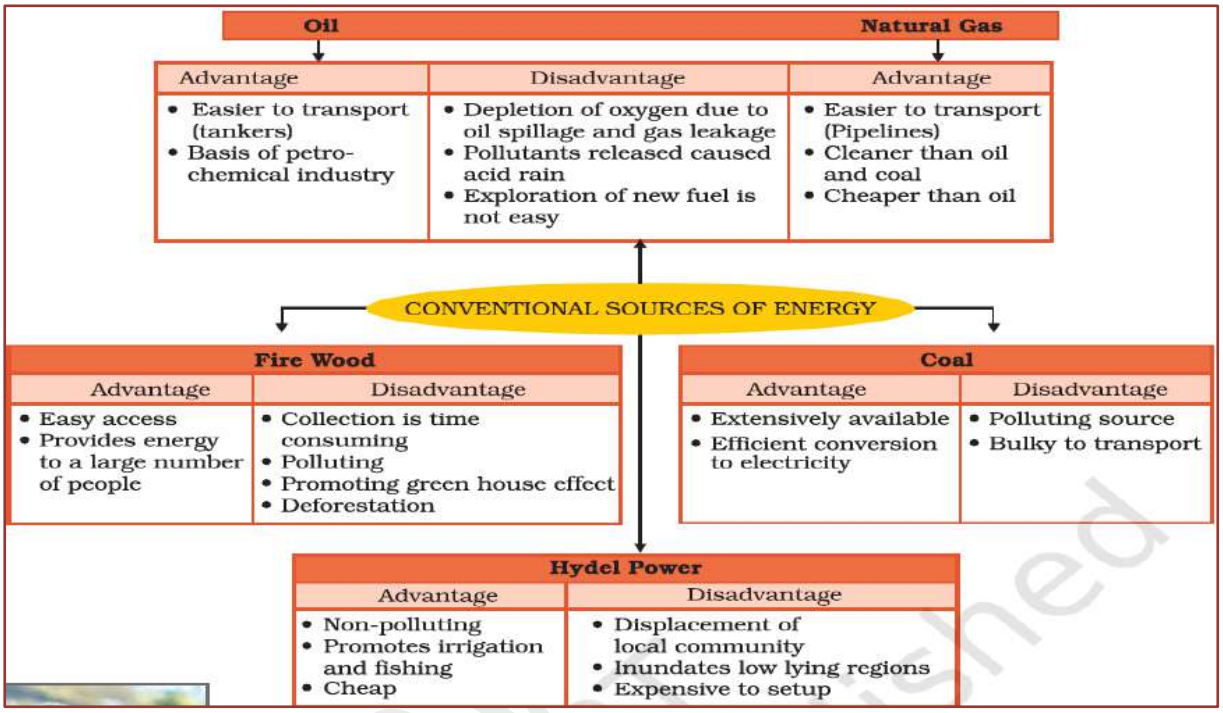
➢ **Conservation of minerals:**

- Minerals are a ***non-renewable resource***.
- It takes thousands of years for the formation and concentration of minerals. *The rate of formation is much smaller than the rate at which the humans consume these minerals*.
- It is necessary to *reduce wastage* in the process of mining.
- *Recycling of metals* is another way in which the mineral resources can be conserved.

❖ POWER RESOURCES:

Broadly categorised as conventional and non-conventional resources.

➢ **Conventional Sources:** Which have been in common use for a long time.
For example- Firewood, coal, petroleum, Natural gas.



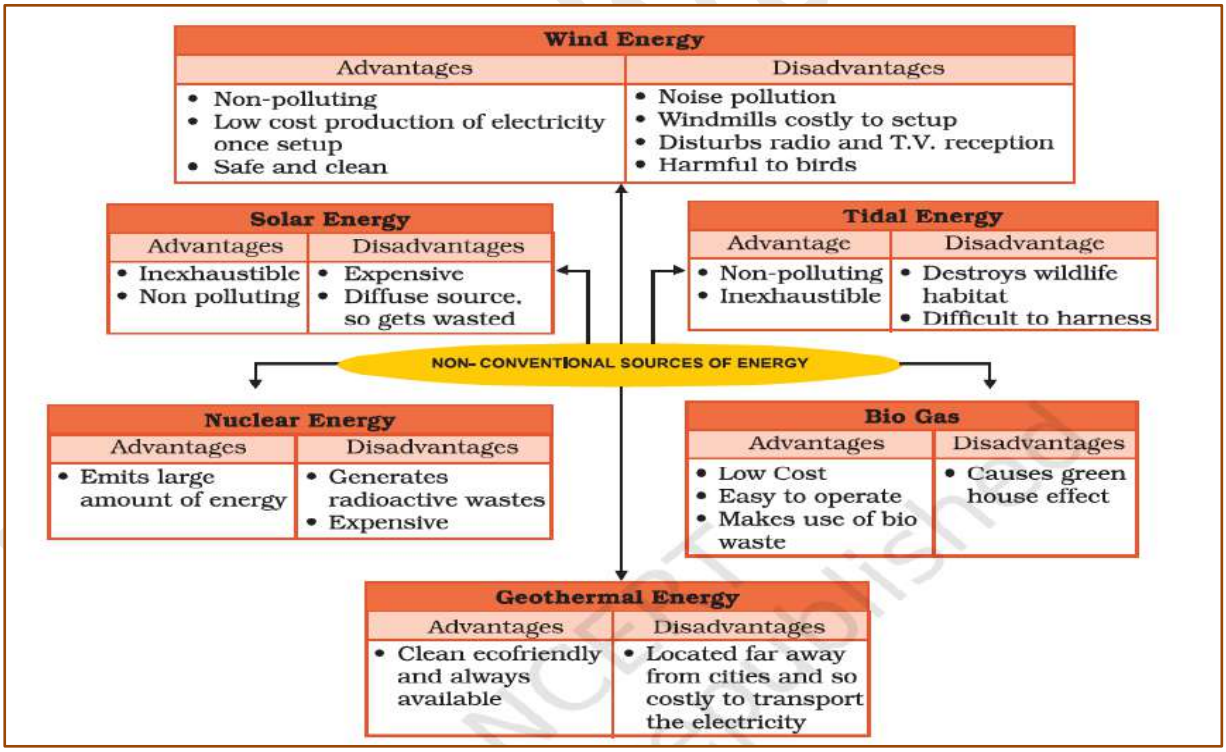
Fossil fuel: Remains of plants and animals which were buried under the earth for millions of years got converted by the heat and pressure into fossil fuels.	
a) Coal	• Most abundantly found fossil fuel. • It is used as a domestic fuel, in industries such as iron and steel, steam engines and to generate electricity. • Electricity from coal is called **thermal power**. • **Buried Sunshine**: The coal which we are using today was formed millions of years ago when giant ferns and swamps got buried under the layers of earth. • The leading coal producers of the world are China, USA, Germany, Russia, South Africa and France. • The coal producing areas of India are Raniganj, Jharia, Dhanbad and Bokaro in Jharkhand.
b) Petroleum	• It is found between the layers of rocks and is drilled from oil fields located in off-shore and coastal areas. • This is then sent to refineries which process the crude oil and produce a variety of products like diesel, petrol, kerosene, wax, plastics and lubricants. • Petroleum and its derivatives are called **Black Gold** as they are very valuable

	• Chief petroleum producing countries - Iran, Iraq, Saudi Arabia and Qatar. • The other major producers - USA, Russia, Venezuela, and Algeria. • The leading producers in India - Digboi in Assam, Bombay High in Mumbai and the deltas of Krishna and Godavari rivers.
c) Natural Gas	• Natural gas is found with petroleum deposits and is released when crude oil is brought to the surface. • It can be used as a domestic and industrial fuel. • Russia, Norway, UK and the Netherlands are the major producers of natural gas. • In India Jaisalmer, Krishna Godavari delta, Tripura and some areas off shore in Mumbai have natural gas resources.

Hydel Power:

- Rain water or river water stored in dams is made to fall from heights.
- The falling water flows through pipes inside the dam over turbine blades placed at the bottom of the dam.
- The moving blades then turn the generator to produce electricity.

➢ **Non-conventional sources:**



Solar energy

- Many solar cells are joined to make solar panels to generate solar power.
- It is used in solar heaters, solar cookers, solar dryers besides being used for community lighting and traffic signals.

