UNIT - 2

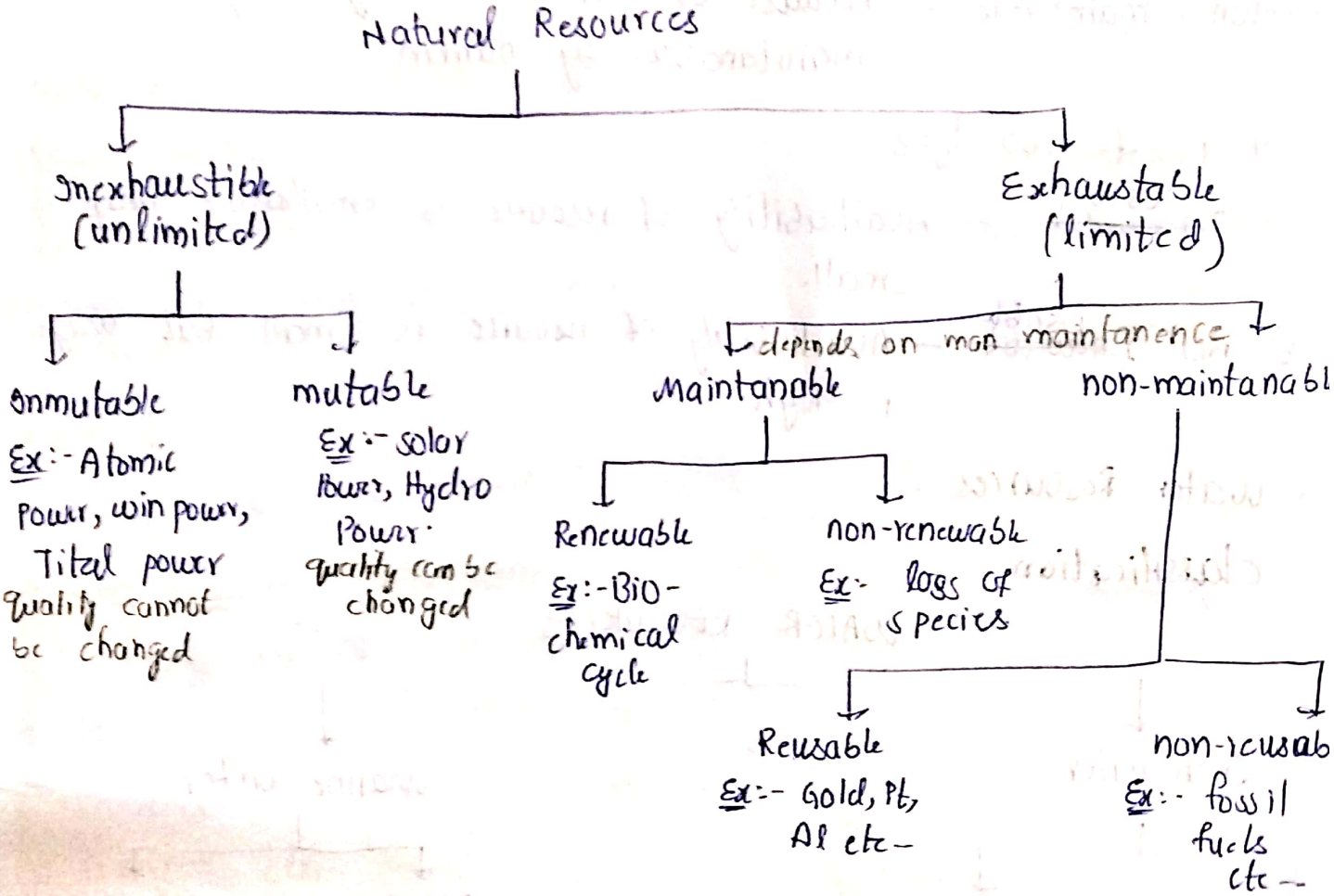
NATURAL RESOURCES

RESOURCE :- A resource is which we will get from the nature to meet our needs and desires

classification :-

1) living
2) non- living

2) Based on mutability and availiability.



Inexhaustible :- It includes unlimited & unending resources

It is of two types

1) Immutable — Both quantity & quality of resource is same
2) Mutable — Qunatity is same but quality different

Exhaustible :- It includes limited & ending resources

It is of two types -

1) Maintenance - It depends on the human activities.

It is of two types -

1) Maintainable - It depends on the human activities.

