

# Class - X

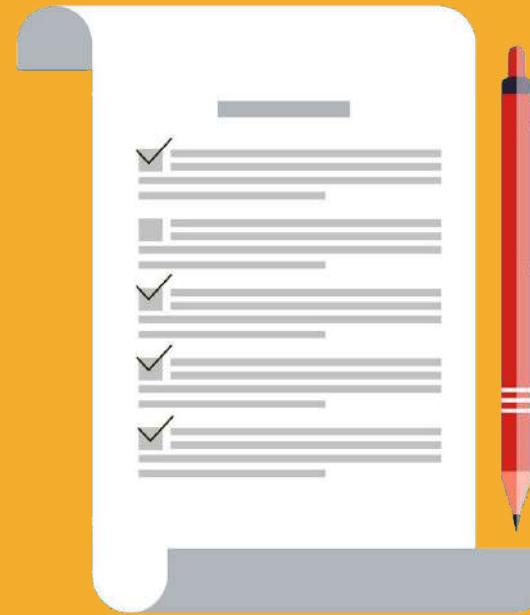
## Notes

# Complete

# Geography

Crafted with love ❤️

By Digraj Singh Rajput

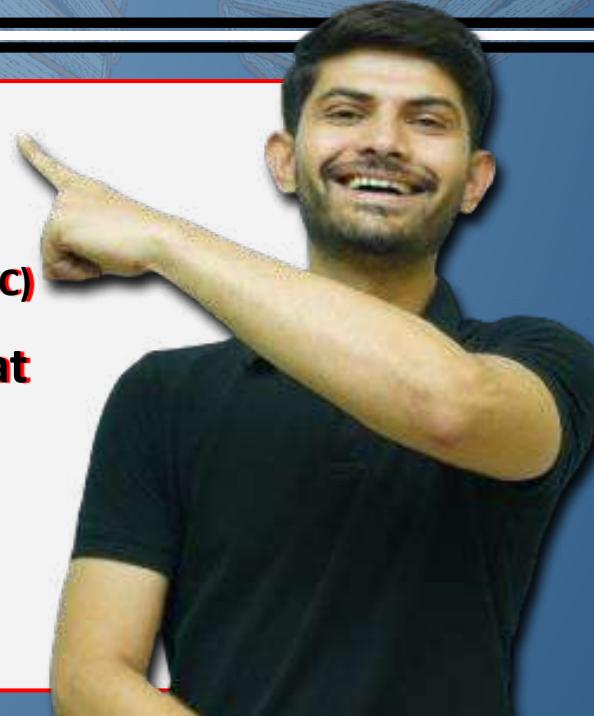


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**Class 10th – Geography**  
**Resources and Development**  
**Full Chapter Explanation**



# Class 10th - Geography - Resources and Development - Full Chapter Explanation



Resources 🌱

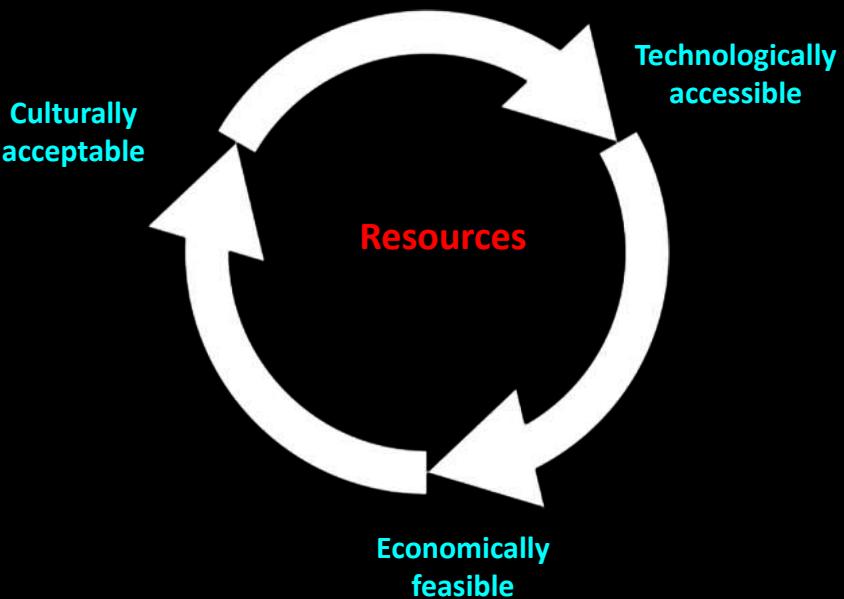


Development 🚀



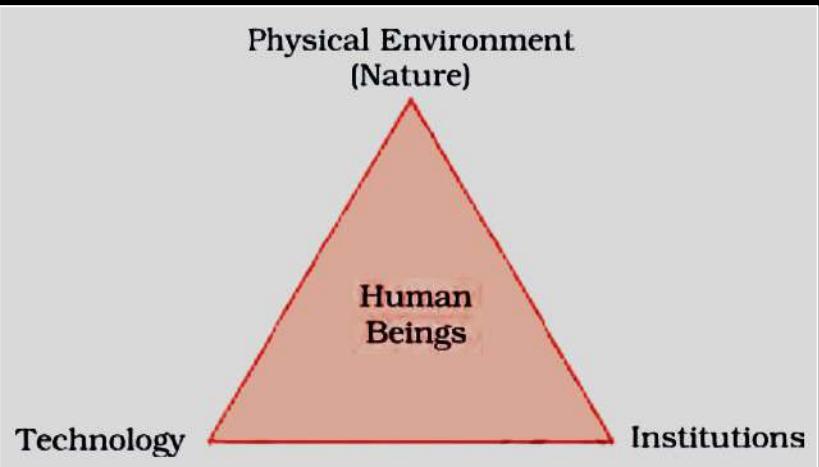


**Everything available in our environment which can be used to satisfy our needs, provided, it is technologically accessible, economically feasible and culturally acceptable can be termed as 'Resource'.**





Interdependent relationship between nature, technology and institutions.





## Development of Resources

Indiscriminate use



**Problems**



- Depletion of resources for satisfying the greed of a few individuals.
- Accumulation of resources in few hands, which, in turn, divided the society into two segments i.e. haves and have nots.
- Indiscriminate exploitation of resources has led to global ecological crises such as, global warming, ozone layer depletion.



An equitable distribution of resources has become essential for a sustained quality of life and global peace.

Therefore for Sustainable existence Sustainable development is essential.



**Rio De Janeiro Earth Summit, 1992**



**Agenda 21**



## 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.**'

## Rio de Janeiro Earth Summit, 1992



A summit where more than 100 heads of states met in Rio de Janeiro, the Summit was convened for addressing urgent problems of environmental protection and socioeconomic development at the global level.



The Rio Convention endorsed the global Forest Principles and adopted **Agenda 21**.

# Class 10th - Geography - Resources and Development - Full Chapter Explanation





## Agenda 21

Local government should draw it's local  
Agendas. Global co-operation on  
common interests, mutual needs and  
shared responsibilities.

Declaration signed at Rio De Janeiro,  
1992 (UNCED)

How? 😠

Combat environmental damage,  
poverty and disease

Achieving global sustainable  
development



## Resource Planning

- ***Why do we need resource planning?***



Unequal and uneven distribution of resources.



Explain



∴ Balanced resource planning at the national, state, regional and local levels is required.





## *3 steps of resource planning in India -*



1. Identifying



2. Planning Structure



3. Overall Development



## ***3 steps of resource planning in India -***

- I. Identification and inventory of resources across the regions of the country.



***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. 😠





Availability of Resources



Necessary for the development.



But merely availability of the resources in the absence of technology and institutions may hinder development.



Countries

- { Rich in resources but economically backward.
- Poor resources base but economically developed.



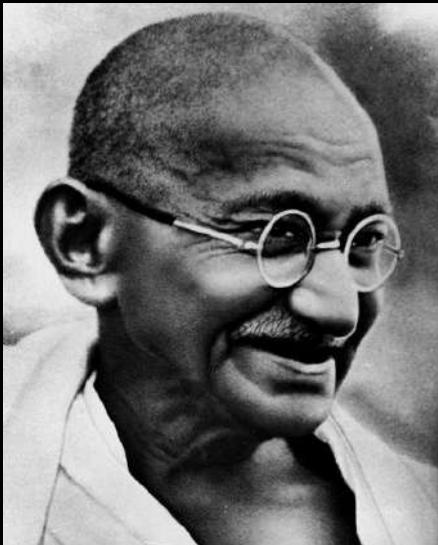
Connect with the History of Colonisation 😠



## Conservation of Resources

**“There is enough for everybody’s need, but not for anybody’s greed”**

*Mahatma Gandhi*

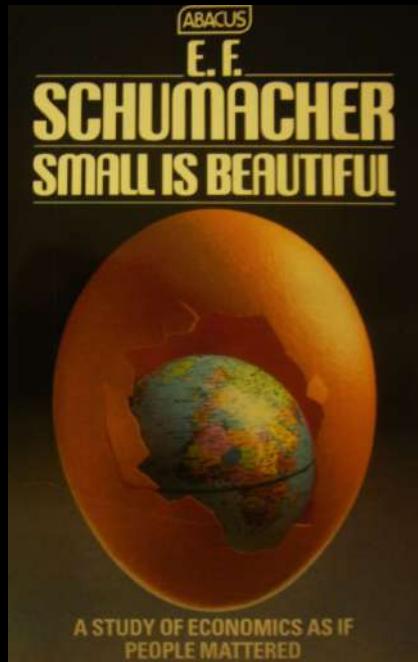


- He placed the greedy and selfish individuals and exploitative nature of modern technology as the root cause for resource depletion at the global level.
- He was against mass production and wanted to replace it with the production by the masses.



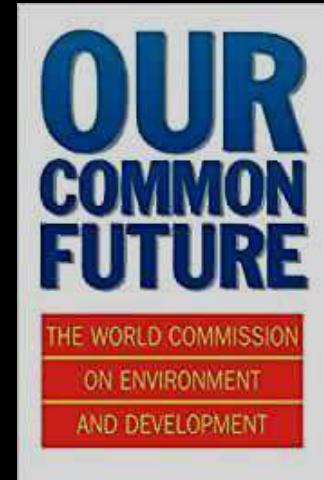
## International efforts for conservation of resources

- At the international level, the Club of Rome advocated resource conservation for the first time in a more systematic way in 1968.
- Subsequently, in 1974, Gandhian philosophy was once again presented by Schumacher in his book **Small is Beautiful**.
- The seminal contribution with respect to resource conservation at the global level was made by the Brundtland Commission Report, 1987.





- This report introduced the concept of '**Sustainable Development**' and advocated it as a means for resource conservation, which was subsequently published in a book entitled **Our Common Future**.
- Another significant contribution was made at the Earth Summit at Rio de Janeiro, Brazil in 1992.





## Land Resources

- **Uses** → It supports natural vegetation, wild life, human life, economic activities, transport and communication systems.
- **Limitations** → Land is an asset of finite magnitude.
- **Distribution of Landmass** 😠



Plain area 43%



Mountains 30%



Plateau 27%

Significance 😠



## Land Utilisation

- ***Forest***
- ***Land not available for cultivation***
  - a. Barren and waste land.
  - b. Land put to non agricultural use - Road, buildings, etc.
- ***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. Culturable waste land (left uncultivated for more than 5 agricultural years).





- **Fallow land**
  - 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).
- **Net sown area** - Area sown at least once in a year. 😊



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



## Land use Pattern in India

Understand the heading 😊



The use of land is determined both by physical factors such as topography, climate, soil types as well as human factors such as population density, technological capability and culture and traditions etc.

- Total geographical area of India → **3.28 million sq. km**

Land use data, however, is available only for 93 per cent of the total geographical area.



Why? 😠



- The land under permanent pasture has also decreased.



- 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.
- 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.

Reasons for the variation



- **Forest Area** → 33 percent of geographical area.



Far lower than the desired percent outlined in the **National Forest Policy (1952)**. 😠



## **Understand the significance**



- Essential for maintenance of the ecological balance.
- The livelihood of millions of people who live on the fringes of these forests depends upon it.
- Waste land includes rocky, arid and desert areas and land put to other non-agricultural uses includes settlements, roads, railways, industry etc.

Challenges





## Land Degradation and Conservation Measures

Land and We



Ninety-five per cent of our basic needs for food, shelter and clothing are obtained from land.



Human activities have not only brought about degradation of land but have also aggravated the pace of natural forces to cause damage to land.



Explain





## Causes

- Deforestation
- Overgrazing
- Mining and Quarrying
- Over irrigation
- Minerals processing industries



## Measures

- Afforestation
- Management of grazing land
- Regulating mining
- Drip irrigation, sprinklers
- Plantation of shelter belts growing thorny bushes.

Analyse





## Soil as a Resource

Question 😠

→ Difference between land and soil.

**Soil**

→ Most important renewable natural resources.



- Medium of plant growth.
- Supports different types of living organisms.
- It is a living system.

→ Relief, parent rock or bedrock, climate, vegetation and other forms of life and time are important factors in the formation of soil.

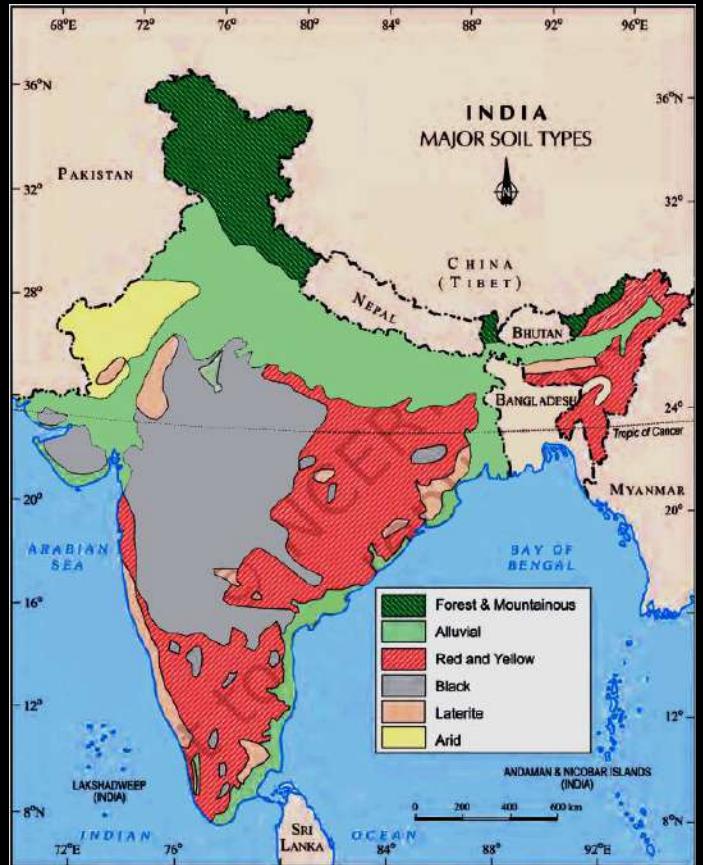




On the basis of the factors responsible for soil formation, colour, thickness, texture, age, chemical and physical properties, the soils of India are classified in different types.



- Alluvial soil
- Black soil
- Red and Yellow soil
- Laterite soil
- Arid soil
- Forest soil





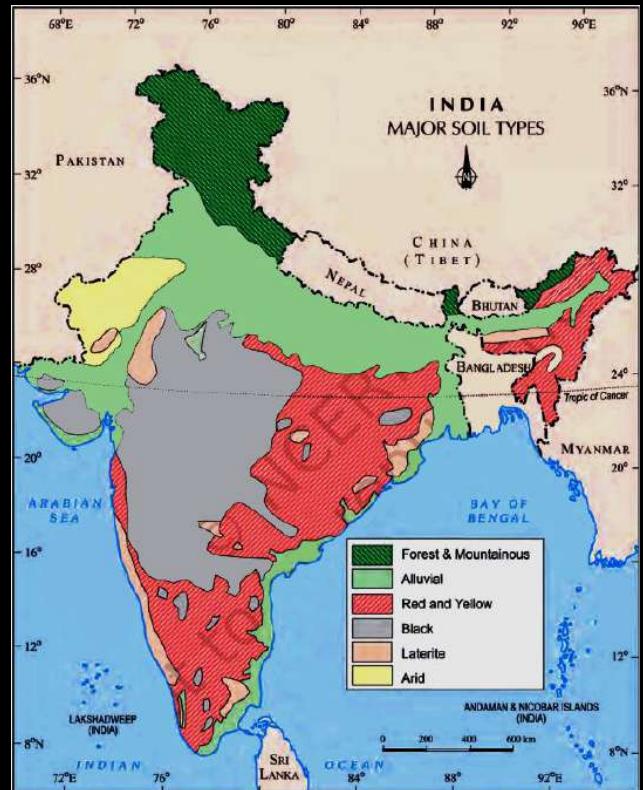
## Alluvial Soil

***Most widely spread and important soil.***

### Formation and location



- These have been deposited by three important Himalayan river systems - the Indus, the Ganga and the Brahmaputra.
- Also found in the eastern coastal plains particularly in the deltas of the Mahanadi, the Godavari, the Krishna and the Kaveri rivers.

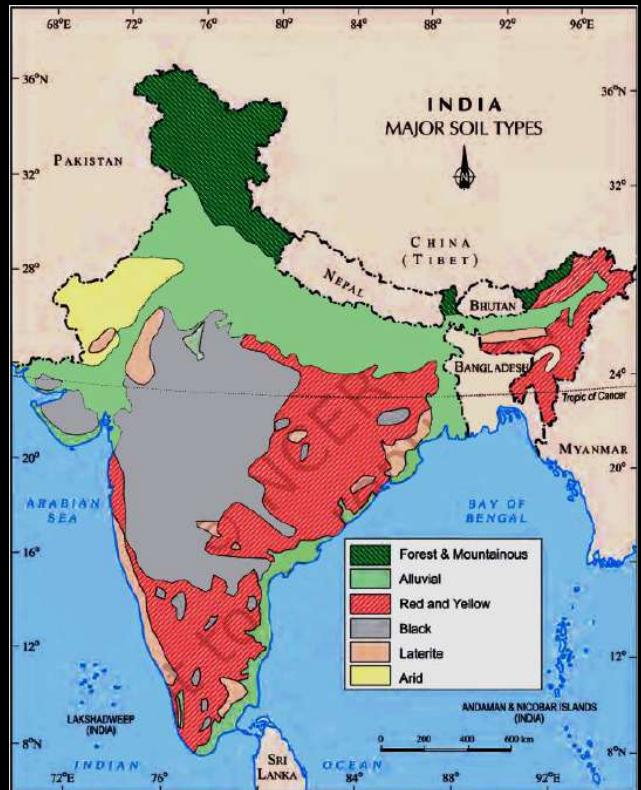




## Alluvial soils are very fertile

- Contain adequate proportion of potash, phosphoric acid and lime.
- Ideal for the growth of sugarcane, paddy, wheat and other cereal and pulse crops.

∴ Regions of alluvial soils are intensively cultivated and densely populated.





- The alluvial soil consists of various proportions of sand, silt and clay.



Duars, Chos, and Terai in Piedmont plains.

*Apart from the size of their grains or components, soils are also described on the basis of their age.*

Bangar

Khadar

- 
- Old alluvial
  - Less fertile due to higher concentration of kanker nodules.

- New alluvial
- It is the more fertile than Bangar and it consists of more fine particles.



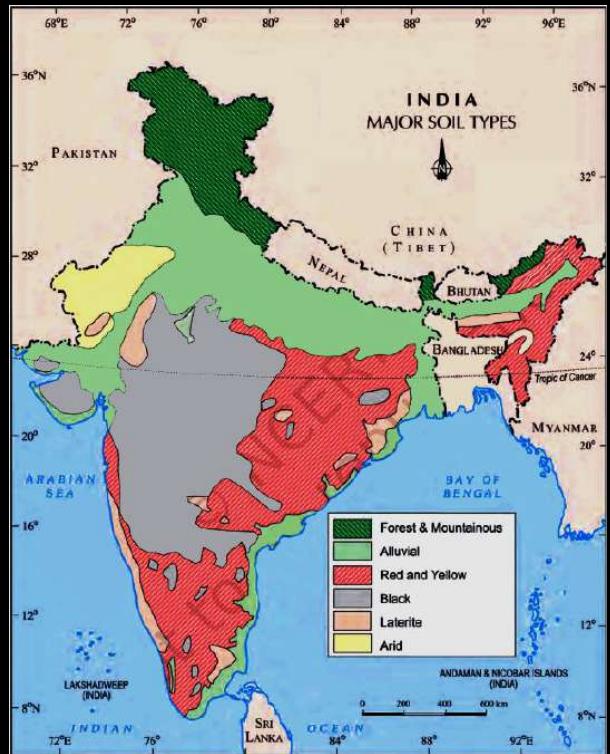
## Black Soil

- Black in colour, also known as regur soils and cotton soil.

### Formation and Location



- Climatic condition along with the parent rock material are the important factors for the formation of black soil.
- This soil type is found in Deccan trap (Basalt) region is made up of lava flows.
- They cover the plateaus of Maharashtra, Saurashtra, Malwa, Madhya Pradesh and Chhattisgarh and extend in the south east direction along the Godavari and the Krishna valleys.





- Black soils are made up of *extremely fine clayey material*.



Well-known for their capacity to hold moisture.

- Rich in soil nutrients, such as calcium carbonate, magnesium, potash and lime.
- These soils are generally poor in phosphoric contents.

*Similar to dough*



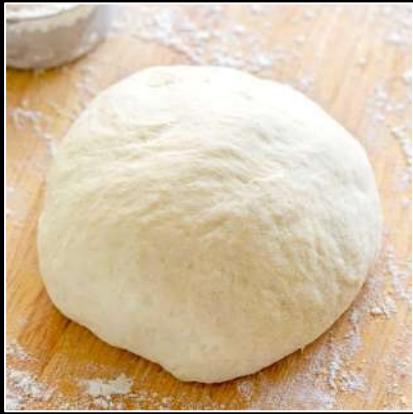
Develop deep cracks during hot weather  
and sticky when wet.