Wind Energy

- An inexhaustible source of energy

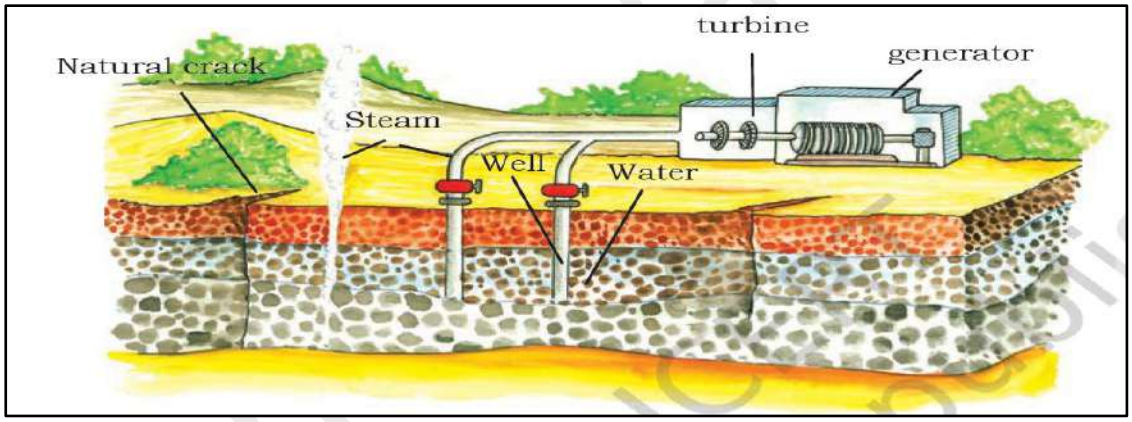
- Windfarms are found in Netherlands, Germany, Denmark, UK, USA and Spain are noted for their wind energy production.

Nuclear power

- Nuclear power is obtained from energy stored in the nuclei of atoms of naturally occurring radioactive elements like uranium and thorium.
- The greatest producers of nuclear power are USA and Europe.
- In India Rajasthan and Jharkhand have large deposits of Uranium.
- Thorium is found in large quantities in the Monozite sands of Kerala.

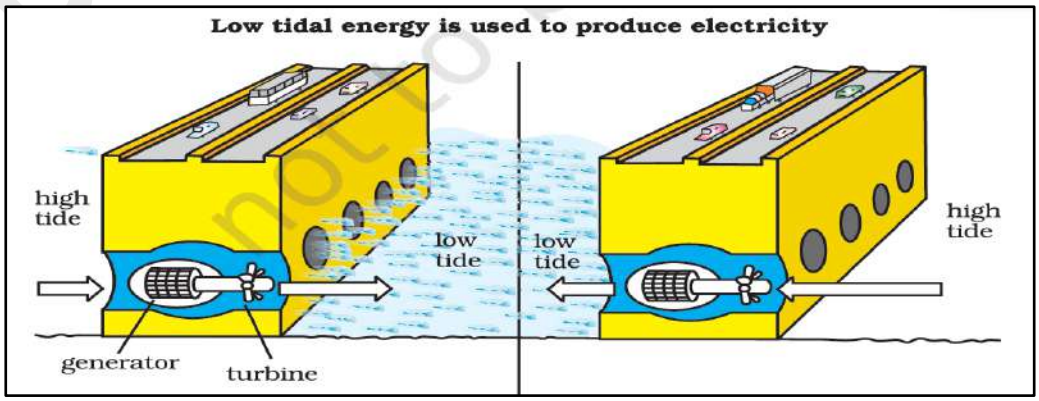
Geothermal Energy

- Energy is obtained from the earth
- The temperature in the interior of the earth rises steadily as we go deeper. Sometimes this heat energy may surface itself in the form of hot springs.
- USA has the world's largest geothermal power plants followed by New Zealand, Iceland, Philippines and Central America.
- In India, geothermal plants are located in Manikaran in Himachal Pradesh and Puga Valley in Ladakh.



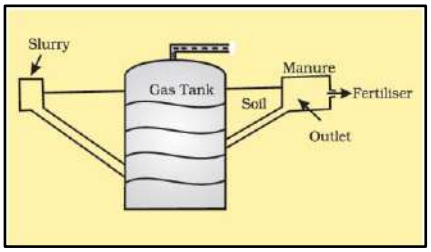
Tidal Energy

- Energy is generated from tides.
- During high tide the energy of the tides is used to turn the turbine installed in the dam to produce electricity. Russia, France and the Gulf of Kachchh in India have huge tidal mill farms.



Biogas

- Organic waste such as dead plant and animal material, animal dung and kitchen waste can be converted into a gaseous fuel called biogas.
- The organic waste is decomposed by bacteria in biogas digesters to emit biogas which is essentially a mixture of methane and carbon dioxide.



Key Takeaways:

- Minerals are naturally occurring substance that has a definite chemical composition created by natural processes.
- Minerals are unevenly distributed and are broadly classified as metallic and non-metallic minerals.
- Important mineralised regions of the world are Ural Mountains, Appalachians, Chhotanagpur, Central Asia and African plateaus.
- Power resources are broadly classified as conventional and non-conventional sources of energy.
- Coal, petroleum and natural gas are the examples of conventional sources of energy.
- Biogas, geothermal, solar and wind energy are the examples of non-conventional sources of energy.

CHAPTER 4-AGRICULTURE

Relevance rating: 3.5/5

- Civil Service syllabus: Economic Geography
- Agriculture is one of the favorite areas of UPSC and every year in prelims as well as mains the questions are asked from this section. **(Refer Page no 4 for UPSC question)**
- This section has interlinking with various topics. It forms the base of agriculture(GS3), provides insights in analyzing location factors for agro based industries (GS1) and also helps to analyse the government initiatives for the same (GS2)

Chapter Overview:

This chapter deals with

- Agricultural and economic activities
- Farm system and types of farming
- Different crops and their suitable growing conditions.
- Basics of agricultural Development

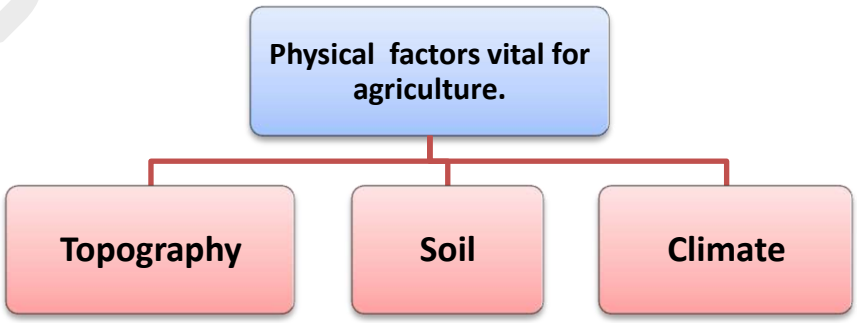
***Note**: This summary should be supplemented with basic reading of NCERT.*

❖ Economic activities:

Transformation from a raw material to a finished product involves three types of economic activities. These are primary, secondary and tertiary activities.