→ It is of two types.

a) Renewable - The resources which can be bring back to the nature

b) Non-renewable - once gone, no replacement

2) Non-maintable - Because of their availiability they are not maintanable by human

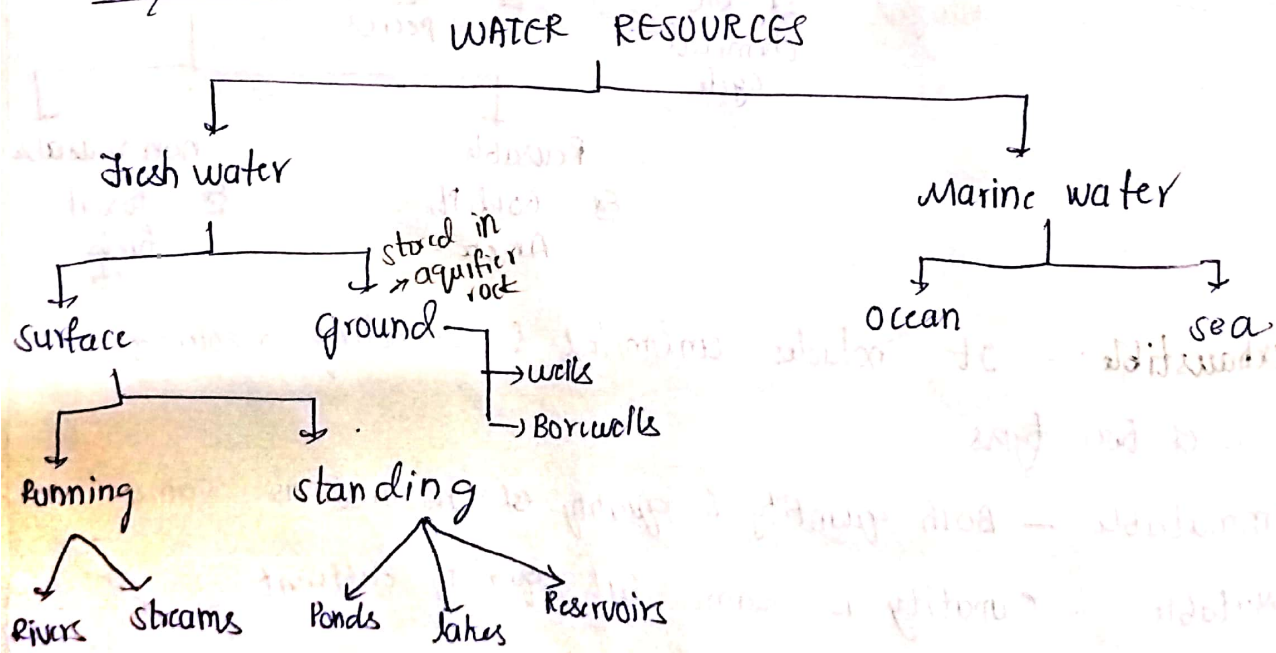
→ It is of two types :-

a) ~~Renewable~~ Usable - Availiability of resource is small and usage is small.

b) Non-~~renewable~~ Usable - Availiability of resource is small but usage is high.

⇒ Water Resources :-

Classification :-



Uses:-

1) Domestic purpose
2) Irrigation purpose
3) Industrial purpose

Problems:-

1) Floods - An overflow of water from waterbodies due to insufficient capacity of river channel

→ causes:-

Natural

1) Heavy rainfall
2) sudden melting of ice caps
3) Insufficient capacity of river banks

Man made

1) Deforestation
2) over grazing
3) Increasing infrastructure
4) Roads ways

→ Effects:-

1) Leads to loss of property & population
2) Increase in unhygienic conditions.
3) Mixing up of drainage water with Drinking water
4) Increase in water-born diseases like Jaundice, chlorea, dysentry
5) Increase in vector born diseases like Malaria, filiera, Dengue etc..

→ control:-

1) Through Early warning system.
2) By constructing Dams.

DAMS:- It is a hydraulic structure used to store the water

Types:-

DAMS

Based on Material
1) Earthen dams (clays + sand + rock)
2) Rock fill dams (Rock + clay)
3) Timber (wood)
4) steel
5) concrete (Gravel + comminut)
6) Masonary (Cricket + stone)

Based on Design
1) Gravity
2) Arch
3) Multiple Arch
4) Buttresses

Based on purpose
(for energy generation)
1) overflow
2) Non-overflow (only for storing purpose)

⇒ Merits:-

1) water supply for drinking, irrigation & industrial purposes
2) Hydropower generation
3) Recreation & navigation

⇒ Demerits:-

1) siltation:-
⇒ The deposition of of silt in the dams increases load on the river leads to dam failure.