Impact



# Class 10th - Geography - Resources and Development - Full Chapter Explanation



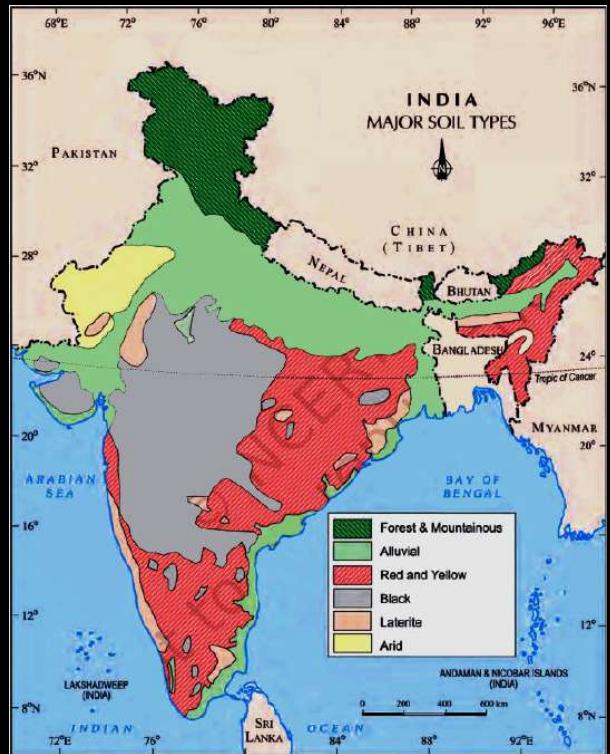


## Red and Yellow Soil

### Formation and Location



- Red soil develops on crystalline igneous rocks in areas of low rainfall in the eastern and southern parts of the Deccan plateau.
- Also found in the parts of Odisha, Chhattisgarh, southern parts of the middle Ganga plain and along the Piedmont Zone of Western Ghats.
- ***Reddish in colour*** → Due to diffusion of iron in crystalline metamorphic rocks.
- It looks yellow when it occurs in hydrated form.





## Laterite Soil

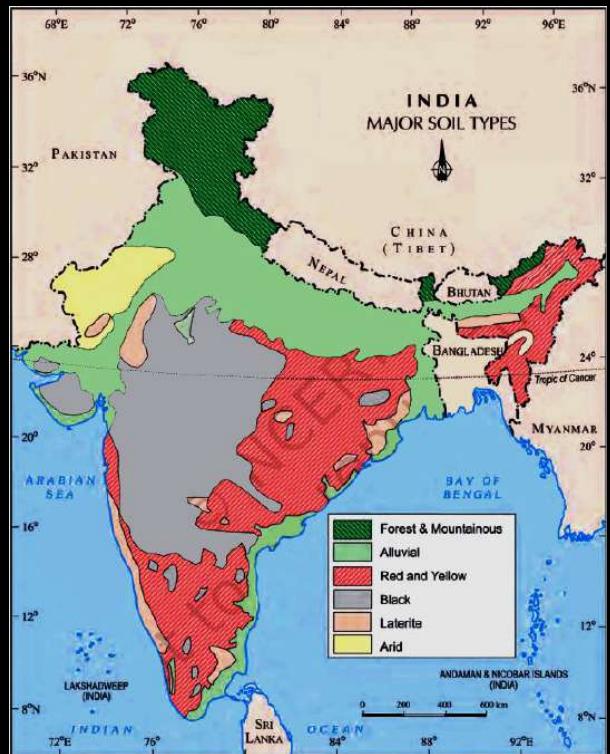
### Formation and Location



- The laterite soil develops under tropical and subtropical climate with alternate wet and dry season.
- This soil is the result of intense leaching due to heavy rain.
- Lateritic soils are mostly deep to very deep, acidic, generally deficient in plant nutrients.



Occur mostly in southern states, Western Ghats region of Maharashtra, Odisha, some parts of West Bengal and North-east regions.





## Characteristics



- Laterite soil is generally **poor in humus**. → Impact
- Prone to **erosion and degradation**.



Due to their position on landscape.



- After adopting appropriate soil conservation techniques particularly in the hilly areas of Karnataka, Kerala and Tamil Nadu, this soil is very useful for growing tea and coffee.
- Red laterite soils in Tamil Nadu, Andhra Pradesh and Kerala are more suitable for crops like cashew nut.





## Arid Soil

- **Sandy** in texture and **saline** in nature.



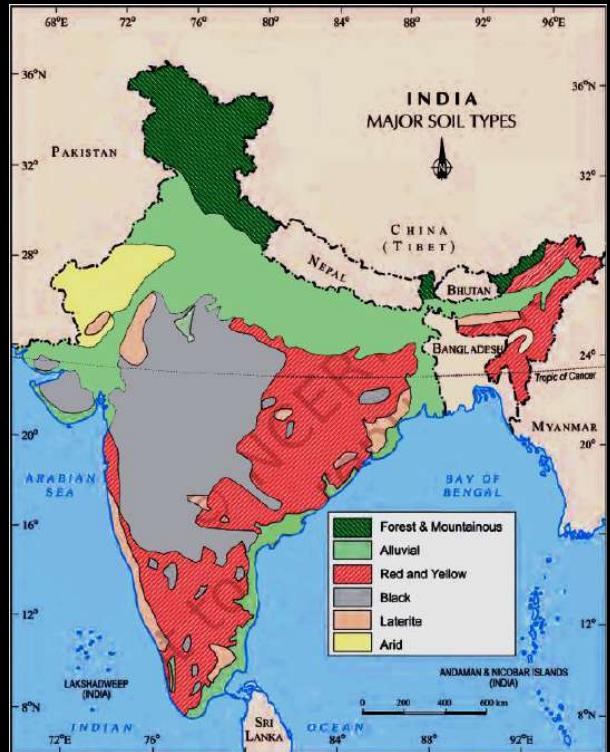
In some areas the salt content is very high and common salt is obtained by evaporating the water.

- Arid soil lacks humus and moisture. **Why?** 😐
- The lower horizons of the soil are occupied by Kankar because of the increasing calcium content downwards.

## Agriculture



After proper irrigation these soils become cultivable as has been in the case of western Rajasthan.





## Forest Soil

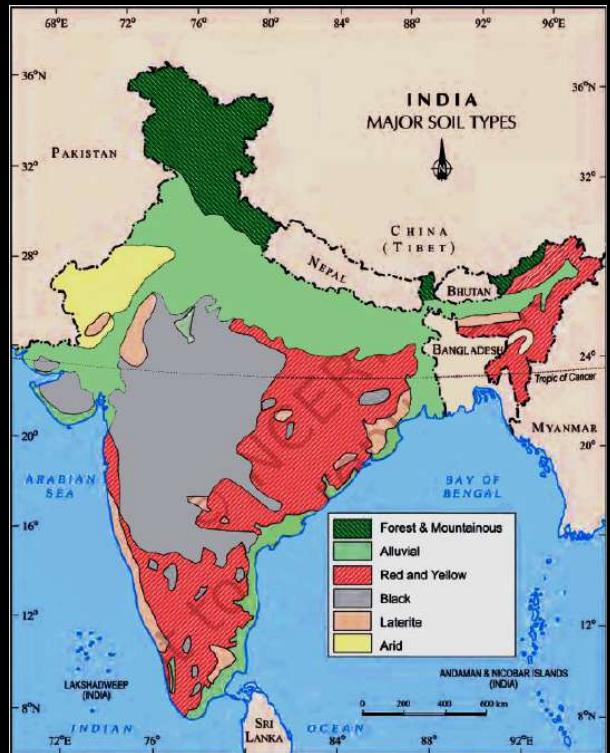
- Found in the hilly and mountainous areas where sufficient rain forests are available.

### Characteristics



Soil texture varies according to the mountain environment where they are formed.

- Loamy and silty in valley sides.
- Coarse grained in the upper slopes.





- In the snow covered areas of Himalayas, these soils experience denudation and are acidic with low humus content.



- The soils found in the lower parts of the valleys particularly on the river terraces and alluvial fans are fertile.





## Soil Erosion and Soil Conservation

What is soil erosion? 😬



- The denudation of the soil cover and subsequent washing down is described as soil erosion.

### Causes of soil erosion

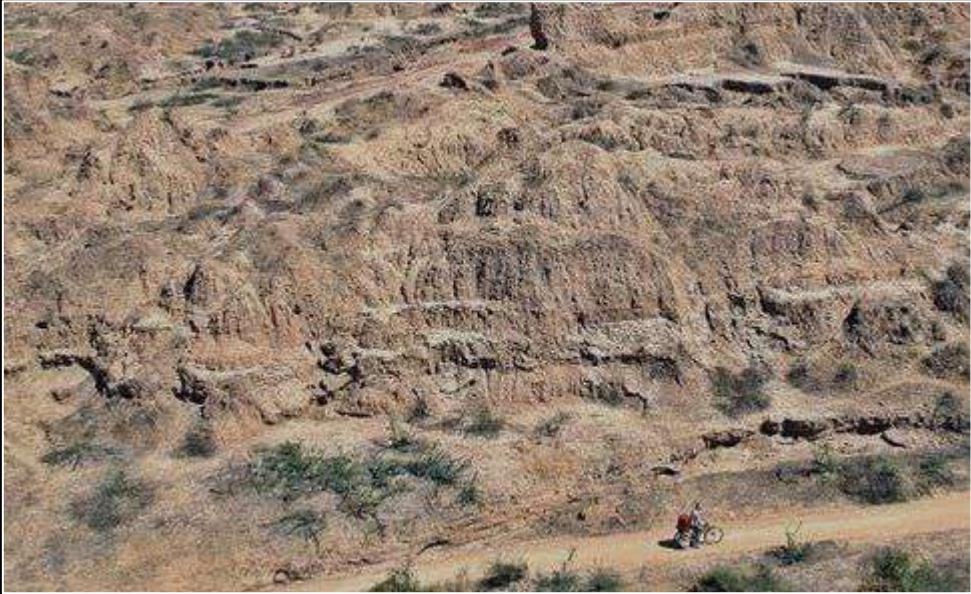


- Human activities** → Deforestation, overgrazing, construction and mining, defective farming method.
- Natural forces** → Wind, glaciers and water leads to soil erosion.



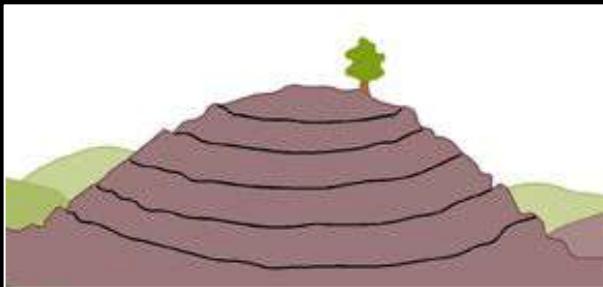
- Gullies** are being created due to running water.
- Bad land known as **Ravines** in chambal basin.
- Sheet erosion:** When sheet of topsoil is washed away due to water flow.
- Wind erosion:** When loose soil or soil at slope blows due to wind.

# Class 10th - Geography - Resources and Development - Full Chapter Explanation





## Soil Conservation Methods



Contour ploughing



Strip cropping



Terrace cultivation

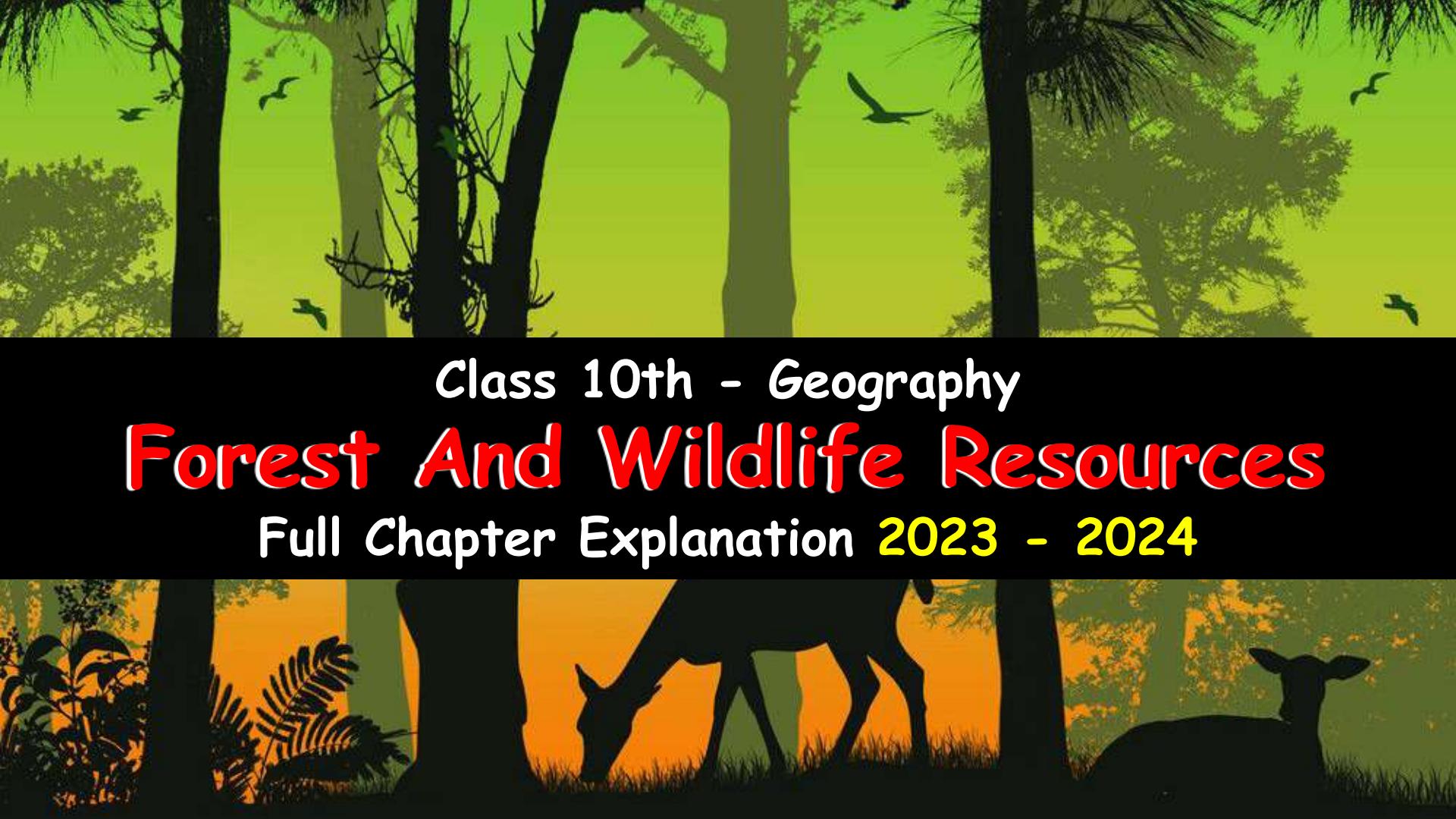


Shelterbelt farming



# Chapter Completed





Class 10th - Geography

# **Forest And Wildlife Resources**

Full Chapter Explanation 2023 - 2024



## Theme

Forest and wildlife

And

we

We humans along with all living organisms form a complex web of ecological system in which we are only a part and very much dependent on this system for our own existence.



Biodiversity or Biological diversity

Biodiversity or Biological Diversity is immensely rich in wildlife and cultivated species, diverse in form and function but closely integrated in a system through multiple network of interdependencies.



### What we are going to study in this chapter ?

- ❖ **Flora and Fauna in India**
- ❖ **Conservation of Forest and Wildlife in India**
  - Project tiger
- ❖ **Types and Distribution of Forest and Wildlife Resources**
- ❖ **Community and Conservation**
  - Sacred groves—a wealth of diverse and rare species



## Flora and Fauna in India

- **India is one of the world's richest countries in terms of its vast array of biological diversity.** 😠



- **Importance of flora and fauna in our daily life.** 😠
- **They are under great stress, mainly due to insensitivity to our environment.**



Question 😠



## Conservation of forest and wildlife in India



### Why do we need it?



### Steps taken for it?



### Project tiger





## *Conservation of forest and wildlife in India*



Why do we need it? 😠

- Conservation preserves the ecological diversity and our life support systems – water, air and soil.
- It also preserves the genetic diversity of plants and animals for better growth of species and breeding.

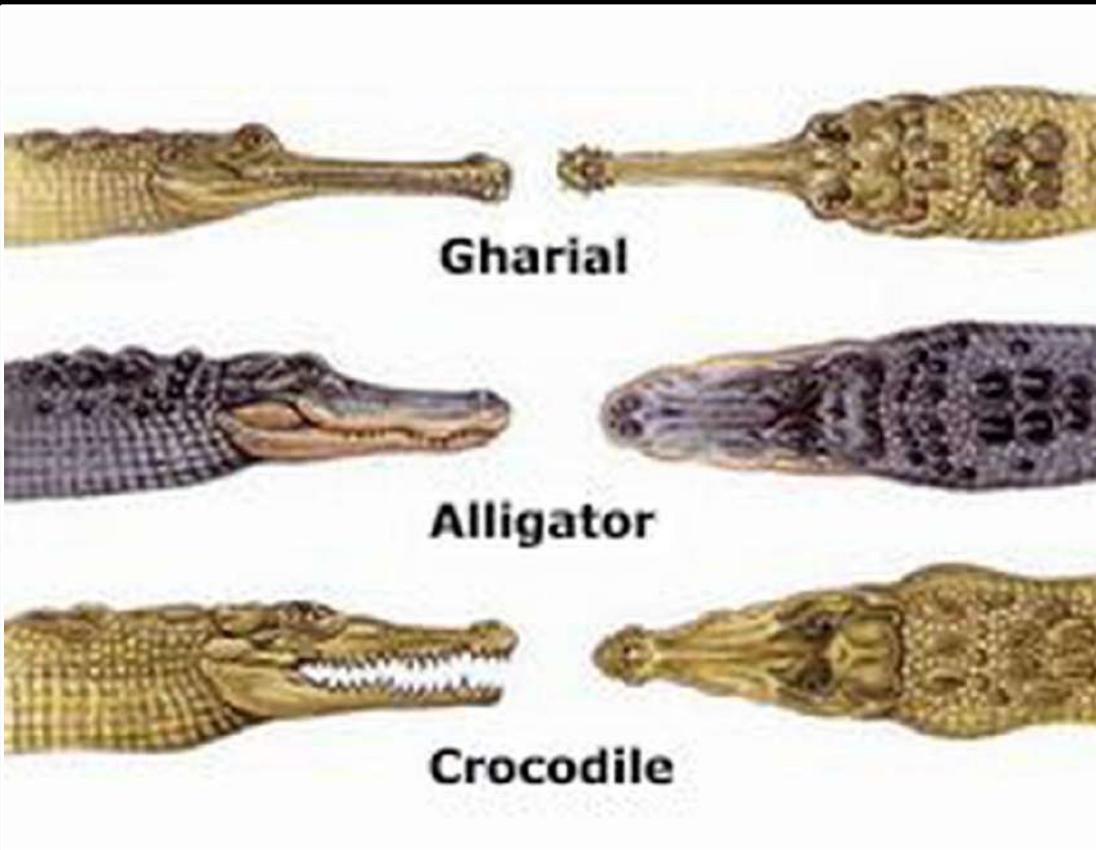
*For example,*

- In agriculture, we are still dependent on traditional crop varieties.
- Fisheries too are heavily dependent on the maintenance of aquatic biodiversity.

### Step taken Conservation of forest and wildlife in India



- **The Indian Wildlife (Protection) Act** was implemented in 1972.
- An all India list of protected species was also published.
- The thrust of the programme was towards protecting the remaining population of certain endangered species by **banning hunting, giving legal protection to their habitats, and restricting trade in wildlife.**
- Central and many state governments established **national parks and wildlife sanctuaries.**
- The central government also announced several projects for protecting specific animals, which were gravely threatened, including **the tiger, the one horned rhinoceros, the Kashmir stag or hangul, three types of crocodiles – fresh water crocodile, saltwater crocodile and the Gharial, the Asiatic lion, and others.**



### Step taken Conservation of forest and wildlife in India



- Recently, the Indian elephant, black buck (chinkara), the great Indian bustard (godawan) and the snow leopard, etc. have been given full or partial legal protection against hunting and trade throughout India.
- The conservation projects are now focusing on biodiversity rather than on a few of its components.
- There is now a more intensive search for different conservation measures.
- Increasingly, even insects are beginning to find a place in conservation planning.
- In the notification under Wildlife Act of 1980 and 1986, several hundred butterflies, moths, beetles, and one dragonfly have been added to the list of protected species.
- In 1991, for the first time plants were also added to the list, starting with six species.

A close-up photograph of a tiger standing on a weathered wooden log. The tiger's orange and black stripes are clearly visible. It is looking directly at the camera with a slightly open mouth and visible whiskers. The background consists of a rocky, light-colored wall.

# **PROJECT TIGER**

## Project Tiger



- Tiger is one of the key wildlife species in the faunal web.
- In 1973, the authorities realised that the tiger population had dwindled to 1,827 from an estimated 55,000 at the turn of the century.



Reason



- The major threats to tiger population are numerous, such as poaching for trade, shrinking habitat, depletion of prey base species, growing human population, etc.
- The trade of tiger skins and the use of their bones in traditional medicines, especially in the Asian countries left the tiger population on the verge of extinction.

∴ Project Tiger was started



## Project Tiger



- One of the well publicised wildlife campaigns in the world, was launched in 1973.
- Tiger conservation has been viewed not only as an effort to save an endangered species, but with equal importance as a means of preserving biotypes of sizeable magnitude. 😡
- Corbett National Park in Uttarakhand, Sunderbans National Park in West Bengal, Bandhavgarh National Park in Madhya Pradesh, Saris ka Wildlife Sanctuary in Rajasthan, Manas Tiger Reserve in Assam and Periyar Tiger Reserve in Kerala are some of the tiger reserves of India.