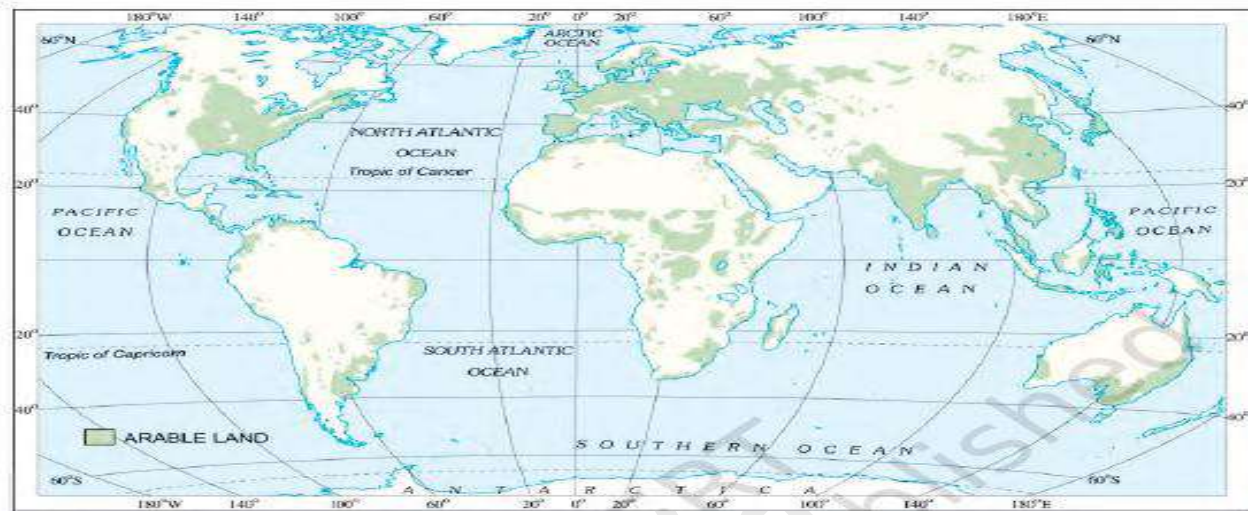
PRIMARY ACTIVITIES	SECONDARY ACTIVITIES	TERTIARY ACTIVITIES
Producing goods using natural resources directly.	Natural products are changed into other forms using manufacturing processes.	They themselves do not produce any good.
Forms the base of all other sectors.	It is a next step after primary sector. Also called as **Industrial Sector.**	They provide services to primary and secondary sectors and hence also called as **Service Sector**.
E.g. – Dairy, fisheries, agriculture	E.g. – Using sugarcane to make sugar or gur.	E.g. – Transportation services.

➢ Physical Factors vital for agriculture:



➢ Arable land:

The land on which the crops are grown is called arable land.
In the map below you can see that agricultural activity is concentrated in those regions of the world where suitable factors for the growing of crops exist.

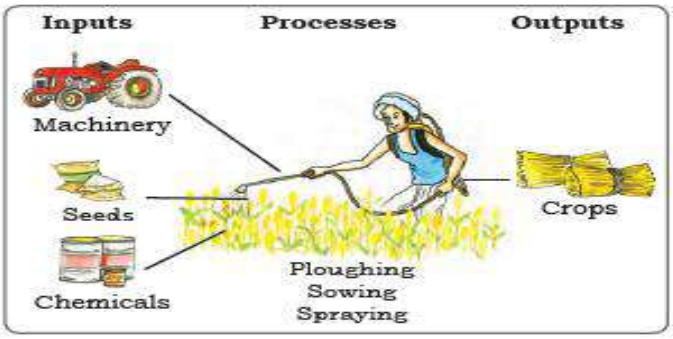


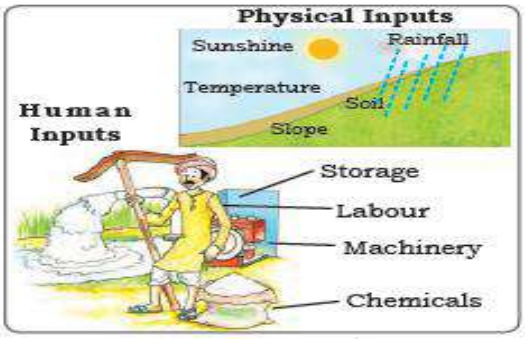
(***Note***: Such maps are very helpful in mains answer writing. For example if you have to showcase the spatial distribution of Global agricultural regions, you can use this map and label it with the names of the respective regions)

Different Types of Agriculture	
Agriculture	Science and art of cultivation on the soil, raising crops and rearing livestock. It is also called as Farming.
Sericulture	Commercial rearing of Silk worms.
Pisciculture	Breeding of fish in specially constructed tanks and ponds.
Viticulture	Cultivation of grapes.
Horticulture	Growing vegetables, flowers and fruits for commercial use.

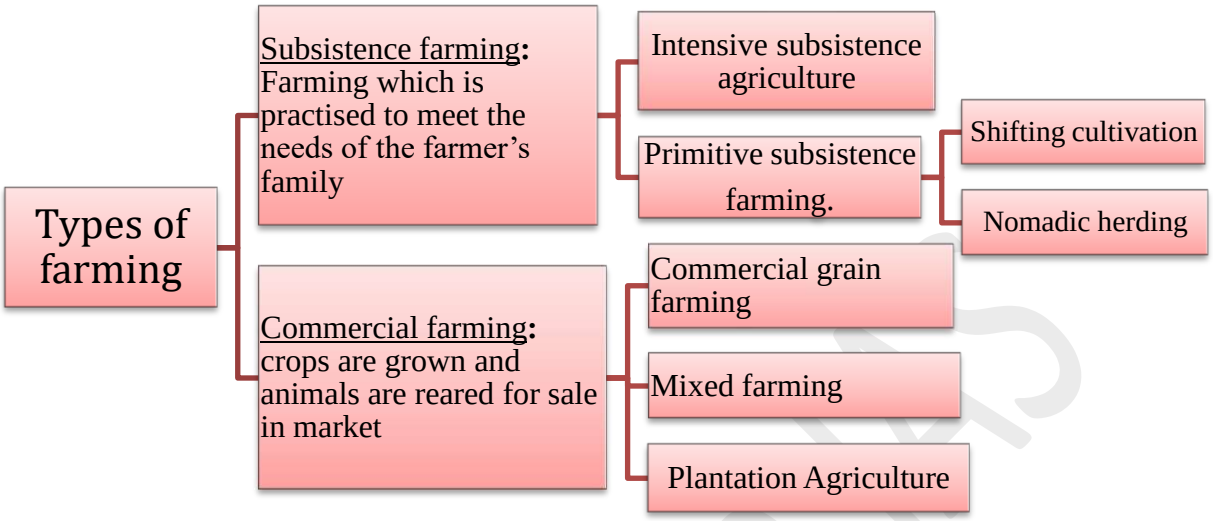
➢ AGRICULTURE FARMING:

Agriculture or farming can be understood as a system. Following diagram help us to analyse it:





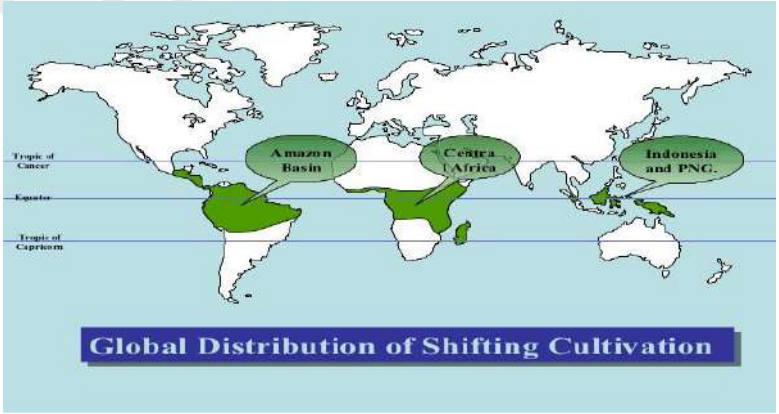
❖ TYPES OF FARMING



➢ **Chief characteristics of different types of farming *(Very imp for Prelims)***

(***Note***: Map based markings have been provided for relevant section which can be used in mains answers.)

- *Subsistence Farming:* Low levels of technology + Usage of household labour.
- *Intensive subsistence agriculture*: Simple tools and more labour + prevalent in thickly populated areas of Monsoon regions of south, southeast and east Asia + many crops per annum (intensive)
- *Primitive subsistence agriculture*: Done in difficult terrains like Forest areas and mountains.
- *Shifting cultivation*: A plot of land is cleared by felling the trees and burning them. Ashes are then mixed with the soil and crops like maize, yam, potatoes and cassava are grown. After the soil loses its fertility, the land is abandoned and the cultivator moves to a new plot. Also known as **'slash and burn'** agriculture. Practised in the thickly forested areas of Amazon basin, tropical Africa, parts of South East Asia and Northeast India characterized by heavy rainfall and quick regeneration of vegetation



Areas	Common names of shifting cultivation
North East India	Jhumming
Mexico	Milpa
Brazil	Roca
Malaysia	Ladang