2) river load:-
⇒ The deposition of plastic, plant debris and dead bodies of both plants and animals increases the river load and leads to dam failure

3) Reservoir induced seismicity:-
⇒ Sudden earthquakes becauses of dames.

4) water logging and salinity:-
⇒ water logging - even though there is a dam the surrounding villages suffer from scarcity of water due to the movement of ground water table towards dams

→ salinity - In the coastal areas, the emptied ground water table is filled with saltwater and causes salinity

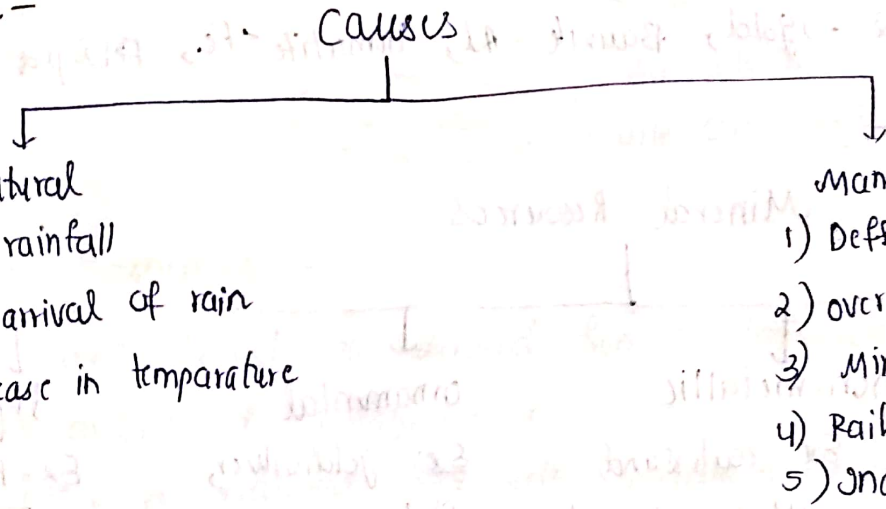
5) Displacement of population :-
→ providing rehabilitation or compensation to the people of proposed site.

6) High capital cost :-
→ The large scale dams are more expensive.

DROUGHT :-

→ The scarcity of water in the soil due to climate change and human activities

Causes :-



Effects :-

1) It leads to unproductive land.
2) loss of vegetation.
3) shortage of food grains.
4) Effect on human health.

Control :-

1) Afforestation
2) rain water harvesting
3) Implementation of forest conservation act

Types of Drought:-

1) Hydrological drought (low rainfall & desertification)
2) Meterological drought (late arrival of rain)
3) Agricultural drought (femine - water + food shortage)
4) socio-economic drought - (Reduction of economic status of particular area)

Mineral Resources:-

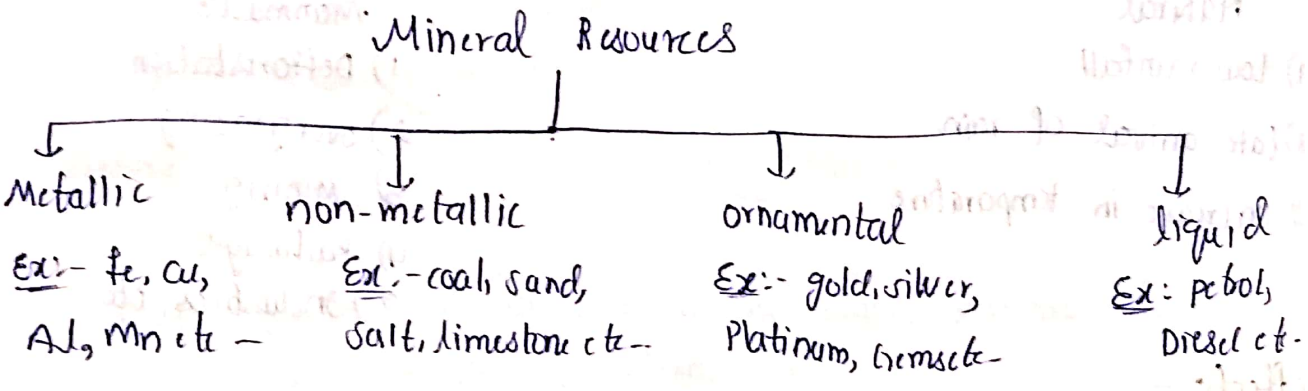
⇒ Mineral is a naturally occuring substance having definite chemical composition and identifiable physical properties.