## *Types and distribution of forest and wildlife resources*



- In India, much of its forest and wildlife resources are either owned or managed by the government through the Forest Department or other government departments.
- **These are classified under the following categories.**



Reserved forests

Protected forests

Unclassed forests



## Classification of forests

- i. **Reserved Forests:** More than half of the total forest land has been declared reserved forests. Reserved forests are regarded as the most valuable as far as the conservation of forest and wildlife resources are concerned.
- ii. **Protected Forests:** Almost one-third of the total forest area is protected forest, as declared by the Forest Department. This forest land are protected from any further depletion.
- iii. **Unclassed Forests:** These are other forests and wastelands belonging to both government and private individuals and communities.



Reserved forests

+

Protected forests

=

Permanent forests

- Maintained for the purpose of producing timber and other forest produce, and for protective reasons.
- **Madhya Pradesh** has the largest area under permanent forests, constituting 75 per cent of its total forest area.
- Jammu and Kashmir, Andhra Pradesh, Uttarakhand, Kerala, Tamil Nadu, West Bengal, and Maharashtra have large percentages of reserved forests of its total forest area. 😠
- Whereas Bihar, Haryana, Punjab, Himachal Pradesh, Odisha and Rajasthan have a bulk of it under protected forests.
- All North-eastern states and parts of Gujarat have a very high percentage of their forests as unclassed forests managed by local communities.



## ***Community and Conservation***



***Understand the heading*** 😊



In some areas of India, local communities are struggling to conserve these habitats along with government officials, recognising that only this will secure their own long-term livelihood.

***Example:***

- In **Sariska Tiger Reserve, Rajasthan**, villagers have fought against mining by citing the Wildlife Protection Act.
- The inhabitants of five villages in the **Alwar district of Rajasthan** have declared 1,200 hectares of forest as the Bhairodev Dakav ‘Sonchuri’, declaring their own set of rules and regulations which do not allow hunting, and are protecting the wildlife against any outside encroachments.





## Chipko Movement



- Successfully resisted deforestation in several areas
- Also shown that community afforestation with indigenous species can be enormously successful.





- ❖ Farmers and citizen's groups like the **Beej Bachao Andolan** in **Tehri** and **Navdanya** have shown that adequate levels of diversified crop production without the use of synthetic chemicals are possible and economically viable.





### JFM(Joint Forest Management)



- In India joint forest management (JFM) programme furnishes a good example for involving local communities in the management and restoration of degraded forests.
- The programme has been in formal existence since 1988 when the state of **Odisha passed the first resolution for joint forest management**.
- JFM depends on the formation of local (village) institutions that undertake protection activities mostly on degraded forest land managed by the forest department.
- In return, the members of these communities are entitled to intermediary benefits like nontimber forest produces and share in the timber harvested by 'successful protection'.

## Sacred Groves - A wealth of diverse and rare species

Nature worship is an age old tribal belief based on the premise that all creations of nature have to be protected.



### Sacred Groves

(The forests of god and goddesses)

← Preserved several virgin forests



These patches of forest or parts of large forests have been left untouched by the local people and any interference with them is banned.



## Sacred Groves



- Certain societies revere a particular tree which they have preserved from time immemorial.
- The Mundas and the Santhal of Chota Nagpur region worship mahua (*Bassia latifolia*) and kadamba (*Anthocaphalus cadamba*) trees,
- And the tribals of Odisha and Bihar worship the tamarind (*Tamarindus indica*) and mango (*Mangifera indica*) trees during weddings.
- To many of us, peepal and banyan trees are considered sacred.





Indian society comprises several cultures, each with its own set of traditional methods of conserving nature and its creations.



- Sacred qualities are often ascribed to **springs, mountain peaks, plants and animals** which are closely protected.
- Feeding Langurs and Macaques around temples.
- In and around Bishnoi villages in Rajasthan, herds of blackbuck, (chinkara), nilgai and peacocks can be seen as an integral part of the community and nobody harms them.





## Conclusion



**Both environmental destruction and reconstruction in India**

- Local communities everywhere have to be involved in some kind of natural resource management.
- But there is still a long way to go before local communities are at the centre stage in decision-making.
- Accept only those economic or developmental activities, that are people centric, environment-friendly and economically rewarding.



# Chapter Completed

Class 10th - Geography

# Water Resources

Full Chapter Explanation



# Class 10th - Geography - Water Resources - Full Chapter Explanation



## Water as a Resource 😠



3/4 of earth surface is covered with water (but only a small part is usable)



Fresh water



Usable part



Surface runoff

Ground water

All water moves within the hydrological cycle ensuring that water is a renewable resource.



## *Water scarcity and the need for water conservation and management*



Abundance and renewability of water → **How can it be scarce?** 🤯



The actual water scarcity and our understanding about it? 🤯



- The availability of Water Resources varies over space and time, mainly due to the variations in seasonal and annual precipitation.
- water scarcity in most cases is caused by over-exploitation, excessive use and unequal access to water

# Class 10th - Geography - Water Resources - Full Chapter Explanation



What is water scarcity



Water stress occurs when availability of water is between 1,000. And 1,600 cubic meter per person per year



# Class 10th - Geography - Water Resources - Full Chapter Explanation



Why there is water scarcity?



Understand the Question 😊



- Where and when the water scarcity is likely to occur?
- Is it possible that an area or region may have ample Water Resources but is still facing water scarcity?

Quantitative reasons

Qualitative reasons



## Reasons for water scarcity (Quantitative)

1. Water scarcity may be an outcome of **large and growing population and consequent greater demands for water**, and unequal access to it.
2. Population ↑ = food demand ↑



∴ To facilitate higher food-grain production, Water Resources are being over-exploited to expand irrigated areas for dry-season agriculture.



It may lead to falling groundwater levels, adversely affecting water availability and food security of the people.



Developing drought resistant crops and dry farming techniques.



### 3. Intensive **industrialisation and urbanisation** causing water scarcity. 😠



- Industries, apart from being heavy users of water, also require power to run them.
- Much of this energy comes from hydroelectric power.
- multiplying urban centres with large and dense populations and urban lifestyles have not only added to water and energy requirements but have further aggravated the problem.



Housing societies

➡ Have their own groundwater pumping devices to meet their water needs.



Fragile Water Resources are being over-exploited and have caused their depletion in several of these cities.

# Class 10th - Geography - Water Resources - Full Chapter Explanation



Reasons for water scarcity (Qualitative) 😠



Situation where water is sufficiently available to meet the needs of the people, but, the area still suffers from water scarcity.



Why?



Bad quality of water 😠



Polluted by domestic and industrial wastes, chemicals, pesticides and fertilisers used in agriculture, thus, making it hazardous for human use.



Water, Water Everywhere, Not a Drop to Drink:  
After a heavy downpour, a boy collects drinking water in Kolkata. Life in the city and its adjacent districts was paralysed as incessant overnight rain, meaning a record 180 mm, flooded vast area and disrupted traffic.



A Kashmiri earthquake survivor carries water in the snow in a devastated village.



*The need for the water conservation and management* 😡



*To save ourselves from*



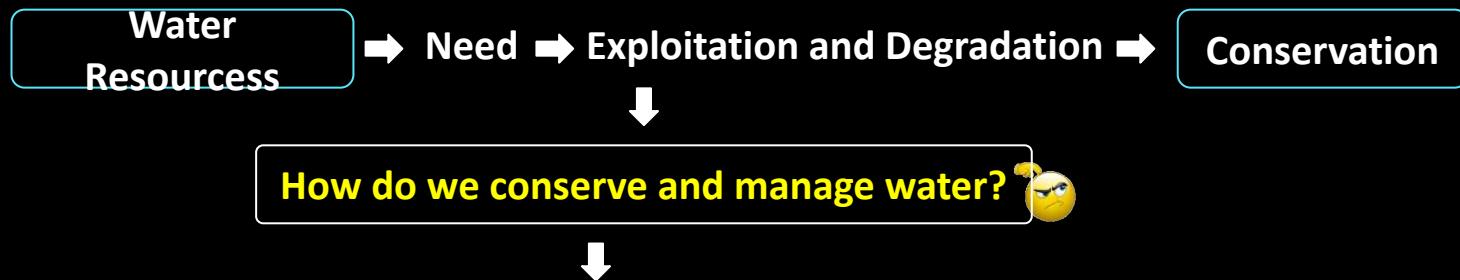
- Health hazards
- Ensure food security
- Degradation of natural ecosystem
- Over exploitation and mismanagement of Water Resources will impoverish this resource and cause ecological crisis



*All these things will affect our lives negatively.*



## *Multi - purpose river projects and integrated Water Resourcess management*



- 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.



## 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 rea.





What are dams? How they help us in conserving water? 😠

Dams

→ 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.



What are dams? How they help us in conserving water? 🤔

## Classification of Dam



- 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.*

# Class 10th - Geography - Water Resources - Full Chapter Explanation



*timber dams*



*Embankment dams or Masonry dams*



*large dams*



*small dams*



Dams



Multi - Purpose Project.



- 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.



# Class 10th - Geography - Water Resources - Full Chapter Explanation



## Multi - Purpose Project.



- Dams are now referred to as multi-purpose projects where the many uses of the impounded water are integrated with one another.

For example,

- 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.



# Class 10th - Geography - Water Resources - Full Chapter Explanation

Multi - Purpose project.

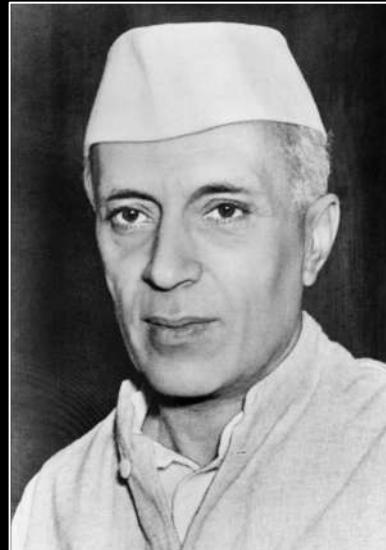
→ “ Temples of Modern India ”

- Jawaharlal nehru



Why?

- The vehicle that would lead the nation to development and progress, overcoming the handicap of its colonial past.
- *Integrate development of agriculture and the village economy with rapid industrialisation* and growth of the urban economy.





## *Opposition of multipurpose projects*



Reason



1. Regulating and damming of rivers affect their natural flow causing poor sediment flow and excessive sedimentation at the bottom of the reservoir,



Impact



- Resulting in rockier stream beds.
- Poorer habitats for the rivers aquatic life.
- Dam fragment rivers making it difficult for aquatic fauna to migrate, especially for spawning.
- Submerge the existing vegetation and soil leading to its decomposition over a period of time.



2. Multi-purpose projects and large dams have also been the cause of many new environmental movements like the '**Narmada Bachao Andolan**' and the '**Tehri dam Andolan**' etc.



**Why?**



- 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.



**Who gets the benefit?** ☹





3. ***Irrigation has also changed the cropping pattern of many regions*** with farmers shifting to water intensive and commercial crops.



Salinisation of the soil

Excessive irrigation leads to increase in the salt content in the soil.

Transformed Social Landscape

Increasing the social gap between the richer landowners and the landless poor



4. The dams did create conflicts between people wanting **different uses and benefits from the same Water Resources** 😠



- In Gujarat, the Sabarmati-basin farmers were agitated and almost caused a riot over the higher priority given to water supply in urban areas.

5. **Inter-state water disputes** are also becoming common with regard to sharing the costs and benefits of the multi-purpose project.



- Krishna - Godavari Dispute
- Kaveri Dispute

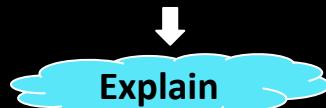


6. Most of the **objections to the projects arose due to their failure to achieve the purposes** for which they were built.



Dams

→ Constructed to control flood **X** They have triggered the flood.



- Sedimentation in the reservoir
- Unsuccessful in controlling floods at the time of excessive rainfall. 😠





## Negative impact of Dams and multi purpose projects 😠



- Caused flood ➡ Floods have devastated life and property.
- Caused extensive soil erosion.
- Sedimentation also meant that the flood plains were deprived of silt, a natural fertiliser, further adding on to the problem of land degradation.
- It was also observed that the multi-purpose projects induced earthquakes.
- Caused water-borne diseases and pests and pollution.



## Rainwater Harvesting

Many thought that given the disadvantages and rising resistance against the multipurpose projects, **water harvesting system** was a viable alternative.



Socio-economically and Environmentally



Explain





In ancient India, along with the sophisticated hydraulic structures, there existed an extraordinary tradition of water-harvesting system.



- In hill and mountainous regions, people built diversion channels like the '**guls**' or '**kuls**' of the Western Himalayas for agriculture.
- '**Rooftop rainwater 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 rainfed storage structures that allowed the water to stand and moisten the soil like the '**khadins**' in Jaisalmer and '**Johads**' in other parts of Rajasthan





## Rainwater Harvesting



- Rooftop rainwater is collected using a PVC pipe
- Filtered using sand and bricks
- Underground pipe takes water to sump for immediate usage
- Excess water from the sump is taken to the well
- Water from the well recharges the underground
- Take water from the well (later)



## Rainwater Harvesting in India



- In the semi-arid and arid regions of Rajasthan, particularly in **Bikaner**, **Phalodi** and **Barmer**, almost all the houses traditionally had underground tanks or tank for storing drinking water.
- The tankas were part of the well-developed rooftop rainwater harvesting system and were built inside the main house or the courtyard.
- They were connected to the sloping roofs of the houses through a pipe.
- Rain falling on the rooftops would travel down the pipe and was stored in these underground ‘**tankas**’.
- The first spell of rain was usually not collected as this would clean the roofs and the pipes. 😊
- The rainwater from the subsequent showers was then collected.

## Advantages of Tankas



- The rainwater can be stored in the tankas.
- Reliable source of drinking water when all other sources are dried up.
- Rainwater, or *palar pani*, as commonly referred to in these parts, is considered the purest form of natural water.
- Many houses constructed underground rooms adjoining the 'tanka' to beat the summer heat as it would keep the room cool.



## Rooftop Rainwater Harvesting in Present time



Today, in western Rajasthan, sadly the practice of rooftop rainwater harvesting is on the decline as plenty of water is available due to the perennial **Indira Gandhi Canal**, though some houses still maintain the tankas since they do not like the taste of tap water.



**Is it of no use?**



## Gendathur Model



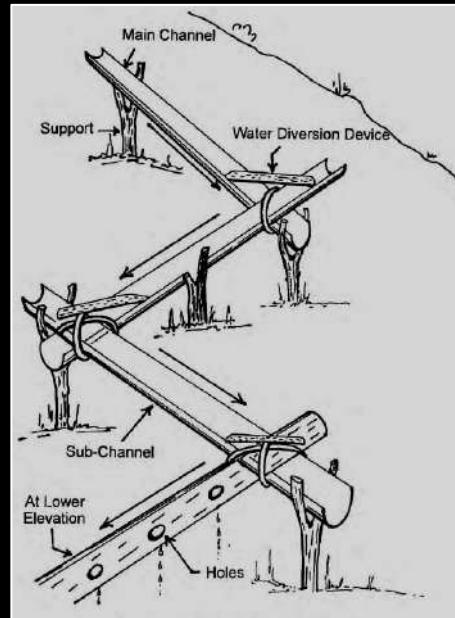
- In **Gendathur**, a remote backward village in **Mysuru, Karnataka**, villagers have installed, in their household's rooftop, rainwater harvesting system to meet their water needs.
- Nearly **200 households** have installed this system and the village has earned the rare distinction of being rich in rainwater.
- Gendathur receives an annual precipitation of 1,000 mm, and with 80 percent of collection efficiency and of about 10 fillings, every house can collect and use about 50,000 litres of water annually.
- From the 200 houses, the net amount of rainwater harvested annually amounts to **1,00,000 litres**.



## Bamboo Drip Irrigation System



- In Meghalaya, a 200-year-old system of tapping stream and spring water by using bamboo pipes, is prevalent.
- About 18-20 litres of water enters the bamboo pipe system, gets transported over hundreds of metres, and finally reduces to 20-80 drops per minute at the site of the plant.





## Bamboo Drip Irrigation System



**Picture 1:** Bamboo pipes are used to divert perennial springs on the hilltops to the lower reaches by gravity



**Picture 2 and 3:** The channel sections, made of bamboo, divert water to the plant site where it is distributed into branches, again made and laid out with different forms of bamboo pipes. The flow of water into the pipes is controlled by manipulating the pipe positions.





## Bamboo Drip Irrigation System



**Picture 4:** If the pipes pass a road, they are taken high above the land.



**Picture 5 and 6:** Reduced channel sections and diversion units are used at the last stage of water application. The last channel section enables water to be dropped near the roots of the plant.



# Chapter Completed



Class 10th - Geography

# Agriculture

Full Chapter Explanation



# Class 10th - Geography - Agriculture - Full Chapter Explanation



## Agriculture and We



Our dependence over agriculture.



- Occupation
- Food grains
- Industrial inputs



# Class 10th - Geography - Agriculture - Full Chapter Explanation



## *Types of Farming*



Agriculture an age old economic activity →



Cultivation methods have changed significantly depending upon the characteristics of physical environment, technological know-how and socio-cultural practices.



- Primitive Subsistence Farming
- Intensive subsistence Farming
- Commercial Farming

## Primitive Subsistence Farming



Understand the heading 😠



- Agriculture is practised on small patches of land with the help of primitive tools.
- This type of farming depends upon monsoon, natural fertility of the soil and suitability of other environmental conditions to the crops grown.

→ It is a '**Slash and Burn**' agriculture.



- Shifting allows Nature to replenish the fertility of the soil through natural processes.
- It is known by different names in different parts of the country.

# Class 10th - Geography - Agriculture - Full Chapter Explanation



## Slash and Burn in India

It is jhumming in north-eastern states like Assam, Meghalaya, Mizoram and Nagaland; Pamlou in Manipur, Dipa in Bastar district of Chhattisgarh, and in Andaman and Nicobar Islands.



## Slash and Burn in World

The ‘slash and burn’ agriculture is known as ‘Milpa’ in Mexico and Central America, ‘Conuco’ in Venezuela, ‘Roca’ in Brazil, ‘Masole’ in Central Africa, ‘Ladang’ in Indonesia, ‘Ray’ in Vietnam.



## Intensive Subsistence Farming



Understand the heading 🤔

- High population = **More food for them**



Limited land



How to produce more? 🤔



Intensive Subsistence Farming

It is labour intensive farming, where high doses of biochemical inputs and irrigation are used for obtaining higher production.

# Class 10th - Geography - Agriculture - Full Chapter Explanation



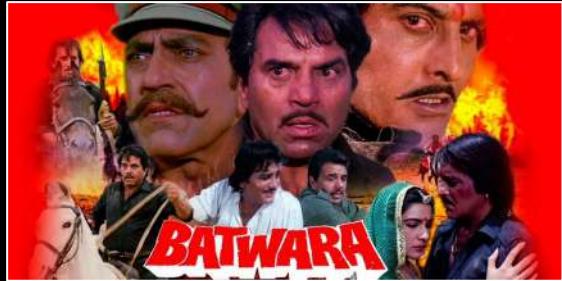
Why there is a need for intensive Subsistence Farming? 😠



*Right of inheritance*



- Reduce land size holding
- The farmer is forced to take maximum output from the limited land.
- Creating enormous pressure on agriculture land.



# Class 10th - Geography - Agriculture - Full Chapter Explanation

## Commercial Farming



Farming performed from the perspective of earning money by higher production through the use of higher doses of modern inputs, e.g. high yielding variety (HYV) seeds, chemical fertilisers, insecticides and pesticides.



The degree of commercialisation of agriculture varies from one region to another. 😠



**Example** - Rice is a commercial crop in Haryana and Punjab, but in Odisha, it is a subsistence crop.



# Class 10th - Geography - Agriculture - Full Chapter Explanation



Farming in USA



Farming in India

# Class 10th - Geography - Agriculture - Full Chapter Explanation

- Plantation is also a type of commercial farming.



Plantation 😡



- A single crop is grown on a large area.



The plantation has an interface of agriculture and industry.

How? 😡



- Cover large tracts of land.
- Capital intensive inputs.
- Migrant labourers.
- Raw material for industries is produced.
- Well developed network of transport and communication is essential.

## Class 10th - Geography - Agriculture - Full Chapter Explanation



- In India, tea, coffee, rubber, sugarcane, banana, etc., are important plantation crops.



# Class 10th - Geography - Agriculture - Full Chapter Explanation

## *Cropping Pattern*



# Class 10th - Geography - Agriculture - Full Chapter Explanation

Physical diversity and plurality of cultures in India → Reflected in agricultural practices. 🌾

**Three main types of cropping seasons are -**

	<u>Kharif</u>	<u>Rabi</u>	<u>Zaid</u>
<b>Sowing period</b>	Onset of monsoon [June - July]	In winter [October - November]	March - April
<b>Harvesting period</b>	In September - October	Summer [March - April]	May - June
<b>Crops</b>	Paddy, maize, jowar, bajra, tur, moong, urad, cotton, jute, groundnut and soybean.	Wheat, barley, peas gram and mustards.	Watermelon, muskmelon, cucumber, vegetable and fodder crops.
<b>Irrigation</b>	Rainfall	Western temperate cyclone and canals	Private source of irrigation Ex. Tubewell, lakes & well

# Class 10th - Geography - Agriculture - Full Chapter Explanation



Kharif Crops



Rabi Crops



Zaid Crops

# Class 10th - Geography - Agriculture - Full Chapter Explanation



- In states like Assam, West Bengal and Odisha, three crops of paddy are grown in a year. These are Aus, Aman and Boro.



Aus, Aman and Boro



- Sugarcane takes almost a year to grow. 😬



Why? 🤔



# Class 10th - Geography - Agriculture - Full Chapter Explanation

## *Major Crops*

### Crops

#### Food

#### Non-food

- Grains
- Food crops other than grains.