- *Nomadic herding*: Herdsmen move from place to place with their animals (Sheep, camel, yak and goats) for fodder and water, along defined routes.
  This arises in response to climatic constraints and terrain.
  They provide milk, meat, wool, hides and other products to the herders and their families.
  Practised in the semi-arid and arid regions of Sahara, Central Asia and some parts of India, like Rajasthan and Jammu and Kashmir.
- *Commercial Farming*: Crops are grown and animals are reared for sale in market. Large areas + large capital + Usage of machines.
- *Commercial Grain Farming*: Crops are grown for commercial purpose. Wheat and maize are common commercially grown grains. Major areas: temperate grasslands of North America, Europe and Asia because these areas are sparsely populated with large farms spreading over hundreds of hectares. Also here severe winters restrict the growing season and only a single crop can be grown.
- *Mixed Farming:* Land is used for growing food and fodder crops and rearing livestock. Practised in Europe, eastern USA, Argentina, southeast Australia, New Zealand and South Africa
- *Plantations:* Single crop of tea, coffee, sugarcane, cashew, rubber, banana or cotton are grown. Large amount of labour and capital are required. The produce may be processed on the farm itself or in nearby factories. The development of a transport network is thus essential for such farming. Major plantations are found in the tropical regions of the world. Rubber in Malaysia, coffee in Brazil, tea in India and Sri Lanka are some examples

❖ MAJOR CROPS

Crop based questions are one of the favourite areas of UPSC in prelims

UPSC 2019 questions

Q. Which one of the following groups of plants was domesticated in the 'New World' and introduced into the 'Old World?

(a) Tobacco, cocoa and rubber
(b) Tobacco, cotton and rubber
(c) Cotton, coffee and sugarcane
(d) Rubber, coffee and wheat

Answer – (a)

Q. With reference to the cultivation of Kharif crops in India in the last five years, consider the following statements:

1. Area under rice cultivation is the highest.
2. Area under the cultivation of jowar is more than that of oilseeds.
3. Area of cotton cultivation is more than that of sugarcane.
4. Area under sugarcane cultivation has steadily decreased.

Which of the statements given above are correct?

a) 1 and 3 only
b) 2, 3 and 4 only
c) 2 and 4 only
d) 1, 2, 3 and 4

Answer – (a)

Crops	Specific agro climatic conditions
Rice	Needs high temperature, high humidity and rainfall Grows best in alluvial clayey soil, which can retain water China leads in the production of rice followed by India, Japan, Sri Lanka and Egypt.
Wheat	Requires moderate temperature and rainfall during growing season and bright sunshine at the time of harvest Thrives best in well drained loamy soil Grown extensively in USA, Canada, Argentina, Russia, Ukraine, Australia and India In India it is grown in winter.
Millets	Known as coarse grains Can be grown on less fertile and sandy soils Hardy crop that needs low rainfall and high to moderate temperature and adequate rainfall Jowar, Bajra and Ragi are grown in India. Other countries are Nigeria, China and Niger.
Maize	Requires moderate temperature, rainfall and lots of sunshine Needs well-drained fertile soils Grown in North America, Brazil, China, Russia, Canada, India, and Mexico.
Cotton	Requires high temperature, light rainfall, two hundred and ten frost-free days and bright sunshine for its growth Grows best on black and alluvial soils China, USA, India, Pakistan, Brazil and Egypt are the leading producers of cotton. One of the main raw materials for the cotton textile industry.
Jute	'Golden Fibre' Grows well on alluvial soil and requires high temperature, heavy rainfall and humid climate Grown in the tropical areas India and Bangladesh are the leading producers of jute.
Coffee	Requires warm and wet climate and well-drained loamy soil Hill slopes are more suitable for growth of this crop Brazil is the leading producer followed by Columbia and India.
Tea	A beverage crop grown on plantations requiring cool climate and well distributed high rainfall throughout the year for the growth of its tender leaves. It needs well-drained loamy soils and gentle slopes. Labour intensive as it is required in large number is required to pick the leaves. Kenya, India, China, Sri Lanka produce the best quality tea in the world Renewable natural resource.

❖ AGRICULTURAL DEVELOPMENT

- Efforts made to increase farm production in order to meet the growing demand of increasing population. The ultimate aim of agricultural development is to increase food security.
- How it can be achieved?
  Increasing the cropped area, and the number of crops grown
  Improving irrigation facilities,
  Better and sustainable use of fertilisers and high yielding variety of seeds.
  Mechanisation of agriculture
- Developing countries with large populations usually practise subsistence agriculture.
- Larger holdings are more suitable for commercial agriculture as in USA, Canada and Australia.

Key Takeaways:

- Agriculture is a primary economic activity.
- Both physical and human factors affect agricultural development.
- Global distribution of arable land helps us to identify world's agricultural areas.
- Farming practices are classified on the basis of the use of end product, types of machines used, and extent of area and intensity of inputs.
- Each crop requires its own specific agro climatic conditions.

CHAPTER 5 – INDUSTRIES

Relevance rating: 4/5

- Civil Service syllabus: Distribution of Key Natural Resources across the world (including South Asia and the Indian sub-continent); factors responsible for the location of primary, secondary, and tertiary sector industries in various parts of the world (including India).
- Government is also focussing on boosting the manufacturing in India which makes it altogether more important from examination point of view.
- There is a continuous trend of UPSC asking questions from this section and many of these questions are covered in this summary.

Chapter Overview

This chapter deals with:

- Secondary activities
- Classification of industries, Industrial regions
- Iron and steel industry, Cotton textile industry, IT industry

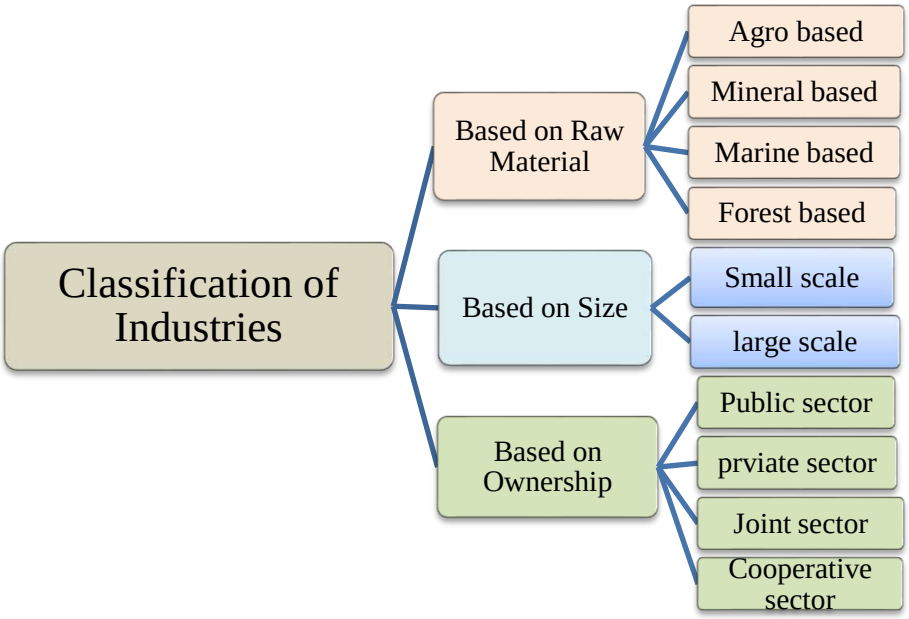
***Note*: This summary should be supplemented with basic reading of NCERT.**

❖ Industries

These are secondary activities. It changes raw materials into products of more value to people. Value addition makes finished product more valuable and increases it utility than the raw material.

E.g. changing pulp → paper → note book.