ORE:-

⇒ It is a mixture of minerals.

Ex:- quartz - gold, Bauxite - Al, Hematite - Fe, Feldspar - Fe

classification:-



MINING:-

⇒ The removal of top layer of the soil.

⇒ It is of two types :- 1) surface mining
2) underground mining

Process of mining:-

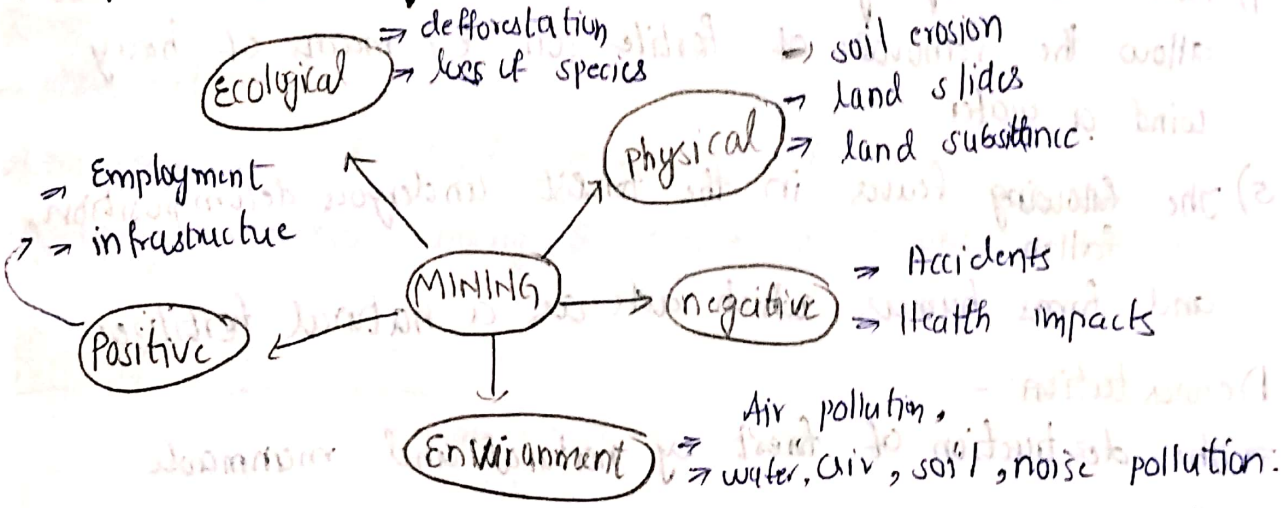
1) It is by 4 ways :-
   1) prospecting - The searching of minerals with the help of geologists and satellites.

2) Exploration - Assessing the size, shape and economic value of minerals.

3) Development :- Developing the proposed area of mine along with equipments and workers.

4) Exploitation :- The removal of the mineral from the earth crust for usage.