India



Variations

Soil, climate and cultivation practices.

Variety of crops

# Class 10th - Geography - Agriculture - Full Chapter Explanation

## Food Crops(grains)

Crops	Cropping season	Temperature	Rainfall	Area	State	Key point
Rice	Kharif crop	Required 25° C	Above 100 cm	Northern plains north-eastern states, deltaic region	Orissa, West Bengal, Bihar and Tamil Nadu	Most important cereal crop
Wheat	Rabi crop	Cool growing season bright sunshine during harvest	50 to 75 cm	Ganga-sutlej plain, black soil region of Deccan	Punjab, Haryana, U.P. and M.P.	Second most important cereal crop
Maize	Kharif crop	21°C to 27°C	60 to 110 (India 40)	Old alluvial tracks	U.P., Bihar and M.P.	Used as both food and fodder

# Class 10th - Geography - Agriculture - Full Chapter Explanation

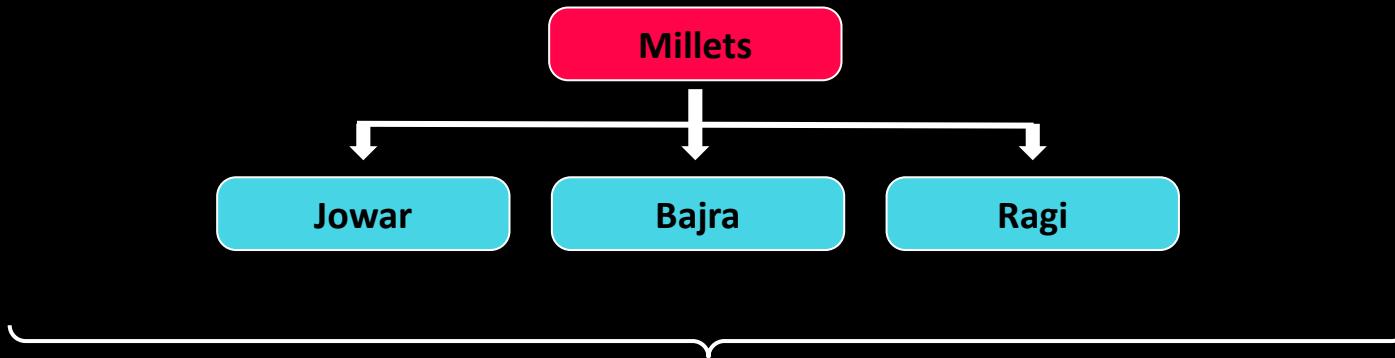
Rice

Wheat

Maize



## Class 10th - Geography - Agriculture - Full Chapter Explanation



Though, these are known as coarse grains, they have very high nutritional value.

# Class 10th - Geography - Agriculture - Full Chapter Explanation



## Jowar



- Third most important food crop (area and production).
- It is a rain-fed crop. (hardly needs an irrigation)
- Major producing states : Maharashtra, Karnataka, Andhra Pradesh and Madhya Pradesh.



## Bajra



- Bajra grows well on sandy soils and shallow black soil.
- Major Bajra producing States are Rajasthan, Uttar Pradesh, Maharashtra, Gujarat and Haryana.



### Ragi



- Crop of dry region and grows well on red, black, sandy, loamy and shallow black soils.
- Major ragi producing states are: Karnataka, Tamil Nadu, Himachal Pradesh, Uttarakhand, Sikkim, Jharkhand and Arunachal Pradesh.
- It is very rich in iron, calcium and other micro nutrient and roughage.



# Class 10th - Geography - Agriculture - Full Chapter Explanation

## Pulses



India is the largest producer as well as the consumer of pulses in the world. 😊



*Major pulses grown in India.*



- Tur (arhar)
- Urad
- Moong
- Masur
- Peas
- Gram



# Class 10th - Geography - Agriculture - Full Chapter Explanation



→ Pulses need less moisture and survive even in dry conditions.



- **Temperature** - 25°C to 30°C
- **Rainfall** - Average 45 cm rainfall.



Pulses



Leguminous crops [except arhar]



Helps in restoring soil fertility by fixing nitrogen from the air.



∴ *These are mostly grown in rotation with other crops.*

→ Major pulse producing states in India are **Madhya Pradesh, Rajasthan, Maharashtra, Uttar Pradesh and Karnataka**.



## *Food Crops other than Grains*

Understand the heading

### Sugarcane

**Temperature** - 21°C to 27°C

**Rainfall** - 75 cm to 100 cm

- Tropical as well as sub-tropical crop.
- Need manual labour.
- India is the second largest producer after Brazil.
- Raw material/source of jaggery, khandsari, sugar and molasses.
- U.P., Maharashtra, Karnataka.



## Oil Seeds



- Main oil-seeds produced in India are groundnut, mustard, coconut, sesamum (til), soyabean, castor seeds, cotton seeds, linseed and sunflower.



## Uses -

- Most of these are edible and used as cooking mediums.
- Used as raw material in the production of soap, cosmetics and ointments.





### Groundnut



- Kharif crop and accounts for about half of the major oil seeds produced in the country.
- Gujarat was the largest producer of groundnut followed by Rajasthan and Andhra Pradesh in 2019-20.



# Class 10th - Geography - Agriculture - Full Chapter Explanation

Linseed



Mustard



Rabi Crops

- **Sesamum** is a kharif crop in north and rabi crop in south India.
- **Castor seed** is grown both as rabi and kharif crop.



# Class 10th - Geography - Agriculture - Full Chapter Explanation

Tea

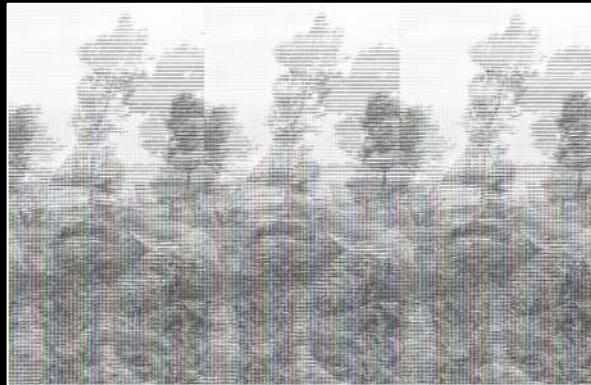


- Tropical as well as subtropical crops.
- Plantation crop and beverages crops.



Explain 😐

- Grow well on deep and fertile well drained soil.
- Requires warm and moist, frost free climate.
- Frequent and evenly distributed rainfall.
- Labour intensive industry.
- Processes within tea garden to restore freshness.
- Assam, Darjeeling, Jalpaiguri district of W.B.



# Class 10th - Geography - Agriculture - Full Chapter Explanation

## Coffee



- Indian coffee is known for its quality.
  - [Arabic variety brought from Yemen]
- Indian produces 4% of the world's coffee production.
- Initially produces in Baba Budan Hills.
- Now also its production is confined to Nilgiri in Karnataka, Kerala and T.N.



Horticulture crops



Fruits and vegetables



- In 2016, India was the second largest producer of fruits and vegetables in the world after China.
- India is a producer of tropical as well as temperate fruits.



- Mangoes of Maharashtra, Andhra Pradesh, Telangana, Uttar Pradesh and West Bengal.
- Oranges of Nagpur and Cherrapunjee (Meghalaya).
- Bananas of Kerala, Mizoram, Maharashtra and Tamil Nadu.
- Litchi and guava of Uttar Pradesh and Bihar.
- Pineapples of Meghalaya.
- Grapes of Andhra Pradesh, Telangana and Maharashtra.
- Apples, pears, apricots and walnuts of Jammu and Kashmir and Himachal Pradesh.

## Class 10th - Geography - Agriculture - Full Chapter Explanation

- India is an important producer of pea, cauliflower, onion, cabbage, tomato, brinjal and potato.



## Non-Food Crops

Understand the heading

Rubber



- Equatorial crop, but can be grown in tropical and subtropical areas.
- It requires moist and humid climate.
- Rainfall more than 200 cm.
- Temperature more than 25°C.
- Important industrial raw material.
- Major areas - Kerala, T.N., Meghalaya, Andaman and Nicobar.



## Fibre crops



- Crops which are used as fibre [Cloths].
- Cotton, jute, hemp and natural silk are the four major fibre crops grown in India.



Silk



*Which crop?* 😠



- Fibre is obtained from cocoons of the silkworms fed on green leaves specially mulberry.



Sericulture





## Cotton



**India** → Original home at cotton plant.



- Cotton is one of the main raw materials for cotton textile industry.
- Cotton grows well in drier parts of the black cotton soil of the Deccan plateau.



## Climate conditions



- It requires high temperature, light rainfall or irrigation, 210 frost-free days and bright sun-shine for its growth.
- It is a kharif crop and requires 6 to 8 months to mature.
- Major producing state : Maharashtra, Gujarat, Madhya Pradesh, etc.



# Class 10th - Geography - Agriculture - Full Chapter Explanation

Jute

→ Also known as *golden fibre*.



- Grows well on well-drained fertile soils in the flood plains where soils are renewed every year.
- High temperature is required during the time of growth.
- Major producers : West Bengal, Bihar, Assam, Odisha and Meghalaya.

## Uses -

- It is used in making gunny bags, mats, ropes, yarn, carpets and other artefacts.



# Class 10th - Geography - Agriculture - Full Chapter Explanation



## Jute v/s Nylon



Due to the high cost of jute, it is losing market.



# Class 10th - Geography - Agriculture - Full Chapter Explanation

## *Technological and Institutional Reforms*

Why reforms are required? 😠

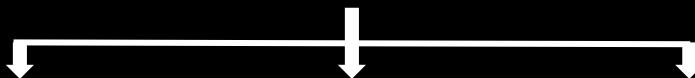


Sustained uses of land without compatible techno-institutional changes have hindered the pace of agricultural development.



Explain 😠

∴ Some serious technical and institutional reforms are required.



Technological reforms

Institutional reforms

# Class 10th - Geography - Agriculture - Full Chapter Explanation

## Initial institutional reforms



- Collectivisation, consolidation of holdings, cooperation and abolition of zamindari, etc.
- 'Land reform' was the main focus of our First Five Year Plan.



Limitations 😠



∴ To improve Indian agriculture in 1960s and 1970s government  
Embarked upon Green revolution and White revolution.



This too led to the concentration of development in few selected areas.

# Class 10th - Geography - Agriculture - Full Chapter Explanation



## Class 10th - Geography - Agriculture - Full Chapter Explanation

- In 1980s and 1990s → A comprehensive land development programme was initiated.



*Included both institutional and technical reforms.*



- Provision for crop insurance against drought, flood, cyclone, fire and disease.
- Establishment of Grameen banks.
- Cooperative societies and banks for providing loan facilities to the farmers at lower rates of interest.
- Kisan Credit Card (KCC).
- Personal Accident Insurance Scheme (PAIS).
- Special weather bulletins and agricultural programme for farmers on radio and television.
- Minimum support price.





## Bhoodan - Gramdan Movement

→ [Who was Vinoba Bhave?](#)



Spiritual heir of Mahatma Gandhi, after Gandhi's martyrdom, Vinoba Bhave undertook *padyatra* to spread Gandhiji's message covered almost the entire country.



He believed in the idea of Gram Swaraj



# Class 10th - Geography - Agriculture - Full Chapter Explanation



## Incident of Pochampalli, Andhra Pradesh



Some poor landless villagers demanded some land for their economic well-being.

- Shri Ram Chandra Reddy stood up and offered 80 acres of land to be distributed among 80 land-less villagers.



## Bhoodan movement

- Some zamindars, offered to distribute some villages among the landless.



## Gramdan movement



## Bloodless revolution



# Class 10th - Geography - Agriculture - Full Chapter Explanation

## *Contribution of Agriculture to the National Economy, Employment and Output*

### Agriculture sector



- *Share in GDP* Share in employment [In 2011 about 54.6 percent of total workforce]



*Matter of concern*



- Any decline and stagnation in agriculture will lead to a decline in other spheres of the economy having wider implications for society.



*Agriculture is an important sector*



∴ Steps are taken to improve the situation.

Table 4.1: India: Growth Rate of GDP and Major Sectors (in %)

Sector	2013–14	2014–15	2015–16
Agriculture	4.2	-0.2	1.1
Industry	5.0	5.9	7.3
Services	7.8	10.3	9.2
GDP	6.6	7.2	7.6

# Class 10th - Geography - Agriculture - Full Chapter Explanation

- Government of India made concerted efforts to modernise agriculture.



- Establishment of Indian Council of Agricultural Research (ICAR)
- Agricultural universities
- Veterinary services and animal breeding centres
- Horticulture development
- Research and development in the field of meteorology and weather forecast.
- Improving the rural infrastructure

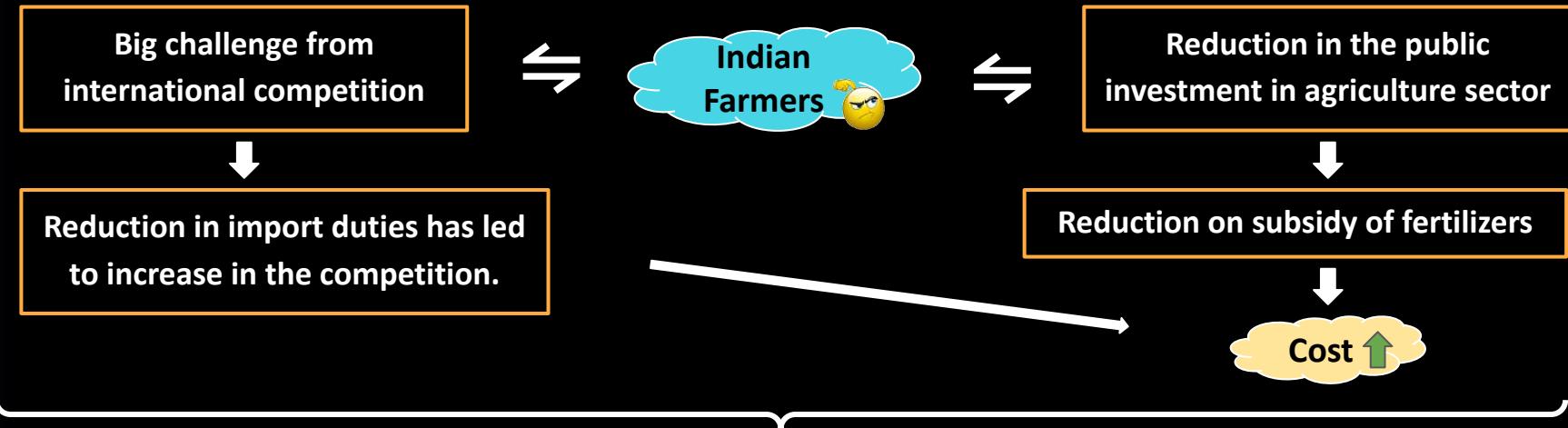


# Class 10th - Geography - Agriculture - Full Chapter Explanation

## → Condition of agriculture sector in India 😞



- The growth rate in agriculture has been decelerating and sufficient employment opportunities are also not generated in the country.



Farmers are withdrawing their investment from agriculture causing a downfall in the employment in agriculture.

# Class 10th - Geography - Agriculture - Full Chapter Explanation

## *Impact of Globalisation on Agriculture*



Not a new phenomenon



Under globalisation, particularly after 1990, the farmers in India have been exposed to new challenges.



Despite being an important producer of various crops, Indian products were not able to compete with the products of developed countries.



Highly subsidised agriculture in those countries.

# Class 10th - Geography - Agriculture - Full Chapter Explanation



Indian agriculture finds itself at the crossroads. 😠

Population ↑

Income ↓

Land size ↓

- Proper thrust should be given to the improvement of the condition of marginal and small farmers.
- The green revolution promised much. But today it's under controversies. 🤔😠



Solution

## Class 10th - Geography - Agriculture - Full Chapter Explanation



- **Green revolution** ➡ The keyword today is “*gene revolution*”, which includes genetic engineering.
- **Organic farming** ➡ It does not affect environment in a negative manner.
- Indian farmers should diversify their cropping pattern from cereals to high-value crops. 😠



*This will increase incomes and reduce environmental degradation.*



# Class 10th - Geography - Agriculture - Full Chapter Explanation



**jatropha**



**Jojoba**



# Chapter Completed





## Introduction -

Minerals, Energy, Resources and We



Minerals are an indispensable part of our lives. (Pin to Ship)



All living things and minerals.



*All living things need minerals*

Life processes cannot occur without minerals. Although our mineral intake represents only about 0.3 percent of our total intake of nutrients, they are so potent and so important that without them we would not be able to utilise the other 99.7 percent of foodstuffs.



## Introduction -

What is a mineral? 



“Homogenous, naturally occurring substance with a definable internal structure.”



Combinations of homogenous minerals (one or more) 



Formation depends upon the physical and chemical conditions.



Limestone Rock



## Introduction -

### Geographers and Geologists

Geographers



- Study minerals as part of the the earth's crust.
- Area of study - Above the earth.

Geologists



- Study formation of minerals, their age, physical and chemical composition.
- Area of study - Below the earth.



## Mode of Occurrence of Minerals -

- ***Where are these minerals found?*** 



→ Accumulation of any mineral mixed with other elements. 



Extraction should be commercially viable. 



- The type of formation or structure in which they are found determines the relative ease with which mineral ores may be mined.



∴ It is important to understand the types of occurrence of minerals.



## Mode of Occurrence of Minerals -

→ Minerals generally occur in these forms:



Veins and Lodes



Beds and Layers



Residual mass of  
weathered material



Alluvial deposits



Ocean waters



## Mode of Occurrence of Minerals -

**Veins and Lodes**

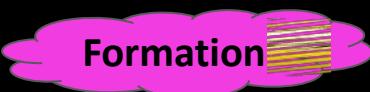
In igneous and metamorphic rocks minerals may occur in the cracks, crevices, faults or joints.

**Small occurrences**

**Veins**

**Large occurrences**

**Lodes**



- They are formed when minerals in liquid/ molten and gaseous forms are forced upward through cavities towards the earth's surface.
- They cool and solidify as they rise.  
Example - Tin, Copper, Zinc and Lead.



## Mode of Occurrence of Minerals -

### Beds and Layers



- Mostly found in sedimentary rocks and formed as a result of deposition, accumulation and concentration in horizontal strata.
- Coal and iron ore (heat and pressure).
- Gypsum and Potash salt (evaporate in arid regions).





## Mode of Occurrence of Minerals -

Residual mass of weathered material



Decomposition of surface rocks. 



Removal of soluble constituents.



Leaving a residual mass of weathered material containing ores.

**Example** - Bauxite.





## Mode of Occurrence of Minerals -

Alluvial deposits

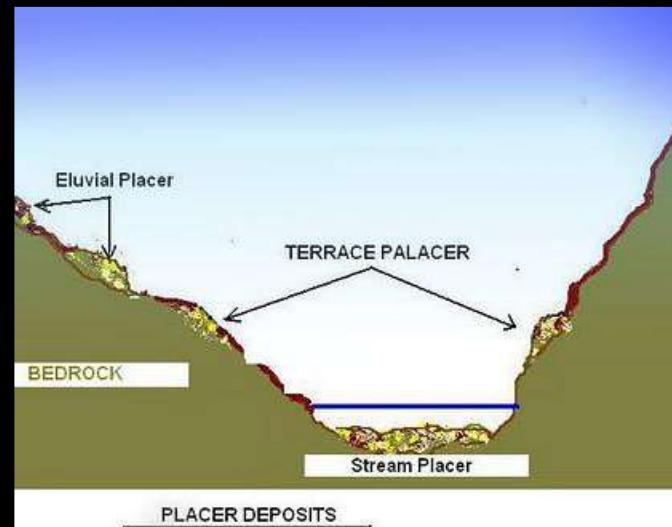


Certain minerals may occur as alluvial deposits in sands of valley floors and the base of hills.



Placer deposits

- Generally contain minerals, which are not corroded by water.





## Mode of Occurrence of Minerals -

Ocean waters



- It contains vast quantities of minerals.
- Most of these are too widely diffused to be of economic significance.

**Example** - Common salt, magnesium, bromine and manganese nodules.





## Mode of Occurrence of Minerals -

### Distribution of mineral resources



India have fairly rich and varied mineral resources, but these are *unevenly distributed*.



- Peninsular rocks contain most of the reserves of coal, metallic minerals, mica and many other non-metallic minerals.
- Sedimentary rocks on the western and eastern flanks of the peninsula, in Gujarat and Assam have most of the petroleum deposits.
- Rajasthan with the rock systems of the peninsula, has reserves of many non-ferrous minerals.
- The vast alluvial plains of north India are almost devoid of economic minerals.



→ *Turning a mineral 'deposit' or 'reserve' into a mine.*





## Ferrous Minerals -

Ferrous → Iron



- Accounts for about 3/4 of the total value of the production of metallic minerals.
- They provide a strong base for the development of metallurgical industries.

Iron ore



Manganese



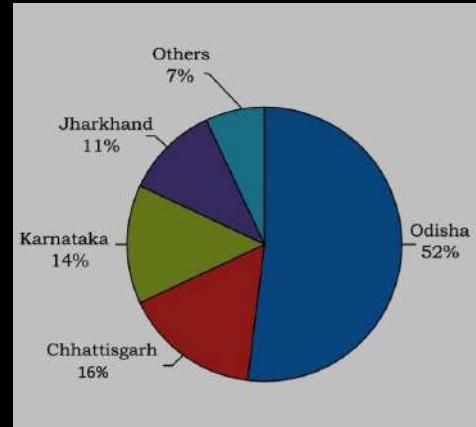


## Ferrous Minerals -

### Iron ore



- Iron ore is the basic mineral and the backbone of industrial development.
- India is rich in good quality iron ores. 



### Magnetite



- It has excellent magnetic qualities.
- Valuable in the electrical industry.
- High content of iron upto 70 percent.