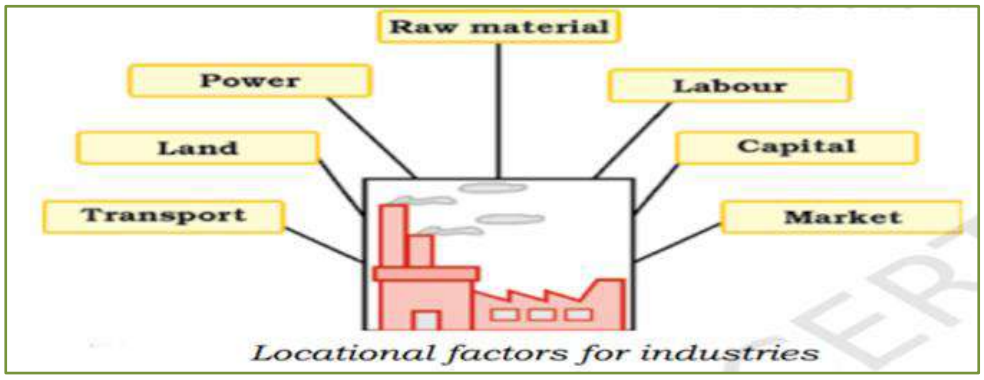
Stage 1 & Stage 2 of value addition



Raw material based	**Size based**	Ownership based
• Agro based industries: Use plant and animal based products as their raw materials e.g. Food processing, vegetable oil, textile, dairy products and leather industries. • Mineral based industries: Primary industries that use mineral ores as their raw materials. E.g. Iron ore →iron • Marine based industries: Use products from the sea and oceans as raw materials e.g. Industries processing sea food or manufacturing fish oil. • Forest based industries: Utilise forest produce as raw materials e.g. pulp and paper, pharmaceuticals, furniture and buildings. (***Note***: While writing an answer on location factors of any industry in mains examination – You are advised to identify the nature of industry. If it is raw material based industry then it will be located near the source of raw material.)	This category takes into account amount of capital invested, number of people employed and the volume of production. • Small scale: Cottage or household industries where the products are manufactured by hand, by the artisans e.g. basket weaving, pottery and other handicrafts Use lesser amount of capital and technology. • Large scale industries: Produce large volumes of products. Investment of capital is higher and the technology used is superior e.g. Production of automobiles and heavy machinery. (***Note***: It is advisable to look at the recent changes in the definition of MSME industries on the basis of size on investments and turnover.)	• Private sector: Owned and operated by individuals or a group of individuals. • Public sector/state owned: Owned and operated by the government, such as Hindustan Aeronautics Limited. • Joint sector: Owned and operated by the state and individuals or a group of individuals. E.g. Maruti Udyog Limited • Cooperative sector: Owned and operated by the producers or suppliers of raw materials, workers or both e.g. Anand Milk Union Limited and Sudha Dairy.

❖ Factors Affecting Location of Industries *(Very Imp. for Mains)*

Questions are frequently asked from this topic
E.g. – UPSC 2019: Discuss the factors for localization of agro-based food processing industries of North-West India. (10 marks, 150 words)

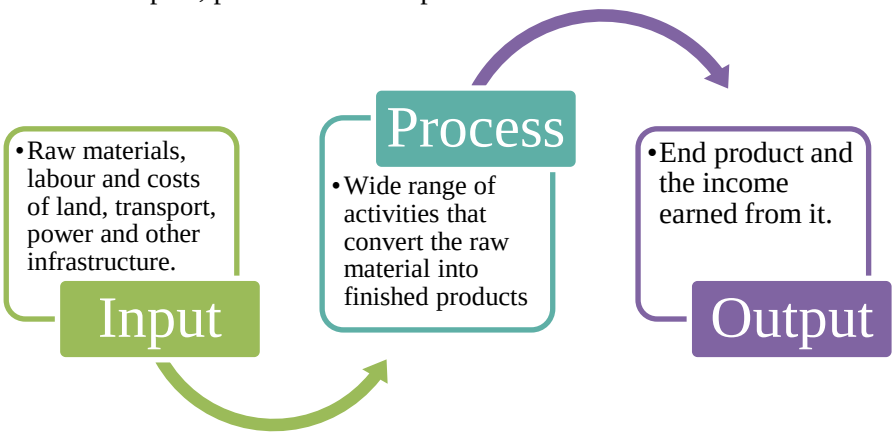


Locational factors for industries

Apart from factors in the above image, in recent times Government also plays an important role in localization of industries because of incentives like subsidised power, lower transport cost and other infrastructure.

❖ Industrial System

System is defined as a set of inputs which interact with each other and create outputs. Industry is also a system**.** It consists of inputs, processes and outputs.

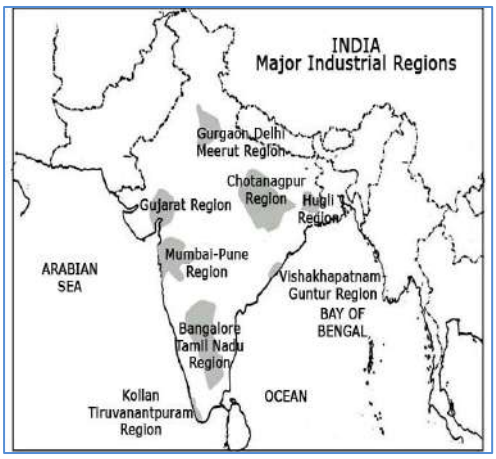


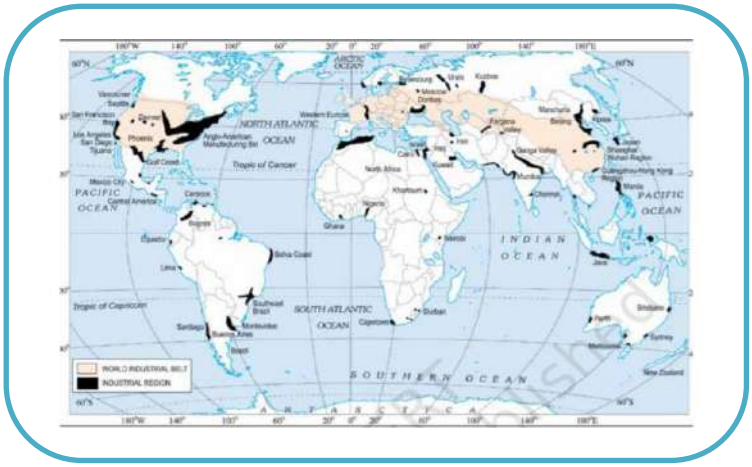
E.g. Textile industry - where inputs may be cotton, human labour, factory and transport cost. The processes include ginning, spinning, weaving, dyeing and printing. The output is the shirt or any cloth that we wear.

❖ Industrial Regions

Number of industries locate close to each other and share the benefits of their closeness. Major industrial regions tend to be located in the temperate areas, near sea ports and especially near coal fields.

India has several industrial regions like Mumbai Pune cluster, Bangalore-Tamil Nadu region, Hugli region, Ahmedabad-Baroda region, Chotta Nagpur industrial belt, Vishakhapatnam-Guntur belt, Gurgaon-Delhi-Meerut region and the Kollam-Thiruvananthapuram industrial cluster.





Additional information:

Emerging industries are also known as ***'Sunrise Industries'***. These include Information technology, Wellness, Hospitality and Knowledge.

Industrial Disaster:
(This topic is relevant from the disaster management point of view which is there in General Studies Paper – iii)

In industries, accidents/disasters mainly occur due to technical failure or irresponsible handling of hazardous material.

E.g. Bhopal Gas Tragedy on 3 December 1984, it was a technological accident in which highly poisonous Methyl Isocynate (MIC) gas along with Hydrogen Cyanide and other reaction products leaked out of the pesticide factory of Union Carbide. Thousands were killed and those who survived still suffer from one or many ailments like blindness, impaired immune system, gastrointestinal disorders etc.

Risk Reduction Measures

1. *Separation of Densely populated residential areas and industrial areas.*
2. *People should be aware of the storage of toxins or hazardous substances and their possible effects.*
3. *Fire warning and fighting system should be improved.*
4. *Storage capacity of toxic substances should be limited.*
5. *Pollution dispersion qualities in the industries should be improved.*

❖ Iron and Steel Industry

A feeder industry whose products are used as raw material for other industries
The inputs include raw materials such as iron ore, coal and limestone, along with labour, capital, site and other infrastructure.
The process of converting iron ore into steel involves many stages e.g. smelting, refining etc.

Steel is often called the backbone of modern industry because almost everything we use is either made of iron or steel or has been made with tools and machinery of these metals e.g. ships, trains, trucks, and autos, safety pins and the needles.