→ Impacts of mining on Environment:-



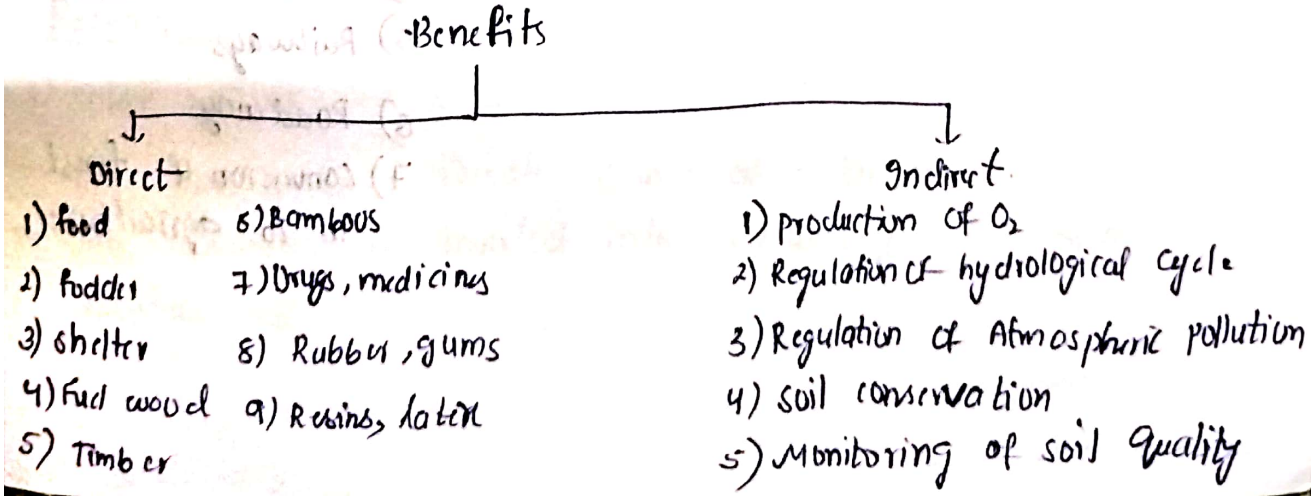
Forest Resources :-

1) The word Forest is derived from a latin word foris means outside of village / town

2) Forest is a natural and self sustaining community characterised with vertical structures which constitute the trees.

Benifits :-

→ Direct benefits and indirect.



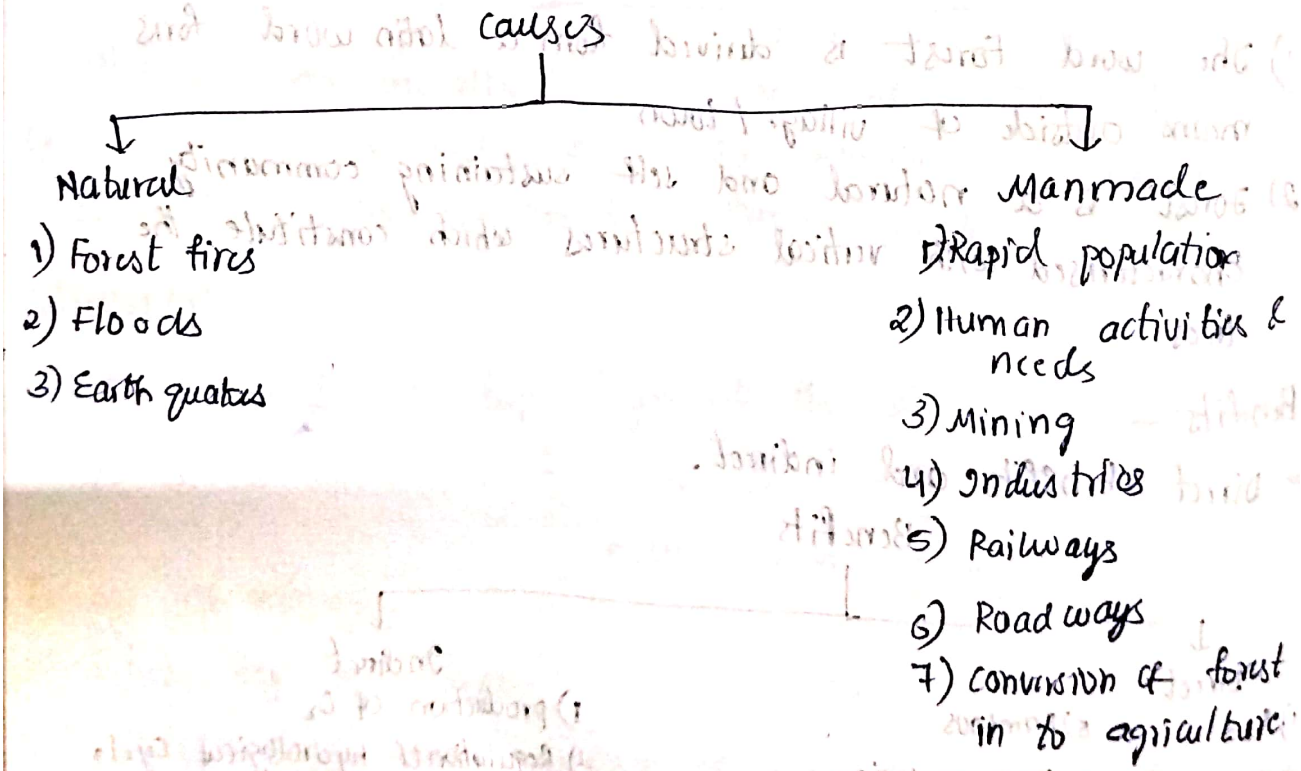
Indirect:-

1) Plants releases O_2 by the process of photosynthesis.
2) Plants contribute water for the formation of clouds by transpiration and maintaines water cycle
3) Plants absorbs pollutants like CO_2, CO, SO_2, lead (Pb) etc which reduces Atmospheric pollution.
4) Plant roots tightly bounds the soil particles and doesnot allow the removal of fertile soil by means of heavy wind or water.
5) The ~~following~~ fallen leaves in the forest undergoes decomposition, and forms humus which acts as a natural fertilizer.