### Hematite



- The most important industrial iron ore in terms of the quantity used.
- Has a slightly lower iron content than magnetite. (50-60 per cent).



### Ferrous Minerals -

→ The major iron ore belts in India are -

#### **Odisha-Jharkhand belt**

- In Odisha high grade hematite ore is found in Badampahar mines in the Mayurbhanj and Kendujhar districts.
- In the adjoining Singbhum district of Jharkhand haematite iron ore is mined in Gua and Noamundi.

#### **Durg-Bastar -Chandrapur belt**

- Very high grade hematites are found in the famous Bailadila range of hills in the Bastar district of Chhattisgarh.
- The range of hills comprise of 14 deposits of super high grade hematite iron ore.
- It has the best physical properties needed for steel making.
- Iron ore from these mines is exported to Japan and South Korea via Visakhapatnam port.



## Ferrous Minerals -

### Ballari-Chitradurga-Chikmagalur Tumkur belt

- The Kudremukh mines located in the Western Ghats of Karnataka are a 100 percent export unit.
- The ore is transported as slurry through a pipeline to a port near Mangalore.

### Maharashtra-Goa belt

- Though, the ores are not of very high quality, yet they are efficiently exploited.
- Iron ore is exported through Marmagao port.

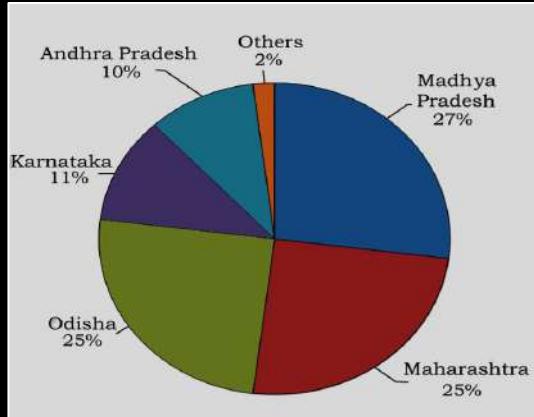
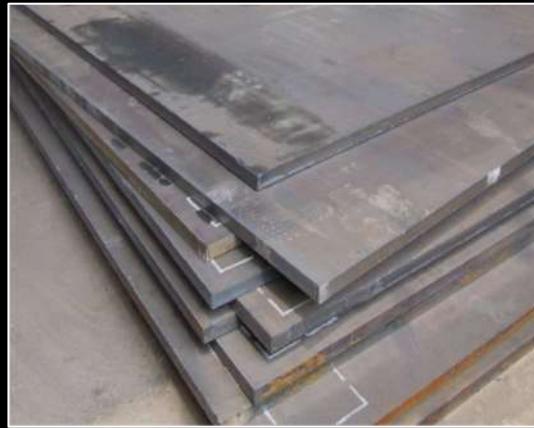


## Ferrous Minerals -

### Manganese



- Manganese is mainly used in the manufacturing of steel and ferro-manganese alloy.
- Nearly 10 kg of manganese is required to manufacture one tonne of steel.
- It is also used in manufacturing bleaching powder, insecticides and paints.





## Non-Ferrous Minerals -

Non-Ferrous



Non iron content



- India's reserves and production of non- ferrous minerals is not very satisfactory.
- However, these minerals, which include copper, bauxite, lead, zinc and gold play a vital role in a number of metallurgical, engineering and electrical industries.

Copper



Bauxite



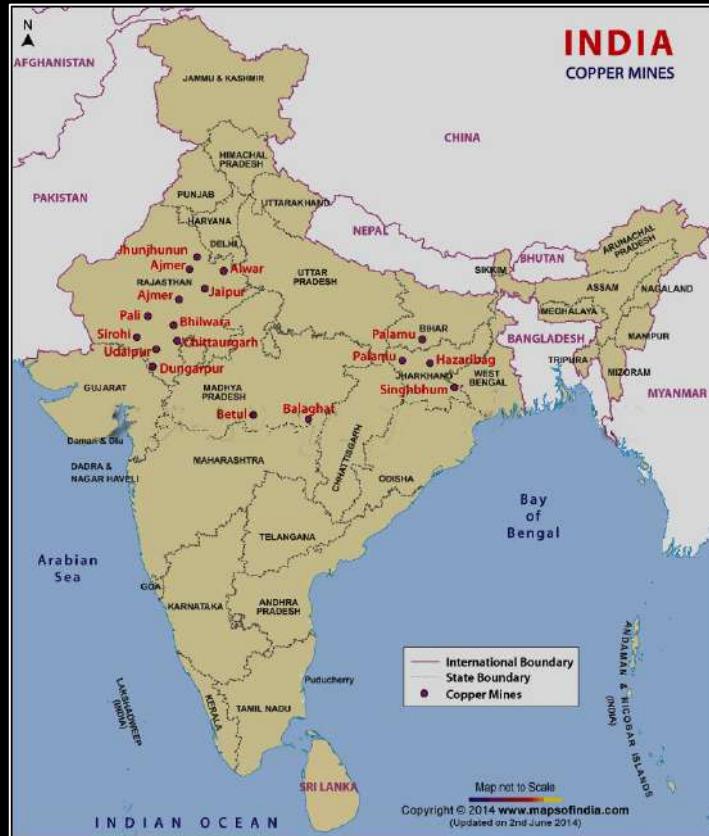


## Non-Ferrous Minerals -

### Copper

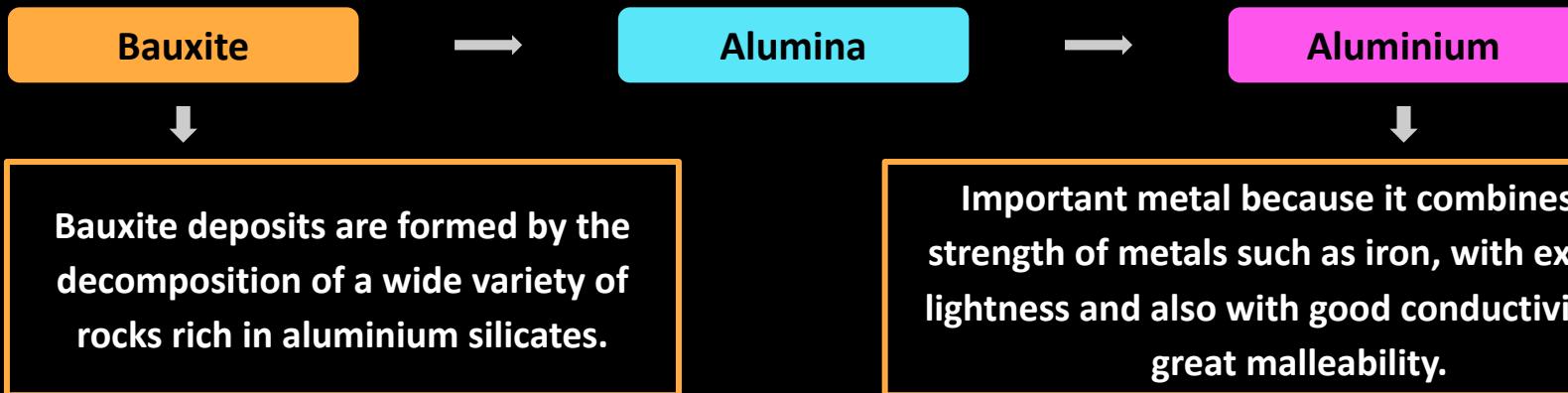


- India is critically deficient in the reserve and production of copper.
- Being malleable, ductile and a good conductor, copper is mainly used in electrical cables, electronics and chemical industries.
- The Balaghat mines in Madhya Pradesh, Khetri mines in Rajasthan and Singhbhum district of Jharkhand are leading producers of copper.





## Non-Ferrous Minerals -



- India's bauxite deposits are mainly found in the Amarkantak plateau, Maikal hills and the plateau region of Bilaspur-Katni.

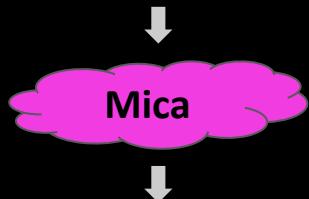
- ↓
- Odisha was the largest bauxite producing state in India in 2016-17.
  - Panchpatmali deposits in Koraput district are the most important bauxite deposits in the state.



## Non-Metallic Minerals -

Non-Metallic Minerals

→ Not made up metals



- Mica is a mineral made up of a series of plates or leaves.
- Mica can be clear, black, green, red yellow or brown.
- Due to its excellent dielectric strength, low power loss factor, insulating properties and resistance to high voltage, mica is one of the most indispensable minerals used in electric and electronic industries.





## Non-Metallic Minerals -

### Major producing areas



- Mica deposits are found in the northern edge of the Chota Nagpur plateau.
- Koderma Gaya – Hazaribagh belt of Jharkhand is the leading producer.
- In Rajasthan, the major mica producing area is around Ajmer.
- Nellore mica belt of Andhra Pradesh is also an important producer in the country.



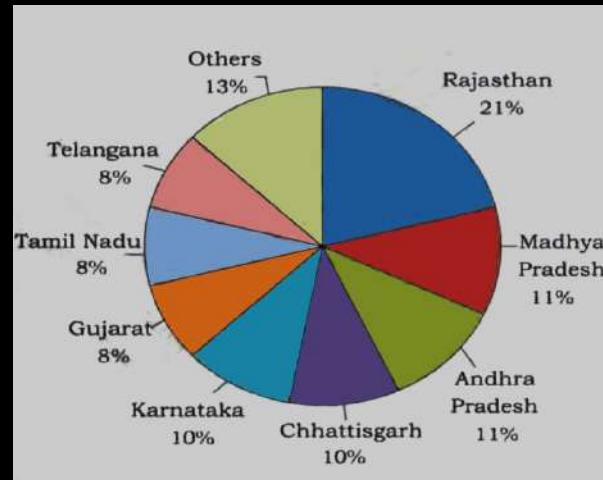


## Rock Minerals -

### Limestone



- Found in association with rocks composed of calcium carbonates or calcium and magnesium carbonates.
- It is found in sedimentary rocks of most geological formations.
- Limestone is the basic raw material for the cement industry and essential for smelting iron ore in the blast furnace.





## Hazards of Mining -

Understand the topic

### Impact on Miners



- i. Risk of collapsing mine roofs.
  - ii. Inundation and fire in coal mines.
  - iii. Health issues.A yellow horizontal bar consisting of several vertical stripes of varying widths.
- ↓
- Dust and noxious fumes are inhaled.
- ↓

Make them vulnerable to pulmonary diseases.

### Impact on Environment



- i. Water source get contaminated.
- ii. Dumping of waste and slurry leads to degradation of land, soil and increase in stream and river pollution.

Stricter safety regulations and implementation of environmental laws are essential to prevent mining from becoming a “killer industry”.



## Hazards of Mining -



Mine roof collapsing



Fire in coal mine



Bird dying due to mining



Contamination due to mining



## Conservation of Minerals -

- ***Why there is a need of conservation?*** 



The total volume of workable mineral deposits is an insignificant fraction i.e. one percent of the earth's crust.

Consumption 

>

Replenishment and mineral formation 

∴ Mineral resources are finite and non-renewable.

- Rich mineral deposits are our country's extremely valuable but short-lived possessions.



Explain 

Continued extraction = Increasing costs mineral extraction comes from greater depths along with decrease in quality.



### Conservation of Minerals -

#### Steps for conservation



- A concerted effort has to be made in order to use our mineral resources in a planned and sustainable manner.
- Improved technologies need to be constantly evolved to allow use of low grade ores at low costs.
- Recycling of metals.
- Using scrap metals and other substitutes.





## Energy Resources -

Energy → It's requirement → How to obtain?



Energy can be generated from fuel minerals like coal, petroleum, natural gas, uranium and from electricity.

### Energy Resources



#### Conventional

Firewood, cattle dung cake, coal, petroleum, natural gas and electricity (both hydel and thermal).



#### Non-Conventional



Non-conventional sources include solar, wind, tidal, geothermal, biogas and atomic energy.

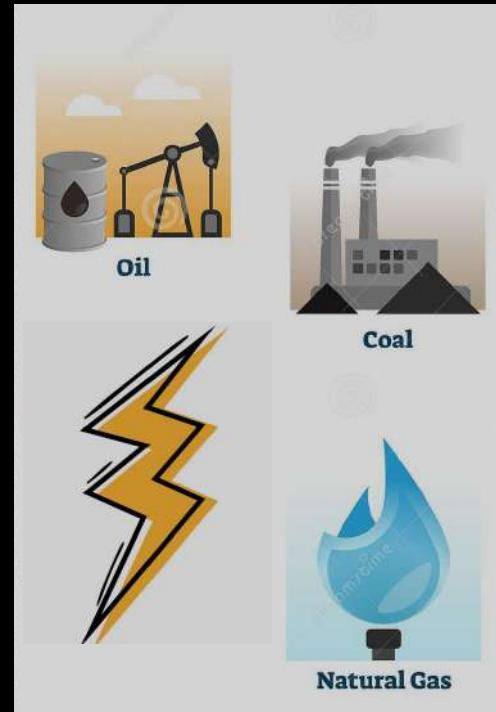
# Class 10th - Geography - Minerals and Energy Resources



## Energy Resources -



Non conventional



Conventional

# Class 10th - Geography - Minerals and Energy Resources



## Conventional Source of Energy -

Coal



Petroleum



Natural Gas



Electricity





## Conventional Source of Energy -

Coal and our energy needs



- Most abundantly available fossil fuel.
- It provides a substantial part of the nation's energy needs.
- It is used for power generation, to supply energy to industry as well as for domestic needs.

Formation

→ Depends upon the degrees of compression and the depth and time of burial.

→ Classification of coal

→ On the basis of ***quality and age.***



## Conventional Source of Energy -

**Coal : On the basis of quality**



**used for generation of electricity.**



**grade bituminous coal which has a special value for smelting iron in blast furnaces.**





## Conventional Source of Energy -

Coal : On the basis of ages

Gondwana Coal

Tertiary Coal



- A little over 200 million years in age.
- Metallurgy coal
- Damodar valley (West Bengal Jharkhand). Jharia, Raniganj and Bokaro.



- About 55 million years old.
- Occur in the north eastern states of Meghalaya, Assam, Arunachal Pradesh and Nagaland.

Coal



Bulky material



- Loses weight on use as it is reduced to ash.
- Hence, heavy industries and thermal power stations are located on or near the coalfields.



## Conventional Source of Energy -

Petroleum and our energy needs



- The next major energy source in India after coal.
- It provides fuel for heat and lighting, lubricants for machinery and raw materials for a number of manufacturing industries.
- Petroleum refineries act as a “*nodal industry*” for synthetic textile, fertiliser and numerous chemical industries.



Explain





### Conventional Source of Energy -

Occurrences

→ Anticlines and fault traps in the rock formations of the tertiary age.



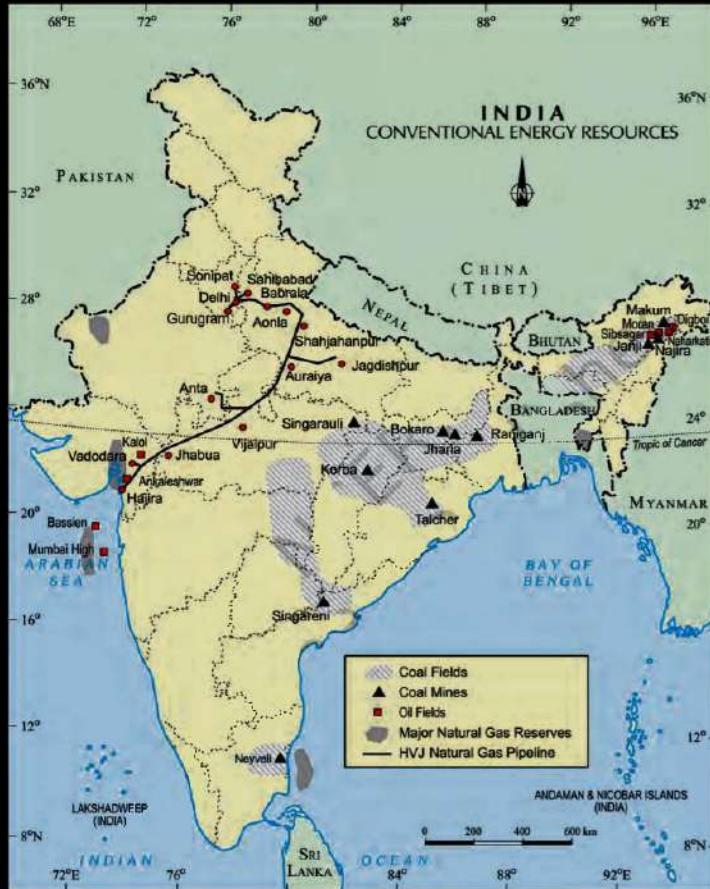
- The oil bearing layer is a porous limestone or sandstone through which oil may flow.
- The oil is prevented from rising or sinking by intervening non-porous layers.
- Petroleum is also found in fault traps between porous and non-porous rocks.
- Gas, being lighter usually occurs above the oil.

## Conventional Source of Energy -

Mumbai High, Gujarat and Assam are major petroleum production areas in India.



- Ankleswar is the most important field of Gujarat.
- Assam is the oldest oil producing state of India.
- Digboi, Naharkatiya and Moran-Hugrijan are the important oil fields in the state.





## Conventional Source of Energy -

### Natural Gas



- Clean energy resource found in association with or without petroleum.
- Used as a source of energy as well as an industrial raw material in the petrochemical industry.
- Environment friendly fuel : Low carbon dioxide emission



### Reserves



Krishna - Godavari basin,  
Mumbai high, Gulf of Cambay  
and Andaman and Nicobar  
islands.



### Conventional Source of Energy -

HVJ Pipeline

→ The 1700 km long Hazira-Vijaipur Jagdishpur cross country gas pipeline links Mumbai High and Bassein with the fertilizer, power and industrial complexes in western and northern India.



Provided an impetus to India's gas production. 

- The power and fertilizer industries are the key users of natural gas.
- Use of Compressed Natural Gas (CNG) for vehicles to replace liquid fuels is gaining wide popularity in the country.



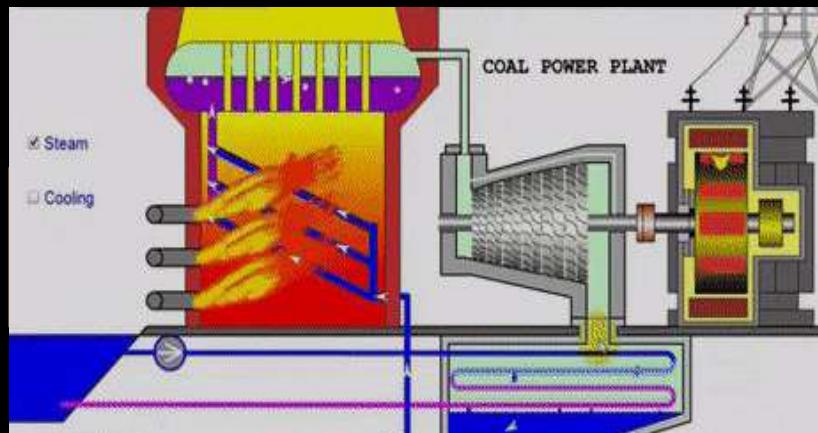
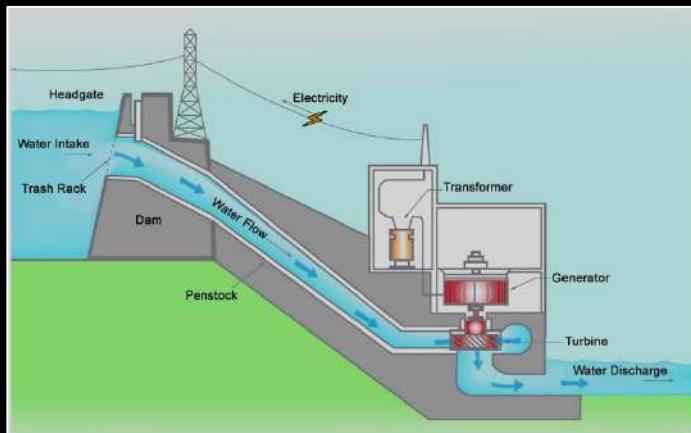
## Conventional Source of Energy -

Electricity

→ Its per capita consumption is considered as an index of development.



***Electricity is generated mainly in two ways:***





## Conventional Source of Energy -

### Hydro electricity



- Generated by fast flowing water, which is a renewable resource.
- India has a number of multi-purpose projects like the Bhakra Nangal, Damodar Valley corporation, the Kopili Hydel Project etc.

### Thermal Electricity



- Generated by using coal, petroleum and natural gas.
- The thermal power stations use non-renewable fossil fuels for generating electricity.
- Major thermal power plant are - Singrauli, Namrup, Tolcher, Neyveli, narawara.



### Non-Conventional Source of Energy -

Need?



Increase in the consumption of fossil fuels.

Impact



Rising prices of oil and gas



Potential shortages



Raised the uncertainties about the security of energy supply in future and caused serious environmental problem.

∴ There is a pressing need to use renewable energy sources like solar energy, wind, tide, biomass and energy from waste material.



## Non-Conventional Source of Energy -

India is blessed with an abundance of sunlight, water, wind and biomass. It has the largest programmes for the development of these renewable energy resources.

Nuclear or Atomic Energy



Solar Energy



Wind Power





## Non-Conventional Source of Energy -

Bio Gas



Tidal Energy



Geothermal Energy





## Non-Conventional Source of Energy -

### Nuclear or Atomic Energy



→ It is obtained by altering the structure of atoms.



When such an alteration is made, much energy is released in the form of heat and this is used to generate electric power.