➢ **Shifts in location of Iron and Steel Industry globally-**

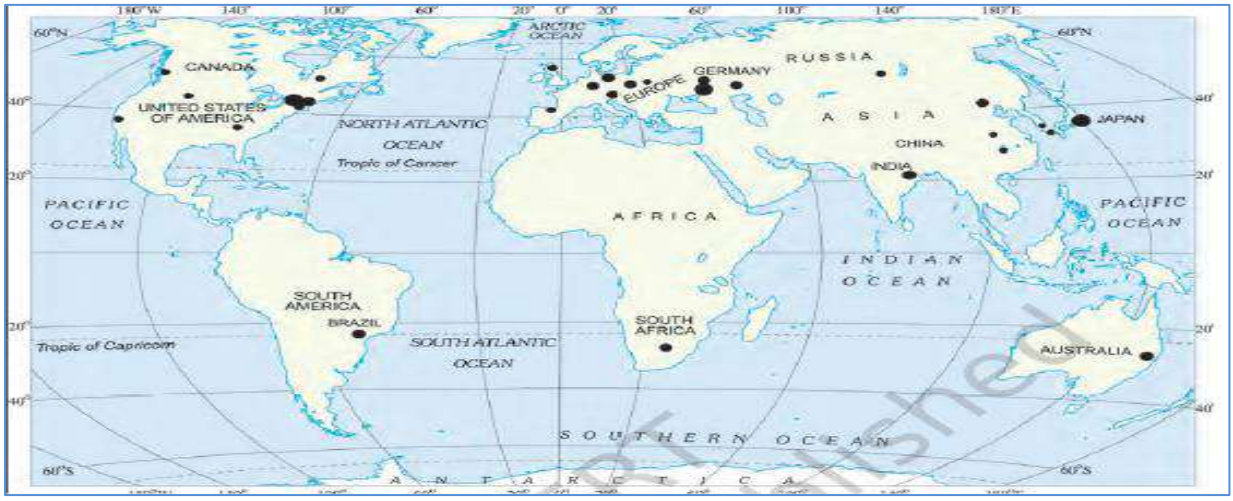
Previous Year Questions

UPSC 2014 - Account for the change in the spatial pattern of the Iron and Steel industry in the world.

UPSC 2020 - Account for the present location of iron and **steel industries** away from the source of raw material, by giving examples.

- Before 1800 AD this industry used to be located where raw materials, power supply and running water were easily available.
- Later the ideal location for the industry was near coal fields and close to canals and railways.
- After 1950, iron and steel industry began to be located on large areas of flat land near sea ports.

This is because by this time steel works had become very large and iron ore had to be imported from overseas.



- **Iron and steel industry in India**

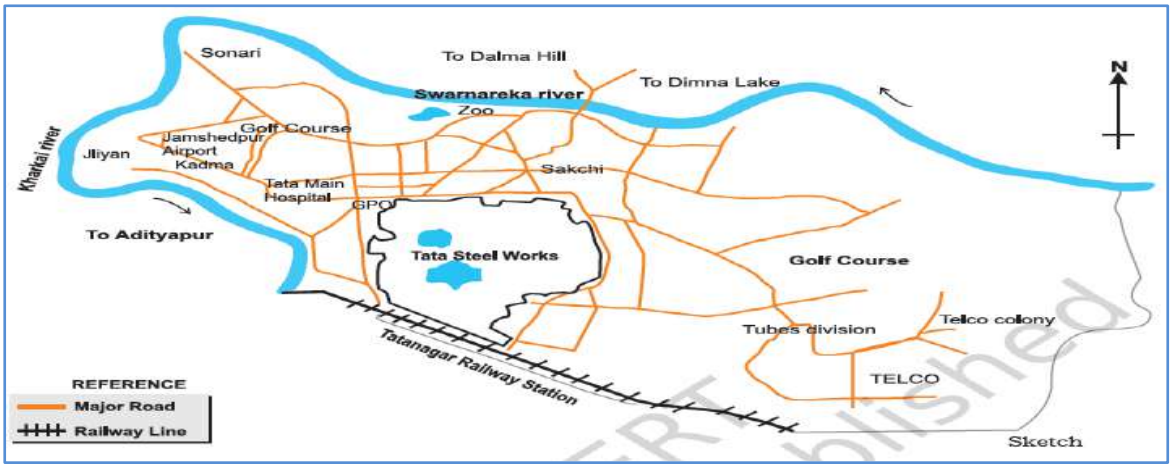
  In India, iron and steel industry has developed taking advantage of raw materials, cheap labour, transport and market.

  All the important steel producing centres such as Bhilai, Durgapur, Burnpur, Jamshedpur, Rourkela, Bokaro are situated in a region that spreads over four states — West Bengal, Jharkhand, Odisha and Chhattisgarh. Bhadravati and Vijay Nagar in Karnataka, Vishakhapatnam in Andhra Pradesh, Salem in Tamil Nadu are other important steel centres utilising local resources.

  <u>Historical context of iron and steel industry in India-</u>

  Jamshedpur

  Before 1947, there was only one iron and steel plant in the country – Tata Iron and Steel Company Limited (TISCO) which was privately owned. TISCO →started in 1907 at Sakchi/Jamshedpur, near the confluence of the rivers Subarnarekha and Kharkai in Jharkhand.



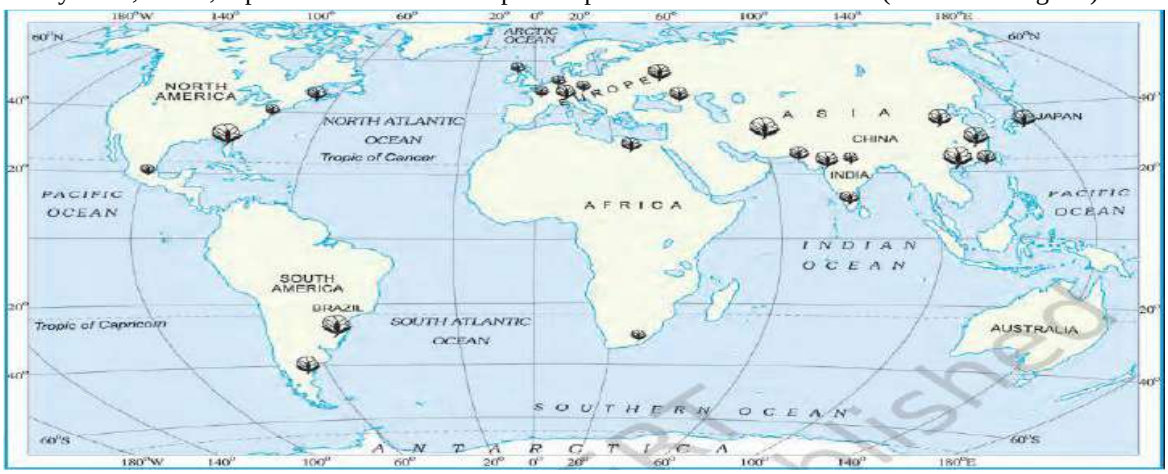
Few case studies on selection of location for setting up of Steel Plants:

Factors	Sakchi/Jamshedpur (case study)	Pittsburgh (case study)
Availability of raw material	Close to the iron ore, coal and manganese deposits (coal from Jharia coalfields, and iron ore, limestone, dolomite and manganese from Odisha and Chhattisgarh)	Availability of coal locally
Transport facility	Near to the Bengal-Nagpur railway line.	One of the World's best shipping routes i.e. great lakes water way through which iron ore comes from the iron mines at Minnesota to Pittsburgh. Trains carry the ore from the Great Lakes to the Pittsburgh area.
Water supply	The Kharkai and Subarnarekha rivers ensured sufficient water supply.	The Ohio, the Monogahela and Allegheny rivers provide adequate water supply.
Availability of market	Kolkata, which provided a large market.	Large market was available nearby. Finished steel is transported to the market by both land and water routes.
Development/availability of other industries	With the development of other industries like chemicals, locomotive parts, agricultural equipment, machinery, tinplate, cable and wire, better conditions got created for the iron and steel industry.	Availability of other industries to maintain demand for Pittsburgh iron steel industry.
Favourable support from the government	Government initiatives provided adequate capital for its later development.	Various government measures were provided to support industries.

❖ Cotton Textile Industry

- The cotton textile industry is one of the oldest industries in the world.
- Till the industrial revolution in the 18th century, cotton cloth was made using hand spinning techniques (wheels) and looms.
- In 18th century power looms facilitated the development of cotton textile industry, first in Britain and later in other parts of the world.

Today India, China, Japan and the USA are important producers of cotton textiles (see below diagram)



- **Cotton in India-**
  India has a glorious tradition of producing excellent quality cotton textiles. Before the British rule, the Muslins of Dhaka, Chintzes of Masulipatnam, Calicos of Calicut and Gold-wrought cotton of Burhanpur, Surat and Vadodara were known worldwide for their quality and design.