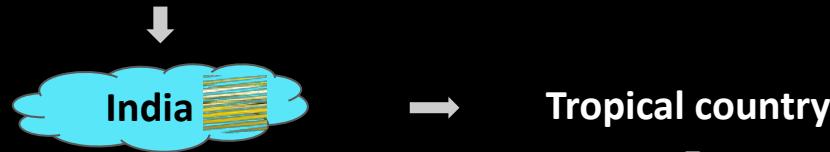
- Uranium and Thorium, which are available in Jharkhand.
- The Aravalli ranges of Rajasthan are used for generating atomic or nuclear power.
- The Monazite sands of Kerala is also rich in Thorium.





### Non-Conventional Source of Energy -

#### Solar Energy



- It has enormous possibilities of tapping solar energy.
- Photovoltaic technology converts sunlight directly into electricity.
- Solar energy is fast becoming popular in rural and remote areas.

#### Advantages of solar power plants

Will minimise the dependence of rural households on firewood and dung cakes.

Contribute to environmental conservation and adequate supply of manure in agriculture.



## Non-Conventional Source of Energy -





## Non-Conventional Source of Energy -

### Wind Power



- India has great potential of wind power.
- The largest wind farm cluster is located in Tamilnadu from Nagercoil to Madurai.
- Apart from these, Andhra Pradesh, Karnataka, Gujarat, Kerala, Maharashtra and Lakshadweep have important wind farms.
- Nagarcoil and Jaisalmer are well known for effective use of wind energy in the country.





## Non-Conventional Source of Energy -

### Biogas



Shrubs, farm waste, animal and human waste are used to produce biogas for domestic consumption in rural areas.

Decomposition of organic matter → Yields gas



Has higher thermal efficiency in comparison to kerosene, dung cake and charcoal.





## Non-Conventional Source of Energy -

Biogas Plant



- Biogas plants are set up at municipal, c
- The plants using cattle dung are known



Twin benefits



- i. Source of energy.
- ii. Provide quality of manure + prevents wood ar





## Non-Conventional Source of Energy -

### Tidal Energy



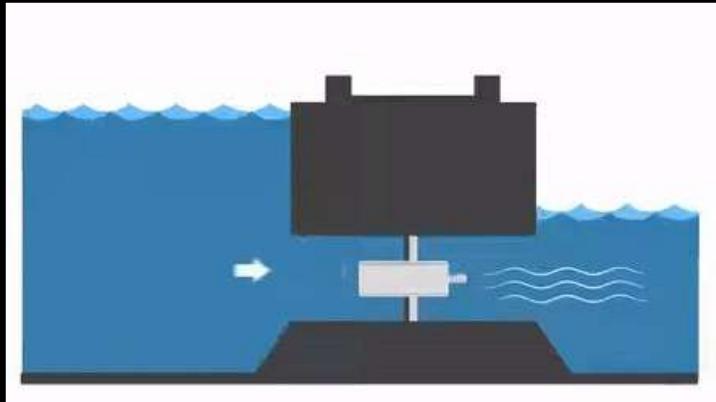
Oceanic tides can be used to generate electricity.



→ How does it works? 



- Floodgate dams are built across inlets.
- During high tide water flows into the inlet and gets trapped when the gate is closed.
- After the tide falls outside the flood gate, the water retained by the floodgate flows back to the sea via a pipe that carries it through a power-generating turbine.





## Non-Conventional Source of Energy -

Regions for generation of Tidal energy



In India the Gulf of Khambhat, the Gulf of Kachchh in Gujarat on the western coast and Gangetic delta in Sunderban regions of West Bengal provide ideal conditions for utilising tidal energy.





## Non-Conventional Source of Energy -

### Geothermal Energy



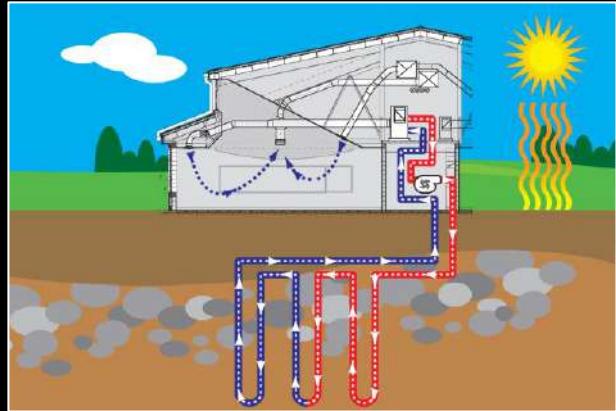
**Geothermal energy refers to the heat and electricity produced by using the heat from the interior of the Earth.**



### How does it works?



- The Earth grows progressively hotter with increasing depth.
- Where the geothermal gradient is high, high temperatures are found at shallow depths.
- Groundwater in such areas absorbs heat from the rocks and becomes hot.
- It is so hot that when it rises to the earth's surface, it turns into steam.
- This steam is used to drive turbines and generate electricity.





## Non-Conventional Source of Energy -

→ There are several hundred hot springs in India, which could be used to generate electricity.



Two experimental projects



1. The Parvati valley near Manikaran in Himachal Pradesh.
2. Puga Valley, Ladakh.





### Conservation of Energy Resources -

**Development**

= Increase in the need for energy. 



Every sector of the national economy – agriculture, industry, transport, commercial and domestic needs inputs of energy.



As a result, consumption of energy in all forms has been steadily rising all over the country.

**Twins planks of sustainable energy**



- Promotion of energy conservation.
- Increased use of renewable energy sources.



### Conservation of Energy Resources -

→ We have to adopt a cautious approach for the judicious use of our limited energy resources.



- Using public transport systems instead of individual vehicles.
- Switching off electricity when not in use.
- Using power-saving devices.
- Using non-conventional sources of energy.

“Energy saved is energy produced”

# **Class 10th - Geography**

## **Complete Explanation**

# Class 10th - Geography - Manufacturing Industries - Full Chapter Explanation



## Introduction -

Manufacturing

Industries

+



**Production of goods in large quantities after processing from raw materials to more valuable products is called manufacturing.**



Secondary activities



The economic strength of a country is measured by the development of manufacturing industries.



## Importance of Manufacturing -

Manufacturing



Backbone of development.



Explain



1. Manufacturing industries helps in modernising agriculture, it reduce the heavy dependence of people on agriculture income.



By providing them job

2. Industrial development is a precondition for eradication of unemployment and poverty from our country.



∴ Public sector industries and joint sector ventures were set up in India. ( To bring down disparities )



## Importance of Manufacturing -

3. Manufactured goods → *Export* → Brings much needed *foreign exchange*.



4. Manufacturing transform raw material in the country into finished good which provide higher value for good.



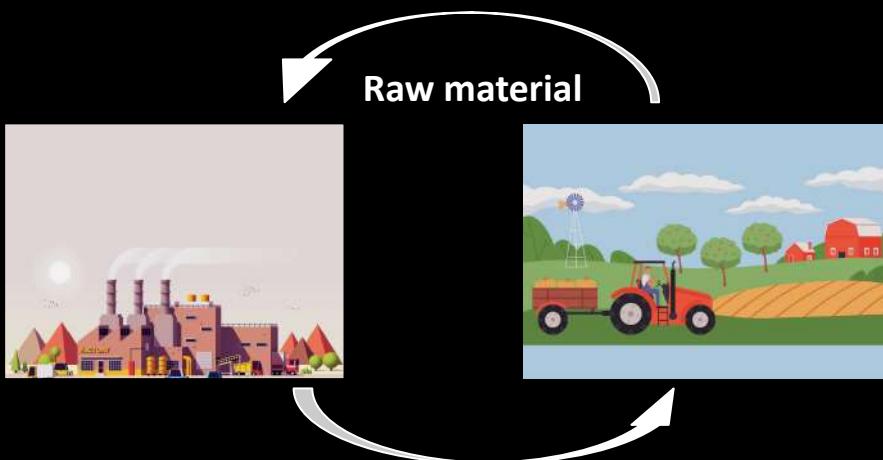
Prosperity





## Importance of Manufacturing -

Agriculture and Industry → Not exclusive of each other. 😠



Machinery [Irrigation pumps, fertilisers, PVC pipes, etc]

- The agro-industries in India have given a major boost to agriculture by raising its productivity.
- Industries depend on the Agriculture for raw materials and sell their products to farmers.



## Importance of Manufacturing -

Globalisation



Global competition



Self-sufficiency alone is not enough.



Our manufactured goods must be at par in quality with those in the international market.





## Contribution of Industry to National Economy -

Understand the heading 😠

*Over the last two decades*



The share of manufacturing sector has stagnated at 17 per cent of GDP - out of a total of 27 per cent for the industry which includes 10 per cent for mining, quarrying, electricity and gas.



Good or Bad 😠

This is much lower in comparison to some East Asian economies, where it is 25 to 35 per cent.



## Contribution of Industry to National Economy -

Analyse 😡



- The trend of growth rate in manufacturing over the last decade has been around 7 per cent per annum. The desired growth rate over the next decade is 12 per cent.
- Since 2003, manufacturing is once again growing at the rate of 9 to 10 per cent per annum.



Way forward 😡



- With appropriate policy interventions by the government and renewed efforts by the industry to improve productivity, economists predict that manufacturing can achieve its target over the next decade.
- The **National Manufacturing Competitiveness Council (NMCC)** has been set up with this objective.

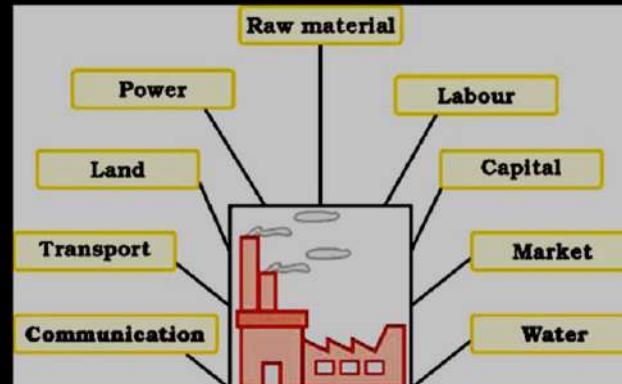


## Industrial Location -

Industrial location



Influenced by many factors.



- Availability of raw material
- Labour
- Capital
- Market
- Power



It is rarely possible to find all these factors available at one place.



*∴ Selecting an appropriate location is must.*



## Industrial Location -

Industrialisation and urbanisation goes hand in hand



Explain



- Cities provide markets and also provide services such as banking, insurance, transport, labour, consultants and financial advice, etc. to the industry.

## Concept of agglomeration economies



Agglomeration economies refers to the benefits received by the firms and people when they come together to make use of the advantages offered by the urban cities that prove helpful to them.



Many industries tend to come together to make use of the advantages offered by the urban centres/agglomeration economics.



## Industrial Location -

### Manufacturing units in pre-independence period

- 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.



Reasons



- The key to decision of the factory location is the least cost.
- Government policies and specialised labour also influence the location of industry.



## Classification of Industries -

On the basis of source of raw material 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.





## Classification of Industries -

### According to their main role

- ❖ ***Basic or key industries*** -
  - 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.





## Classification of Industries -

### On the basis of capital investment

#### I. *Small scale industries*

- Less than one crore.
- Toy industries.



#### II. *Large scale industries*

- One crore or more than one crore.
- Iron and steel industries.

- ❖ Limit has changed over a period of time.



# Class 10th - Geography - Manufacturing Industries - Full Chapter Explanation



## Classification of Industries -

### 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.





## Classification of Industries -

### On the basis of ownership

- ❖ ***Joint sector industries*** -
  - 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*** -
  - Owned and operated by the producers or suppliers of raw materials, workers or both. Such examples are the sugar industry in Maharashtra, the coir industry in Kerala.





## Classification of Industries -

Based on the bulk and weight of raw material and finished goods

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



## Agro Based Industries -

Understand the heading

Textile industry

Unique position

Sugar industry

- Cotton textile
- Jute textile

- Significant contribution in industrial production.
- Employment generation.
- Foreign exchange earning.
- Contribution in GDP.
- Self-reliant and complete in value chain.



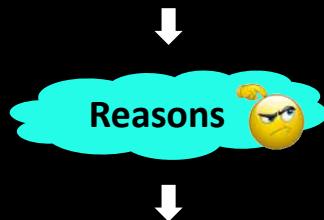
## Agro Based Industries - Cotton Textile



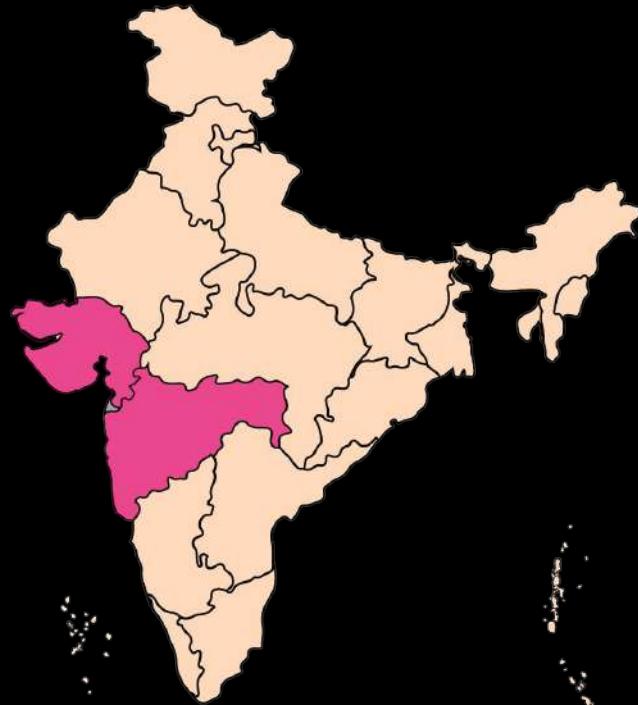


## Agro Based Industries - Cotton Textile

- Localisation of textile industries in Gujarat and Maharashtra.



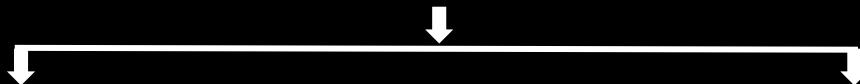
- Availability of raw cotton
- Market
- Transport including accessible port facilities
- Labour, moist climate, etc.





## Agro Based Industries - Cotton Textile

### Cotton textile industry



Closely linked with agriculture and farmers.

Supported other industries chemicals and dyes, packaging materials and engineering works.





## Agro Based Industries - Cotton Textile

### Challenges faced by cotton textile industries in India

I. ***Strong spinning units but weak weaving sector.***



Explain



- Spinning continues to be centralised in Maharashtra, Gujarat and Tamil Nadu, weaving is highly decentralised to provide scope for incorporating traditional skills and designs.



- 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.



Impact





## Agro Based Industries - Cotton Textile

Impact



Many of our spinners export cotton yarn while apparel/garment manufacturers have to import fabric.

Analyse



Why is it important for us to improve our weaving sector instead of exporting yarn in large quantities? 🤔



## Agro Based Industries - Cotton Textile

- II. Erratic power supply.
- III. Upgradation of machinery is required.
- IV. Low output of labour.
- V. Stiff competition with the synthetic fibre industry.





## Agro Based Industries - Jute Textile

India

Largest producer of raw jute and jute goods and second largest exporter after Bangladesh.



Most of the mills are located in West Bengal, mainly along the banks of the Hugli river, in a narrow belt.



Factors responsible for the localisation

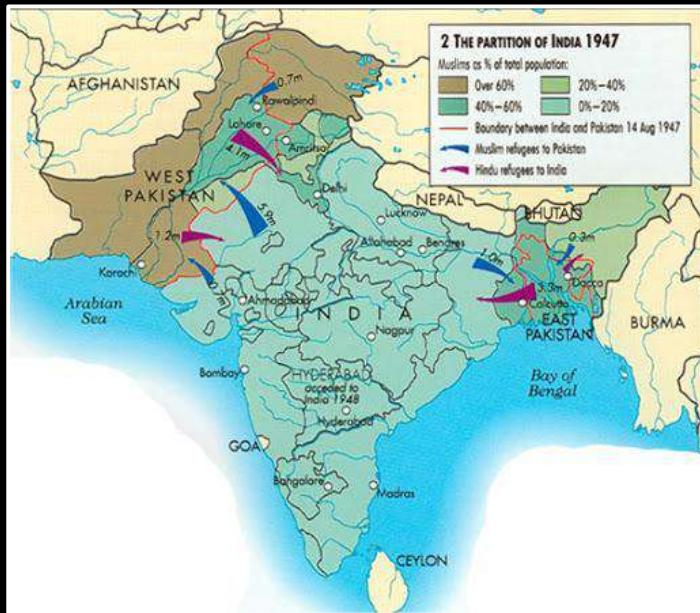


- Proximity to jute producing area.
- Inexpensive water transport.
- Good network of railways and roadways.
- Abundance of water for processing raw jute.
- Cheap labour from West Bengal and adjoining areas.
- Kolkata urban center provided banking, insurance and port facilities.



## Agro Based Industries - Jute Textile

- The first jute mill was set up near Kolkata in 1855 at Rishra.
- After Partition in 1947, the jute mills remained in India but three-fourth of the jute producing area went to Bangladesh (erstwhile East Pakistan).





## Agro Based Industries - Jute Textile

### Challenges faced by Jute industry



- I. Stiff competition by synthetic substitute in international market.
- II. Competition from international competitors like Bangladesh, Brazil, Philippines, Egypt and Thailand.
- III. High cost.

### National Jute Policy (2005)

- It had increased international demand for jute.
- Government had made it mandatory to use jute for packaging.
- Objective was to increase productivity/cultivation of jute and ensure good prices to the jute farmers.

The growing global concern for environment friendly, biodegradable materials, has once again opened the opportunity for jute products.



## Agro Based Industries - Sugar Industry

India



Second largest producer of sugar.



Largest producer of Gur and Khandsari.

Sugar Industry



**Raw material** → Bulky → **Transportation** → In haulage its sucrose content reduces.



∴ Industries should be situated near sugarcane producing area  
[60% mill are in UP and Bihar]



## Agro Based Industries - Sugar Industry

Sugar Industry

→ Seasonal in nature



∴ Ideally suited to cooperative industry.



Why?

Shifted and concentrated in southern and western states, *especially in Maharashtra*.

Why?



- Because the cane produced here has a higher sucrose content.
- The cooler climate also ensures a longer crushing season.



## Agro Based Industries - Sugar Industry

### Challenges faced by sugar industry



- Seasonal nature of industry.
- Old and inefficient methods of production.
- Transportation delays.
- Need to maximise the use of bagasse.





## Mineral Based Industry -

### Mineral Based Industry



- Iron and Steel Industry
- Aluminium smelting
- Chemical Industries
- Fertilizer Industry
- Cement Industry
- Automobile Industry
- Information Technology and Electronics Industry



## Mineral Based Industry - Iron and Steel Industry

Iron and Steel industry



Basic Industry



Dependence of other industries over it.

→ Production and consumption of steel is often regarded as the index of a country's development.

Iron and Steel industry



Heavy Industry



Both raw material as well as finished goods are heavy and bulky.



Impact



Heavy transportation cost





## Mineral Based Industry - Iron and Steel Industry

- Iron ore, coking coal and limestone are required in the ratio of approximately  $4 : 2 : 1$ .



+



+



- Some quantities of manganese, are also required to harden the steel. 😠



## Mineral Based Industry - Iron and Steel Industry

### India's position



- 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.

Question





## Mineral Based Industry - Iron and Steel Industry

Mini steel plants



An integrated steel plant





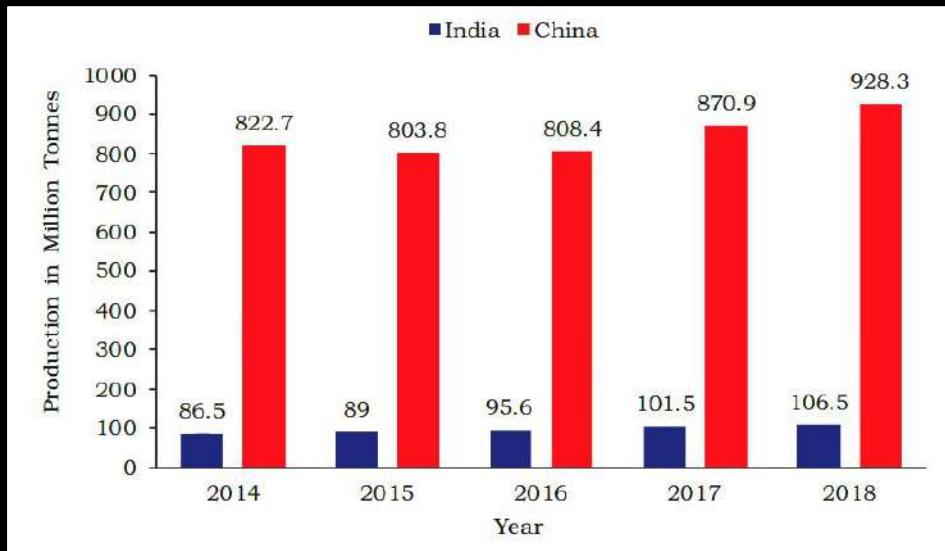
## Mineral Based Industry - Iron and Steel Industry

→ In the 1950s China and India produced almost the same quantity of steel.



- Today, China is the largest producer of steel.
- China is also the world's largest consumer of steel.

Reason





## Mineral Based Industry - Iron and Steel Industry

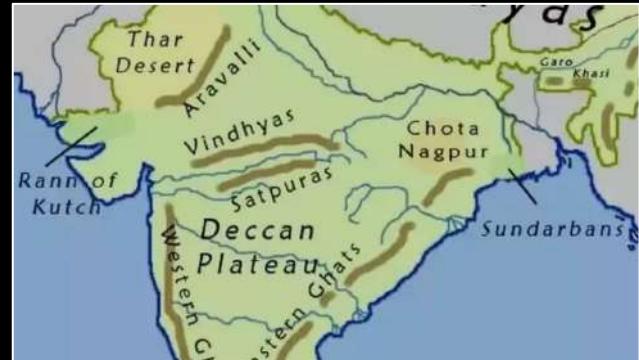
→ Chotanagpur plateau has the maximum concentration of iron and steel industries.