  *(**Note**: The above information can be relevant to solve History questions in prelims. This is how UPSC questions are solved in prelims.)*

  The first successful mechanized textile mill →Mumbai in 1854.

Reasons for expansion of cotton textile Industry in this region			
The warm and moist climate	A port for importing machinery	Availability of raw material	Presence of skilled labour

But today, humidity can be created artificially, and raw cotton is a pure and not weight losing raw material, so this industry has spread to other partsof India. Coimbatore, Kanpur, Chennai, Ahmedabad, Mumbai, Kolkata, Ludhiana, Puducherry and Panipat are some of the other important centres.

Case Study: Ahmedabad - Manchester of India

Why Ahmedabad is called as 'Manchester of India'?
The first cotton mill was established in 1859. It soon became the second largest textile city of India, after Mumbai.
Factors which favoured Ahmedabad:

- On the banks of the Sabarmati River
- Very close to cotton growing area→easy availability of raw material
- Climate is ideal for spinning and weaving
- Densely populated states of Gujarat and Maharashtra provide both skilled and semi-skilled labour.
- The flat terrain and easy availability of land is suitable for the establishment of the mills
- Well-developed road and railway network permits easy transportation of textiles to different parts of the country, thus providing easy access to the market
- Mumbai port nearby facilitates import of machinery and export of cotton textiles

Issues: Several textile mills have closed down primarily due to the emergence of new textile centres in the country as well as non-upgradation of machines and technology in the mills of Ahmedabad.

Case Study: Osaka - Manchester of Japan
Important textile centre of Japan
Favourable geographical factors:

- **The extensive plain** around Osaka ensured that land was easily available for the growth of cotton mills.
- **Warm humid climate** is well suited to spinning and weaving.
- **The river Yodo** provides sufficient water for the mills.
- **Labour** is easily available.
- **Location of port facilitates** import of raw cotton and for exporting textiles.
- The textile industry at Osaka depends **completely upon imported raw materials**. Cotton is imported from Egypt, India, China and USA.
- The finished product is mostly exported and has a good market due to good quality and low price.

Additional information-
The first textile mill in the country was established at Fort Gloster near Kolkata in 1818 but it closed down after some time.

About one-third of the Indian textile industry's total production is exported.

❖ Information Technology (IT)

It has become a global industry due to a series of technological, political, and socio-economic events
Deals in the storage, processing and distribution of information

Locational factors:

- Resource availability
- Cost
- Infrastructure

Major hubs of the IT industry are the Silicon Valley, California and Bengaluru, India.

Case Study: Bangalore and Silicon Valley – IT hub

Bengaluru

- Located on the Deccan Plateau from where it gets the name 'Silicon Plateau'.
- The city is known for its mild climate throughout the year.
- Highest availability of middle and top management talent.
- Bengaluru has the largest number of educational institutions and IT colleges in India.
- The city was considered dust free with low rents and low cost of living.
- The state government of Karnataka was the first to announce an IT Policy in 1992.
- The city has the largest and widest availability of skilled managers with work experience.

Silicon Valley

- A part of Santa Clara Valley, located next to the Rocky Mountains of North America.
- The area has temperate climate with the temperatures rarely dropping below 0 degrees centigrade.
- Close to some of the most advanced scientific and technological centres in the world
- Pleasant climate with an attractive and a clean environment. Plenty of space for development and future expansion.
- Located close to major roads and airports
- Good access to markets and skilled work force

Other emerging information technology hubs in metropolitan centres of India such as Mumbai, New Delhi, Hyderabad and Chennai. Other cities such as Gurgaon, Pune, Thiruvanthapuram, Kochi and Chandigarh are also important centres of the IT industry.

Why do high technology industries group together?
• They can be located near main road/ highways for easy access.
• Firms can benefit from exchange of knowledge.
• Services and facilities such as roads, car parks and waste disposal can be organised efficiently.

Key Takeaways:

- Industries are classified on the basis of raw material, size and ownership.
- Secondary activities change raw material to the products of higher value.
- Agro based and mineral based industries are generally raw material based.
- Land, labour, capital, power, Govt. policies and markets are some of the important factors which affect distribution of industries
- Iron and steel industry has changed its spatial distribution across the world because of the changes in modes of production from time to time.
- Resource, cost and infrastructure are the key factors which affect IT industries.IT industry

CHAPTER 6 – HUMAN RESOURCE

Relevance rating: 2/5

- Civil Service syllabus: **GS 1** - Population and Associated Issues, **GS 3** - Mobilization of Resources
- This chapter builds basic concepts about various aspects of population. Direct questions are not much asked in prelims and mains GS paper barring few exceptions.
- However this chapter throws light on some basic aspects of some of the current phenomenon like migration, population growth etc. which is relevant from the UPSC point of view.
- From geography optional point of view this chapter is a basic foundation of "population geography" part.

Chapter Overview

This chapter deals with:

- Human resources
- Uneven distribution of population
- Natural growth of population
- Population composition and population pyramids

***Note*: This summary should be supplemented with basic reading of NCERT.**

Human resource is unevenly distributed throughout the nation. Higher population does not mean greater human resource. It depends on the level of skills, education, health and many other factors.
For e.g. UP has highest population in India but human resources is not that developed as compared to south Indian states like Kerala.

Ministry of Human Resource Development was created in 1985 with an aim to improve people's skills. Now, it has been renamed as 'Ministry of Education'.
Pradhan Mantri Kaushal VikasYojna (PKVY) was started in 2015 aiming to train one crore Indian youth from 2016 to 2020. The objective of this scheme is to encourage aptitude towards employable skills by giving quality training to probable and existing wage earners.

❖ Distribution of population

Pattern of population distribution - The way in which people are spread across the earth surface

Highly uneven distribution

- More than 90% of the world's population lives in about 30 per cent of the land surface.
  Highly populated region: South and South East Asia, Europe and north eastern North America.
  Sparsely populated areas: High latitude areas, tropical deserts, high mountains and areas of equatorial forests
- Many more people live north of the Equator than south of the Equator.
- Almost three-quarters of the world's people live in two continents Asia and Africa.
- 60% of the world's people stay in just 10 countries.

❖ Density of Population

- Population density: Number of people living in a unit area of the earth's surface.
- It is normally expressed as per square km.
- The average density of population in the whole world is 51 persons per square km.
- South Central Asia has the highest density of population followed by East and South East Asia
- Average density of population in India is 382 persons per square km.

❖ Factors Affecting Distribution of Population

Geographical Factors	Social, Cultural and Economic Factors
Topography: Plains are more populated than mountains/plateaus E.g. The Ganga plains are the most densely populated areas of the world while mountains like Andes, Alps and Himalayas are sparsely populated. **Climate**: Very small population is found in extreme climates like Sahara desert, Polar Regions of Russia, Canada and Antarctica. **Soil**: Fertile soils provide suitable land for agriculture. E.g. fertile plains such as Ganga and Brahmaputra in India, Hwang-He, Chang Jiang in China and the Nile in Egypt **Water**: People prefer to live in the areas where fresh water is easily available **Minerals**: Areas with mineral deposits are more populated. Diamond mines of South Africa and discovery of oil in the Middle East lead to settling of people in these areas.	**Social**: Areas of better housing, education and health facilities are more densely populated e.g., Pune. **Cultural**: Places with religion or cultural significance attract people e.g. Varanasi, Jerusalem and Vatican City. **Economic**: Industrial areas provide employment opportunities. Large numbers of people are attracted to these areas e.g. Osaka in Japan and Mumbai.

❖ Population Change

Change in the number of people during a specific time. The world population has not been stable. This is actually due to changes in the number of births and deaths.

Until 1800s	• The world's population grew steadily but slowly because there were no health facilities, and no sufficient food. As a result the total increase in population was very low.
In 1804	• The world's population reached one billion.
In 1959	• The world's population reached 3 billion, called as population explosion.
In 1999	• The population doubled to 6 billion because of better food, health facilities.

Birth rate: the ratio of number of live births per 1,000 people.

Death rate: the ratio of number of deaths per 1,000 people.

Natural growth rate: Births and deaths are the natural causes of population change. The difference between the birth rate and the death rate of a country is called the natural growth rate.