Reasons



- Low cost of iron ore.
- High grade raw materials in proximity, cheap labour.
- Growth potential in the home market.





## Mineral Based Industry - Iron and Steel Industry

***Challenges faced by iron and steel industry:***

- a. High costs and limited availability of coking coal.
- b. Lower productivity of labour.
- c. Irregular supply of energy.
- d. Poor infrastructure.

### 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.



## Mineral Based Industry - Aluminium Smelting

→ Second most important metallurgy industry. → Aluminium



- It is light, resistant to corrosion, good conductor of heat, malleable and becomes strong when mixed with other metals.



Uses 



- Manufacturing aircraft
- Utensils
- Wires



- It has gained popularity as a substitute of steel, copper, zinc and lead in a number of industries.





## Mineral Based Industry - Aluminium Smelting

Bauxite



Alumina



Aluminium



4 to 6 tonnes of bauxite



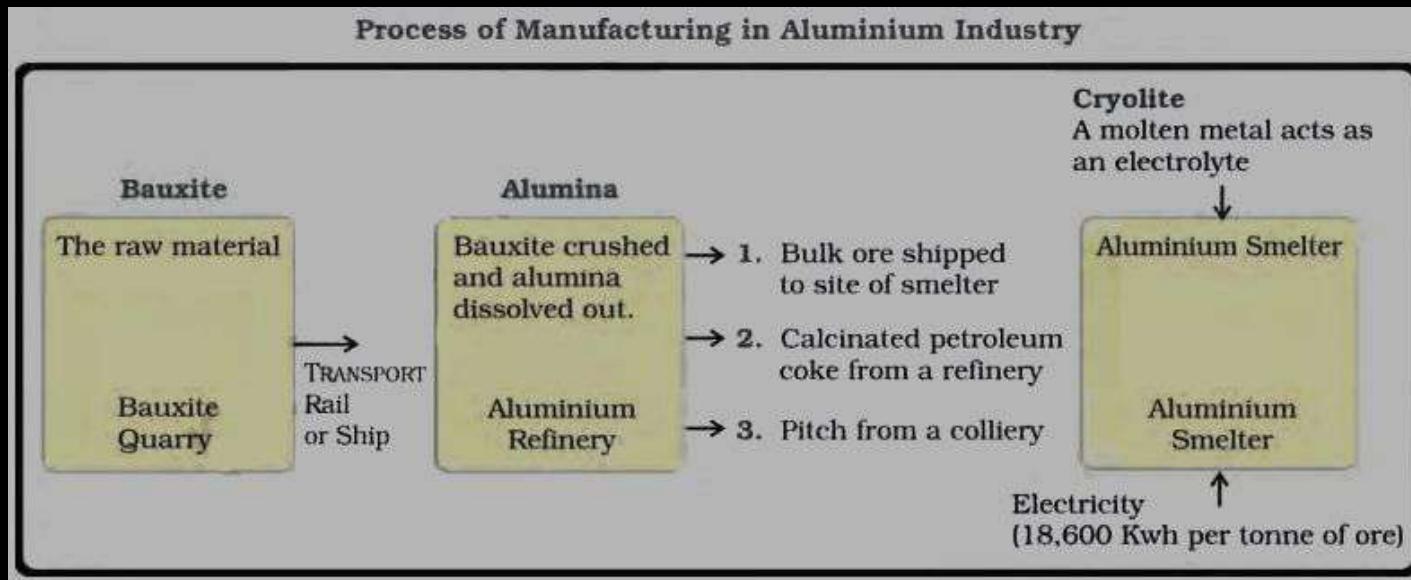
2 tonnes of alumina



1 tonne of aluminium



## Mineral Based Industry - Aluminium Smelting



- Regular supply of electricity and an assured source of raw material at minimum cost are the two prime factors for location of the industry.



## Mineral Based Industry - Chemical Industry

Chemical industry



Fast growing and diversifying.



- It comprises of both large and small scale manufacturing industries.

### *Inorganic*

Sulphuric acid [fertilisers, synthetic fibres, plastic, adhesive, paints, dyes stuffs] nitric acid, alkalies soda ash.

### *Organic*

Petrochemicals [synthetic fibres and rubber plastic, dye-stuffs, drugs and pharmaceuticals]

- The chemical industry is its own largest consumer.



Basic chemicals undergo processing to further produce other chemicals.



## Mineral Based Industry - Fertilizer Industry

the production of nitrogenous fertilizers (mainly ammonium phosphate (DAP) and complex fertilizers which contain phosphate (P), and potash (K)).



:ry. **Why?** 😠

ash or potassium compounds.

led after Green revolution. 😠

Tamil Nadu, Uttar Pradesh, Punjab and Kerala.



## Mineral Based Industry - Cement Industry

Cement



- Cement is essential for construction activity such as building houses, factories, bridges, roads, airports, dams and for other commercial establishments.

Cement Industry



- Requires bulky and heavy raw materials like limestone, silica and gypsum.
- Coal and electric power are needed apart from rail transportation.

- The industry has strategically located plants in Gujarat that have suitable access to the market in the Gulf countries.



Explain



# Class 10th - Geography - Manufacturing Industries - Full Chapter Explanation



## Mineral Based Industry - Cement Industry



## Mineral Based Industry - Cement Industry

First Cement Plant

→ Set up in Chennai in 1904.

→ Improvement in quality



Export ↑



- This industry is doing well in terms of production as well as export.
- Efforts are being made to generate adequate domestic demand and supply in order to sustain this industry.



## Mineral Based Industry - Automobile Industry

- This industry provides base for transport [Goods and Passengers].  
*E.g.* Trucks, buses, cars, motorcycle, etc.
  
- Liberalisation → **Competition ↑** → Growth of industry
  
- Foreign direct investment brought in new technology and aligned the industry with global developments.
  
- The industry is located around Delhi, Gurgaon, Mumbai, Pune, Chennai, Kolkata, Lucknow, Indore, Hyderabad, Jamshedpur and Bengaluru.





## Mineral Based Industry - Information Technology and Electronic Industry

Covers a wide range of products

→ Calculator to computer



Bengaluru



Electronic capital of India. 😛



- Other important centres for electronic goods are Mumbai, Delhi, Hyderabad, Pune, Chennai, Kolkata, Lucknow and Coimbatore.



## Mineral Based Industry - Information Technology and Electronic Industry

- A major impact of the industry has been on employment generation.



Share of women employed in the sector is very satisfactory.

- The continuing growth in the hardware and software is the key to the success of IT industry in India.



## Industrial Pollution and Environmental Degradation -

Industries 😡



Contributes significantly to India's economic growth and development.



At the same time causes ***pollution and environmental degradation.***



Industries are responsible for four types of pollution:

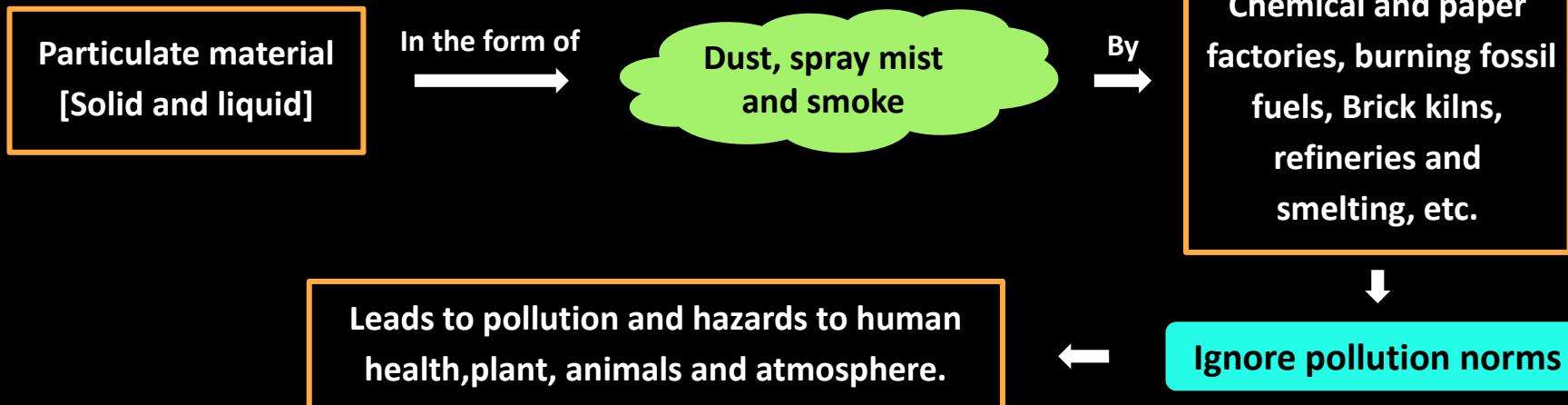


- Air
- Water
- Thermal
- Noise

## Industrial Pollution and Environmental Degradation -

### Air pollution

- Caused by the presence of high proportion of undesirable gases such as Sulphur dioxide and carbon monoxide.



- Toxic gas leaks can be very hazardous.

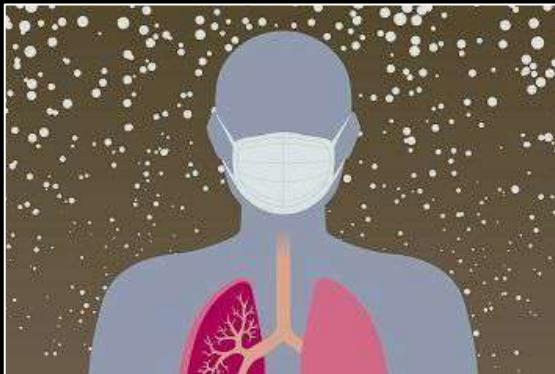


Bhopal Gas Tragedy

# Class 10th - Geography - Manufacturing Industries - Full Chapter Explanation



## Industrial Pollution and Environmental Degradation -





## Industrial Pollution and Environmental Degradation -

### Water Pollution

- Caused by organic and inorganic industrial wastes and effluents.
- **Main culprits -**
  - Paper, pulp, chemical, textile and dying, petroleum refineries, tanneries and electroplating industries.
- These industries dump substances like dyes, detergents, acids, salts and heavy metals like lead and mercury, pesticides and fertilizers, plastic and rubber.
- Fly-ash, phospho-gypsum and iron & steel slags are the major solid waste.





## Industrial Pollution and Environmental Degradation -

### Thermal Pollution

- When hot water from factories and thermal plants is drained into river and ponds it causes water pollution.

#### Impact -

- Waste dumped is highly toxic. [Nuclear power plant] leads to cancers, birth defects and miscarriage.
- It harms the aquatic life.

#### Relation between soil and water pollution

- Dumping waste on soil [Glass, harmful chemical, industrial effluents, etc].
  - Rain water percolates them down.
    - Ground water gets contaminated.





## Industrial Pollution and Environmental Degradation -

### Noise Pollution

→ Caused due to industrial and construction activities.

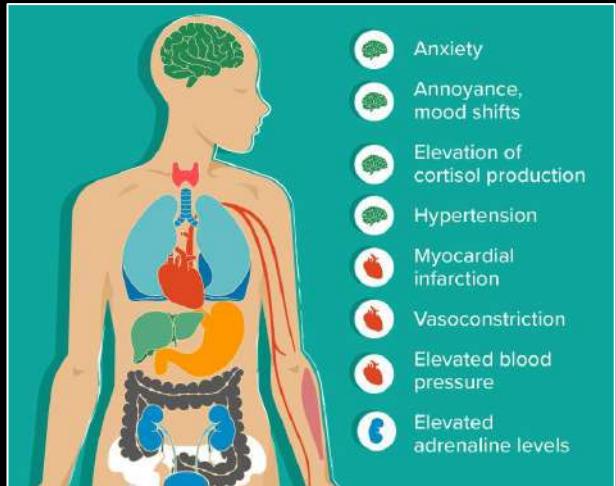


Machinery, factory equipment, generators, saws and pneumatic and electric drills.

→ Why there are no horn zones near Hospital and school?

### Impact -

- ❖ Results in irritation and anger, it can also cause hearing impairment, increased heart rate and blood pressure and other physiological effects.
- ❖ Unwanted sound is source of stress and reasons for lack of concentration.





## Control of Environmental Degradation -

1 litre of waste water discharge



Pollutes eight times the quantity of freshwater.

→ *How can the industrial pollution of fresh water be reduced?*



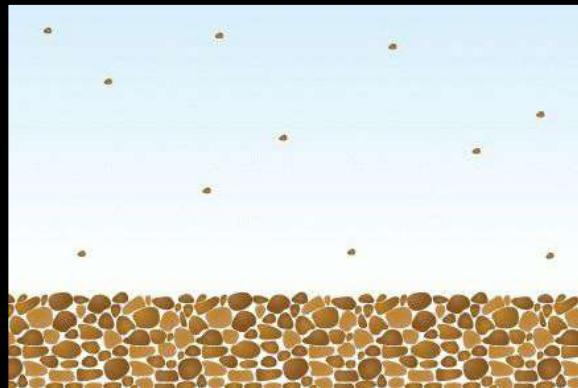
- I. Minimising use of water for processing by reusing and recycling it.
- II. Harvesting of rainwater to meet water requirements.
- III. Treating hot water and effluents before releasing them in rivers and ponds.



## Control of Environmental Degradation -

→ *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.
- 
- Using of groundwater reserves by industries should be regulated legally.





## Control of Environmental Degradation -

→ *Particulate matters in air can be reduced by following methods:*

- Fitting smoke stacks to factories with

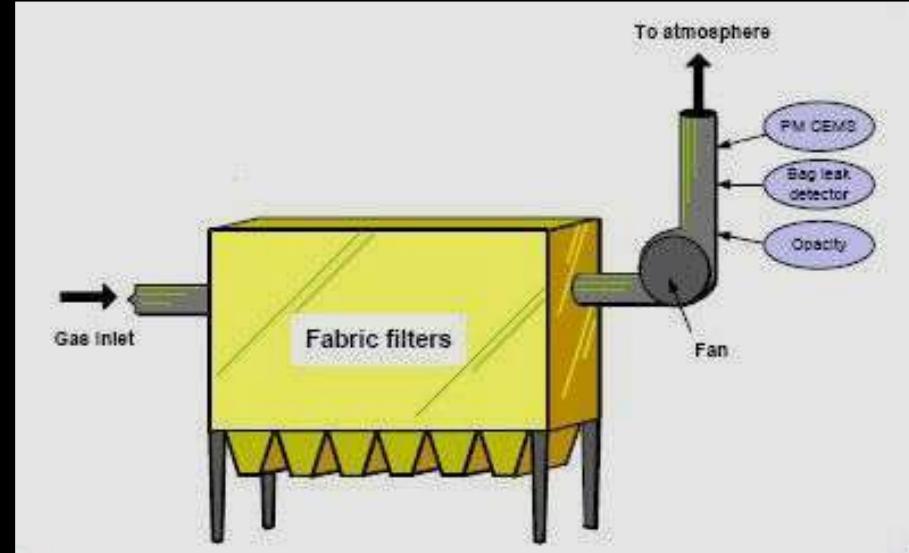
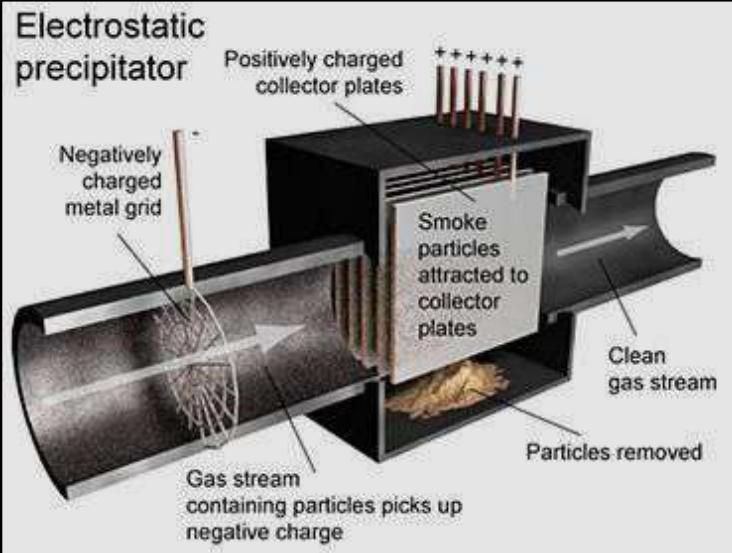


- Electrostatic precipitators
- Fabric filters
- Scrubbers
- Inertial separators

- Smoke can be reduced by using oil or gas instead of coal in factories.

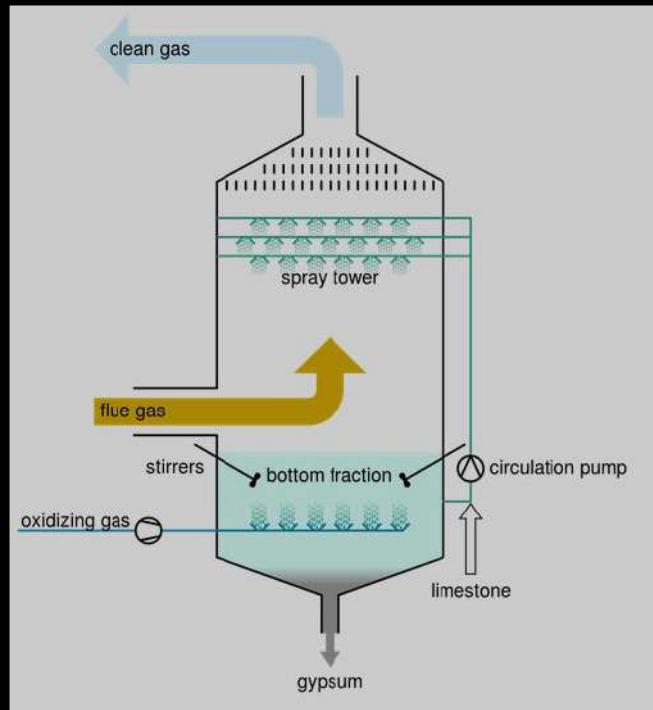


## Control of Environmental Degradation -

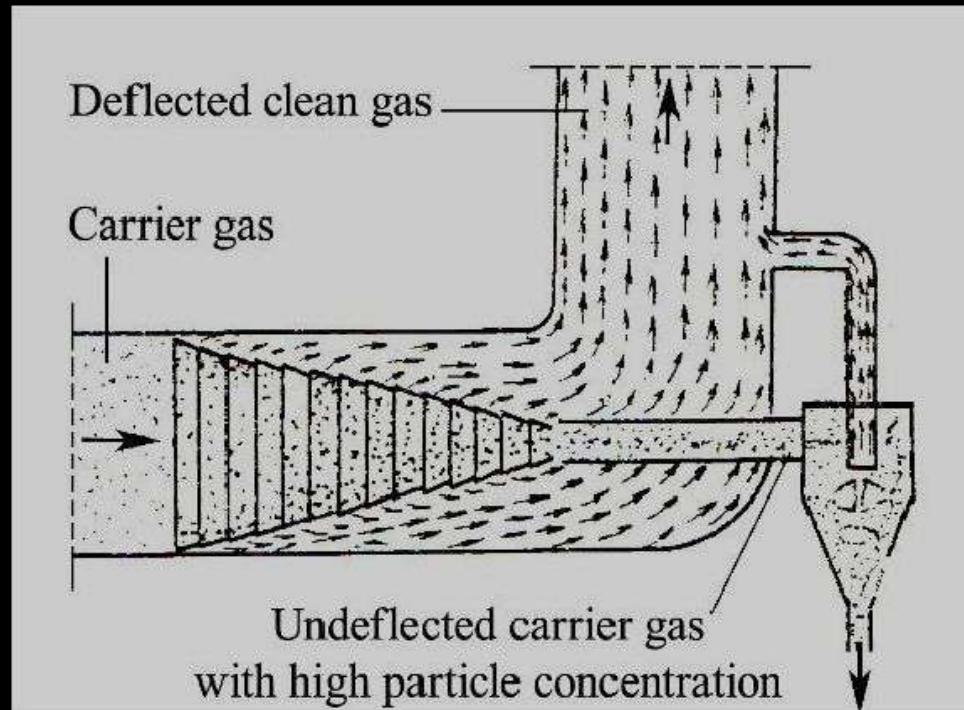




## Control of Environmental Degradation -



Scrubbers



Inertial separators



## Control of Environmental Degradation -

→ ***Steps to control noise pollution -***



- Less sound generating machinery and equipment can be used.
- Generator should be fitted with silencers.
- 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.



### NTPC shows the way -

- National Thermal Power Corporation has ISO certification for Environment Management System (EMS).
- NTPC has taken proactive approach for preserving the natural environment and resources in place where it is setting up power plants.

### *Steps taken -*

- a. Adopting latest techniques and upgrading existing equipment.
- b. Minimising waste generation by maximise ash utilisation.
- c. Providing green belts for nurturing ecological balance (Afforestation).
- d. Ash pond management, ash water recycling system and liquid waste management to reduce environmental pollution.
- e. Ecological monitoring, reviews and online database management for all its power station.

# Class 10th - Geography - Manufacturing Industries - Full Chapter Explanation



## NTPC shows the way -



Pond Management



Green belt by NTPC



Ramagundam Plant



# Chapter Completed



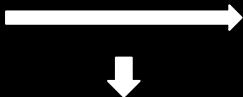
# Class 10th - Geography - Lifelines of National Economy - Full Chapter Explanation



## Introduction -



Supply location  
(Industry)



Traders  
[Transportation]



Demand location  
(Consumer)

∴ Pace of development depends upon the production of goods and services  
as well as their movement over the space.

# Class 10th - Geography - Lifelines of National Economy - Full Chapter Explanation



## Introduction -

→ Movement of goods and services can be over three important domains of our earth.

Land transportation



Water transportation



Air transportation





## Introduction -

Initially **Trade** and **Transport** →

Development in science and technology  
expanded trade and transport.



- Were restricted to limited space. 😠
- Transport + Communication = ↑ Connectivity = **Huge trade**  
[Railways, Waterways] [Radio, Internet] [Global village] [Local to international]

∴ Dense and efficient network of transportation and communication is  
prerequisite for local, national and global trade of today.



## Roadways -

→ India has one of the largest road networks in the world, aggregating to about 56 lakh km.

In India, roadways have preceded railways



Reasons



- a. Construction cost is much lower.
- b. Roads can transverse/cross comparatively more dissected and undulating topography.
- c. Roads can negotiate higher gradients of slopes.
- d. Road transportation is economical to transport goods and persons over short distance.
- e. Provide door to door service, thus cost of loading and unloading is much lower.
- f. Road transport is also used as a feeder to other modes of transport.



## Roadways : Classification of Roads -

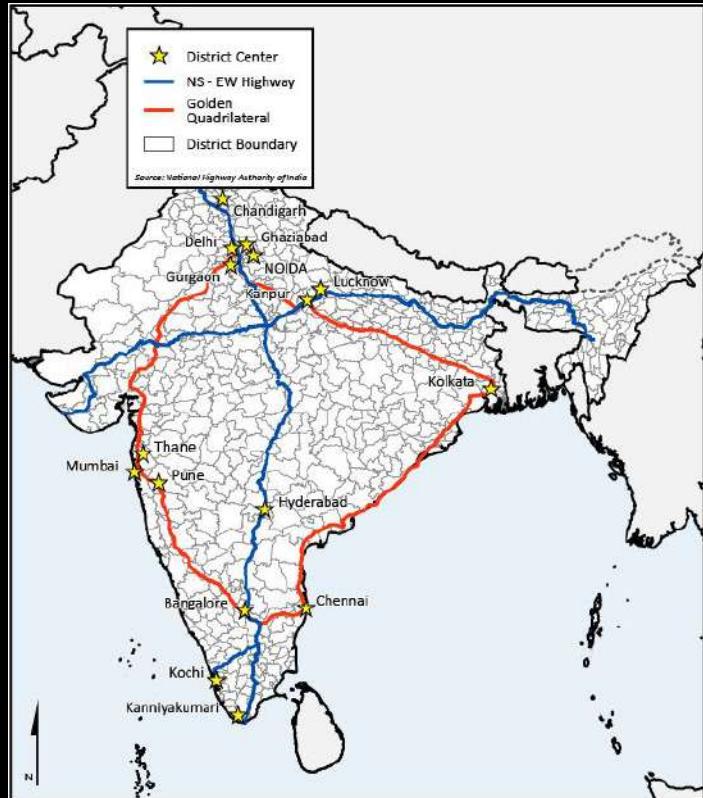
### Golden quadrilateral super highways



Major road development project linking Delhi-Kolkata - Chennai - Mumbai and Delhi by six-lane Super Highways.

**It consists of -**

- The **North South corridors** linking Srinagar (Jammu & Kashmir) and Kanyakumari (Tamil Nadu).
- **East-West Corridor** connecting Silchar (Assam) and Porbandar (Gujarat) are part of this project.





## Roadways : Classification of Roads -

### Objectives



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)**.

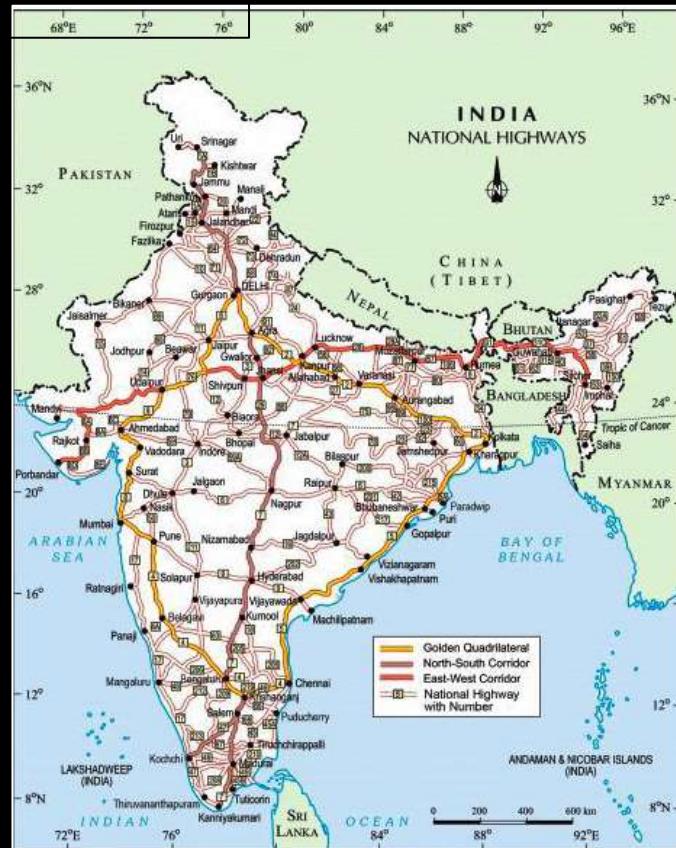


## Roadways : Classification of Roads -

### 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)**.
- Spread all over the country.
- The historical Sher-Shah Suri Marg is called National Highway No.1, between Delhi and Amritsar.



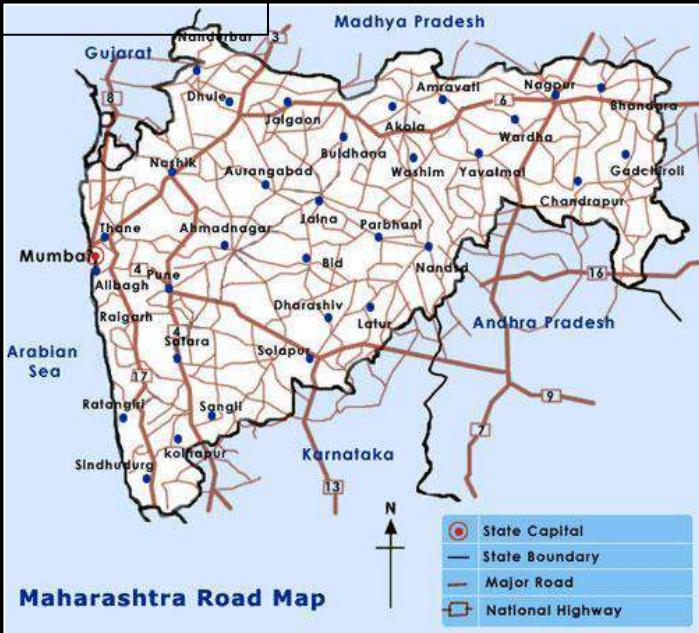


## Roadways : Classification of Roads -

# **State Highway**



- 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 (SPWD)*** in State and Union Territories.





## Roadways : Classification of Roads -

### 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**.
- Constructed to increase the connectivity between village and town by an all season motorable road.

## Roadways : Classification of Roads -

### Border Roads



- **Border Roads Organisation (BRO)**, established in 1960, a government of India undertaking constructs and maintains Border Roads.



Roads made in the bordering areas.

#### ***BRO (Border Roads Organisation)***



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 areas.



## Roadways : Classification of Roads -

→ Classification on the basis of the types of material used.

### ***Metalled Roads -***

- Made of cement, concrete or even bitumen or coal.
- All weather road.



### ***Unmetalled Roads -***

- Made of mud and sand.
- Go out of use in Rainy season.





## Railways -

Railways

→ Principal mode of transportation for freight and passengers in India.



Useful for *multifarious activities*. 😠



Business, sightseeing, pilgrimage along with transportation of goods over longer distances.



- Railways in India bind the economic life of the country as well as accelerate the development of the industry and agriculture.



## Railways -

- The Indian Railways is the largest public sector undertaking in the country.

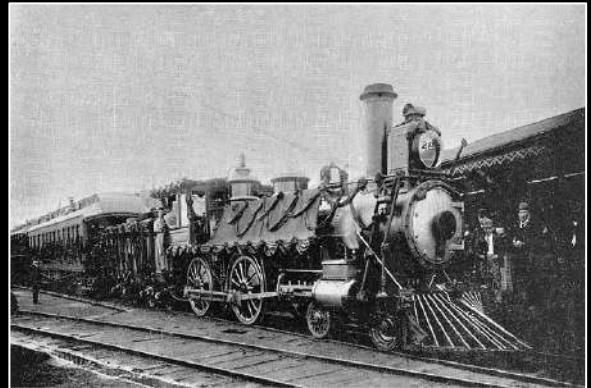


The first train steamed off from **Mumbai to Thane in 1853**.



**Covering a distance of 34 km.**

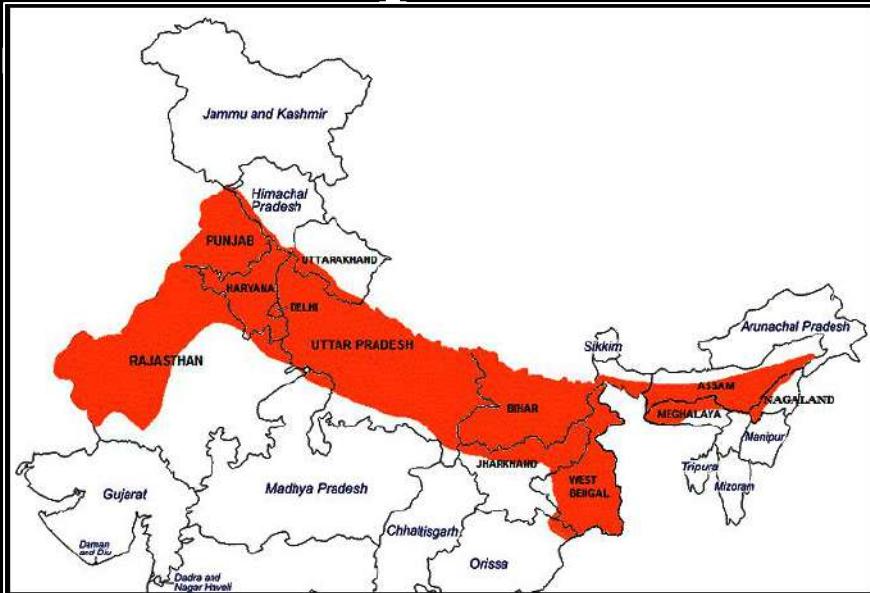
- The Indian Railway is now reorganised into 16 zones.





## Railways -

### The distribution pattern of the Railway





## Railways -

### Peninsular Region

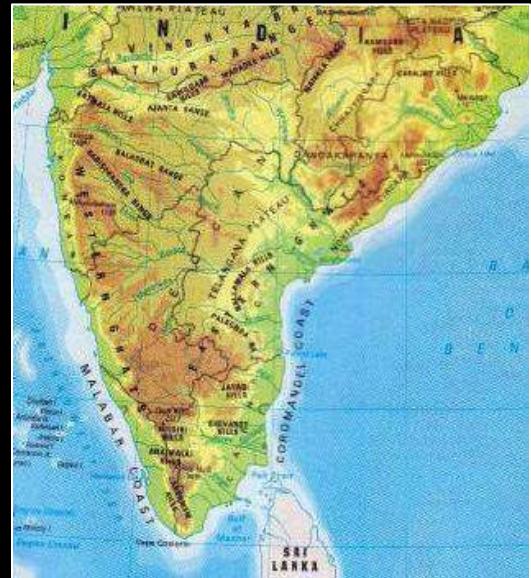


- Hilly areas.
- Railway tracks are laid through low hills, gaps or tunnels.

### Himalayan Region



- Unfavourable for the construction of railway lines due to high relief, sparse population and lack of economic opportunities.





## Railways -

### *Challenges faced by Railways -*

I. *Difficulties to lay railway lines in areas such as -*



- Sandy plains of Rajasthan.
- Swamps of Gujarat.
- Forested tracks of Madhya Pradesh, Chattisgarh, Odisha and Jharkhand.
- Stretch of Sahyadri could be crossed only through gaps and passes.



## Railways -

- II. Sinking of track in some stretches and landslides.
- III. Many passengers travel without tickets.
- IV. Thefts and damaging of railway property has not yet stopped completely.
- V. People stop the trains, pull the chain unnecessarily and this causes heavy damage to the railway.





## Pipelines -

- New found means of transportation.

### Pipelines as a means of transportation



- 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 fields to refineries, fertilizer factories and big thermal power plants.
- Solids can also be transported through a pipeline when converted into slurry. 





## Pipelines -

Pipelines



Initially cost (establishment ↑)



- Subsequent running costs are minimal.
- It rules out trans-shipment losses or delays.





## Pipelines -

**Important network of pipeline transportation -**

**I. *Upper Assam to Kanpur***

→ Via Guwahati, Barauni and Allahabad.

**II. *From Salaya in Gujarat to Jalandhar in Punjab***

→ Via Viramgam, Mathura, Delhi and Sonipat.

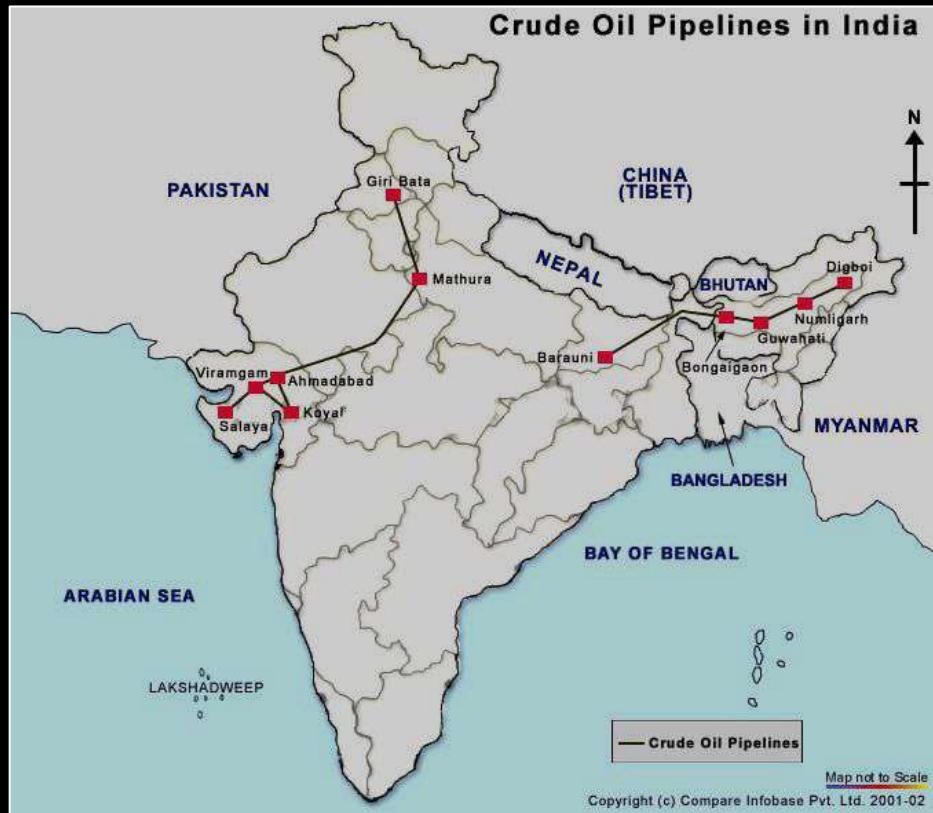
**III. *From Hazira in Gujarat to Jagdishpur in U.P.***

→ Via Vijaipur, Kota, Shahjahanpur and Babrala.





## Pipelines -





## Waterways -

India



One of the *seafaring country*.



Its seamen sailed far and near, thus, carrying and spreading Indian commerce and culture.

- **Waterways**



Cheapest means of transportation.



For 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.



National  
Waterways



## Waterways -

National Waterway No. 1

- The Ganga river between Allahabad and Haldia (1620 km).

National Waterway No. 2

- The Brahmaputra river between Sadiya and Dhubri (891 km).

National Waterway No. 3

- The West-Coast Canal in Kerala (Kottapuram-Kollam, Udyogamandal and Champakara canals-205 km).

National Waterway No. 4

- Specified stretches of Godavari and Krishna rivers along with Kakinada Puducherry stretch of canals (1078 km).

National Waterway No. 5

- Specified stretches of river Brahmani along with Matai river, delta channels of Mahanadi and Brahmani rivers and East Coast Canal (588 km).



## Waterways -

### Inland Waterways

- Inland waterways on which substantial transportation takes place.
- These are Mandavi, Zuari and Cumberjua, Sunderbans, Barak and backwaters of Kerala.



***India's trade with foreign countries is carried from the ports located along the coast.***



- 95 per cent of the country's trade volume (68 per cent in terms of value) is moved by sea.



# Class 10th - Geography - Lifelines of National Economy - Full Chapter Explanation

## Major Sea Ports -

The coastline = 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.





## Major Sea Ports -

### Kandla Port



- 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.





## Major Sea Ports -

### Mumbai Port



- 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.





## Major Sea Ports -

### Marmagao Port



- 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*.





## Major Sea Ports -

### Kochi Port



- Extreme south-western port, located at the entrance of a lagoon with a natural harbour.

### Tuticorin Port



- Extreme southeastern port.
- This port has a natural harbour and rich hinterland.
- It has a flourishing trade handling of a large variety of cargoes to even our neighbouring countries like Sri Lanka, Maldives, etc.





## Major Sea Ports -

### Chennai Port



- The oldest artificial ports of the country.
- It is ranked next to Mumbai in terms of the volume of trade and cargo. 

### Visakhapatnam Port



- The deepest landlocked and well-protected port.
- This port was, originally, conceived as an outlet for iron ore exports.





## Major Sea Ports -

Paradip Port



- Port located in Odisha, specialises in the export of iron ore.

Kolkata Port



- 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 Hooghly.





## Major Sea Ports -

Haldia Port



- Port was developed as a subsidiary port, in order to relieve growing pressure on the Kolkata port.





## Airways -

Airways



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.



Explain



- The air transport was nationalised in 1953.
- **Pawan Hans helicopter Ltd.** provides helicopter services to oil and natural gas corporation in its offshore operations to inaccessible areas and difficult terrains.
- Indian airlines operation also extend to the neighbourhood countries.

# Class 10th - Geography - Lifelines of National Economy - Full Chapter Explanation

## Airways -

### 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.



# Class 10th - Geography - Lifelines of National Economy - Full Chapter Explanation



## Communication -

Communication



Not a new phenomenon.

But, the pace of change, has been rapid in modern times.

Explain



### Personal Communication



### Mass Communication





## Communication -

→ The **Indian postal network** is the largest in the world.



It handles parcels as well as personal written communications.



### First class mail

- Cards and envelope.
- Airlifted between station covering both land and air.

### Second class mail

- Book packets, registered newspaper and periodicals.
- 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.



**Rajdhani Channel, Metro Channel, Green Channel, Business Channel, Bulk Mail Channel and Periodical Channel.**

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## Communication -



**First Class Mail**



**Second Class Mail**



## Communication -

India



One of the largest telecom network in Asia.



- More than two-thirds of the villages in India have already been covered with **Subscriber Trunk Dialling (STD)** telephone facility.
- The government has made special provision to extend twenty-four hours STD facility to every village in the country.
- Integrating the development in space technology with communication technology.



## Communication -

### Did you know?

**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.





## Communication -

### Mass Communication 😠



Provides entertainment and creates awareness among people about various national programmes and policies.

- **All India Radio (Akashwani)**
- **Doordarshan**



The national television channel of India, is one of the largest terrestrial networks in the world.

- India publishes a large number of **newspapers and periodicals annually**.
- India is the largest producer of feature films in the world.



**The Central Board of Film Certification** is the authority to certify both Indian and foreign films.



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## Communication -





## International Trade -

Trade



International Trade



Market



Sea, air or land routes.

The exchange of goods among people, states and countries is referred to as trade.  
Trade between two countries is called *international trade*.



Advancement of international trade of a country →  
is an index to its economic prosperity.

Economic barometer for a country.

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## International Trade -

Resources 😠

→ are space bound



∴ No country can survive without International trade.



International Trade



Import

Export

Balance of trade 😠



## International Trade -

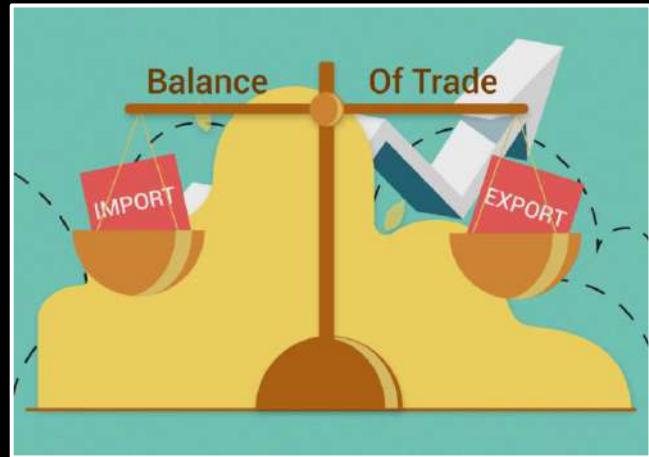
Balance of trade



The balance of trade of a country is the difference between its export and import.



- ***Favorable balance of trade.***
- ***Unfavorable balance of trade.***





## International Trade -

### International trade and India



- **Commodities which India exports:** Agriculture products, ore and minerals, gems and jewellery, etc.
- **Commodities which India import:** Petroleum and petroleum products, pearls and precious metals, electronics items, etc.

India



Software giant at the International level.



*Helpful in earning large foreign exchange.*



## Tourism as a Trade -

Tourism



A sector having potential to generate more employment and economic activities.



More than 15 million people are directly engaged in the tourism industry.



How? 😐





## Tourism as a Trade -

### Benefits of tourism as a trade



- Promotes national integration.
- Provides support to local handicrafts and cultural pursuits.
- 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.***

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