The population increase in the world is mainly due to rapid increase in natural growth rate.

Migration: movement of people in and out of an area. It is also one way by which population size changes.

Types of Migrants

Emigrants

People who leave a country

Out-migration or **emigration**: Sudan has experienced a loss in population numbers due to emigration.

Immigrants

those who arrive in a country

In-migration or **immigration:** Countries like the United States of America and Australia have gained due to this phenomenon.

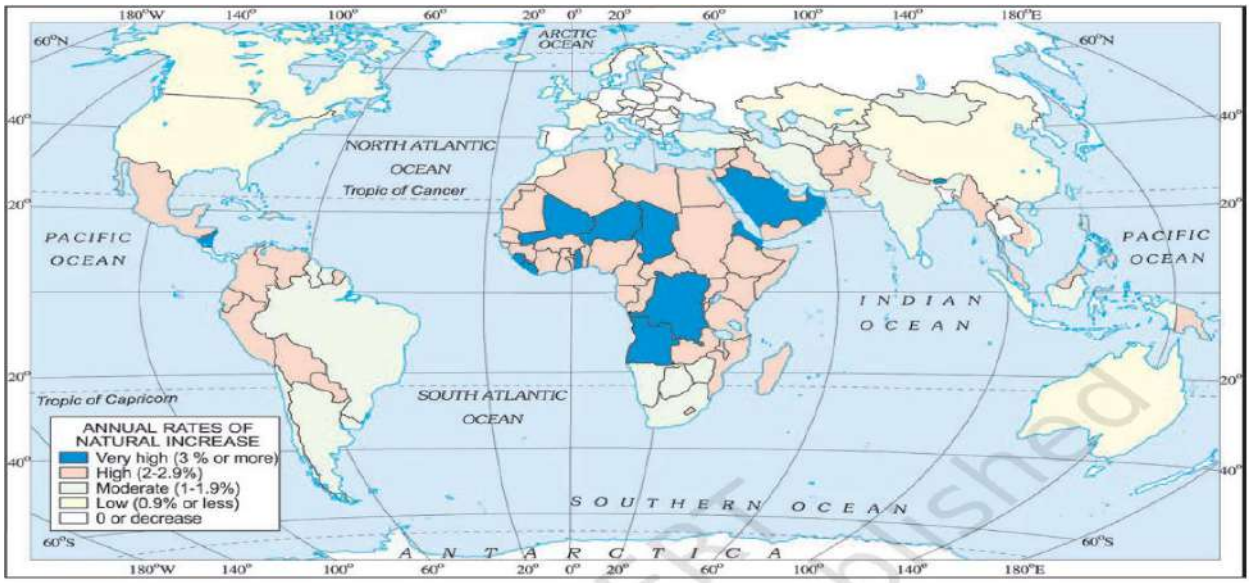
People migrate from

1. Less developed countries
2. Rural Areas

1. More developed countries
2. Urban Areas

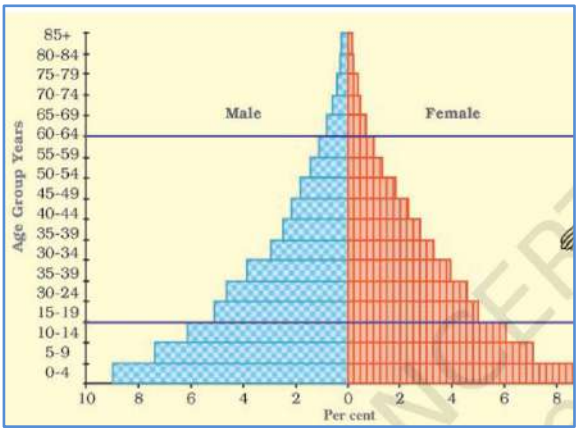
❖ Patterns of Population Change

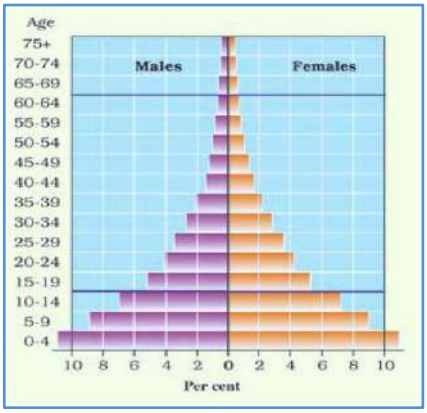
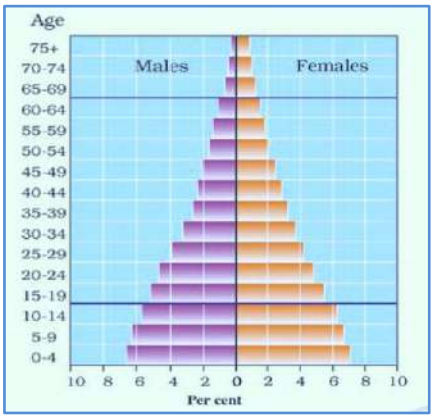
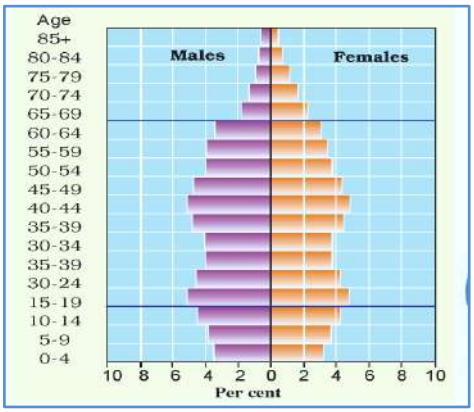
- While overall population of the world is increasing, not all countries are experiencing this growth.
- Countries like Kenya have high population growth rates because of both high birth rates and death rates. Here due to improving health care, death rates have fallen, but birth rates still remain high leading to high growth rates.
- On the other hand countries like United Kingdom, population growth is slowing because of both low death and low birth rates.



❖ Population Composition

- Refers to the structure of the population which tells about the age group, occupation, income and health levels of different people.
- Population pyramid (age-sex pyramid) is used to measure this.
- A population pyramid shows
  - ➢ The total population divided into various age groups, e.g., 5 to 9 years, 10 to 14 years and the percentage of the total population, subdivided into males and females, in each of those groups.
  - ➢ The numbers of children (below 15 years) are shown at the bottom and reflect the level of births.
  - ➢ The size of the top shows the numbers of aged people (above 65 years) and reflects the number of deaths.
  - ➢ The population pyramid also tells us how many dependents there are in a country.
  - ➢ There are two groups of dependents — young dependents (aged below 15 years) and elderly dependents (aged over 65 years).
  - ➢ Those of the working age are the economically active.



Population Pyramid of Kenya	Population Pyramid of India	Population Pyramid of Japan
The population pyramid of a country in which birth and death rates both are high is broad at the base and rapidly narrows towards the top. This situation is typified by the pyramid shown for Kenya 	In countries where death rates are decreasing, the pyramid is broad in the younger age groups. This can be seen in the pyramid for India. Such populations contain a relatively large number of young people and which means a strong and expanding labour force. 	In countries like Japan, low birth rates make the pyramid narrow at the base. Decreased death rates allow numbers of people to reach old age. Skilled, spirited and hopeful young people endowed with a positive outlook are the future of any nation. 

UPSC 2018

Q. Consider the following statements:

Human capital formation as a concept is better explained in terms of a process which enables

1. Individuals of a country to accumulate more capital.
2. Increasing the knowledge, skill levels and capacities of the people of the country.
3. Accumulation of tangible wealth.
4. Accumulation of intangible wealth.

Which of the statements given above is/ are correct?

(a) 1 and 2
(b) 2 only
(c) 2 and 4
(d) 1, 3 and 4

Answer: (c)

Key Takeaways:

- Human resources of the country are of utmost importance as they further develop new resources.
  Population density: Number of people living in a unit area of the earth's surface
- Birth rate: the ratio of number of live births per 1,000 people.
- Death rate: the ratio of number of deaths per 1,000 people.
- Births and deaths are the natural causes of population change. The difference between the birth rate and the death rate of a country is called the natural growth rate.
- Emigrants are people who leave a country;
- Immigrants are those who arrive in a country
- Population composition refers to the structure of the population which tells about the age group, occupation, income and health levels of different people.
- Population pyramids help understanding the population composition.

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