Deforestation:-

⇒ The destruction of forest by natural and manmade causes

causes:-



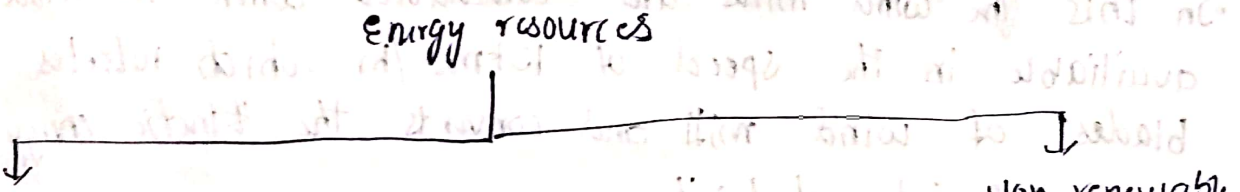
Effects:—

⇒ It leads to loss of habitat for wild life
⇒ reduction in rain fall
⇒ Global warming increase and atmospheric pollution
⇒ loss of soil fertility.
⇒ increase in temperature.
⇒ loss of species.

Control:—

⇒ Afforestation
2) Implementation of forest conservation act
3) Bringing awareness among the people about forest resources

ENERGY RESOURCES:—



Renewable

1) solar power
2) wind power
3) Hydro power
4) Tidal power
5) Geothermal energy
6) Bio energy

Renewable

1) solar power:

⇒ The sun is the ultimate source of solar power.
⇒ The sun light is converted into electricity by photo valataic cell

Non-renewable

1) coal
2) crude oil
3) Natural gas

Photo volataic cell:-

⇒ It is made up of with glass + metal (S) + semi conductors

⇒ The PVC contains two semiconductors,

1) P-Type

2) N-Type which are coated with silicon (or) gallium.

⇒ when the solar radiation is falls on PVC the P-Type semiconductor absorbs and passes to the N-Type semiconductor which is placed at the bottom of PVC, at a particular point there is a formation of P-N Junction which increases electrons flow and converted into electricity

2. wind power:-

⇒ On this the wind mills are constructed where the wind is availiable in the speed of 15kms/hr which rotates blades of wind mill and converts the kinetic energy of wind into electricity.

3. Hydro power:-

⇒ On this the water should fall from a certain height on the turbine which converts, the kinetic energy energy of water into electricity

4) Tidal Power:-

Tide:- It is a result of gravitational pull of sun, moon and earth rotations.

⇒ It is of two types:

1) High tide

2) Low tide.

High tide:-

→ during high tides the water enters into the tidal barrage and rotates turbine, which converts the kinetic energy water into electricity

low tide:-

⇒ during low tide, the water gets released into the sea from the tidal barrage which generated electricity

5) Geo thermal energy:-

⇒ The energy is generated from earth crust.

⇒ In some places the natural geasers and hot springs releases heat in the form of steam by making holes, this steam is trapped by pipe lines and subjected to the turbine, which converts steam into electricity.

6) BIO - Energy:-

⇒ It is obtained by composting.

⇒ The decomposition of bio-degradable substances under anaerobic conditions which convert waste into energy.

Non-renewable:-

⇒ CORE:- It is a solid form of fossil fuel and consists water, carbon, nitrogen, sulphur.

⇒ It is of 4 types:-

1) Peat (60% carbon)
2) lignite (70% carbon brown coal)
3) Bituminous (80% carbon soft coal)
4) Anthracite (90% carbon hard coal)

Crude oil:- It is a liquid form of fossil fuel formed by the decomposition of micro planktons on the sea bed, rivers, ponds, lakes.

⇒ The fractional distillation of crude oil gives its derivates at various temperature

3) Natural gas:- It is a gaseous form of fossil fuel and contains 95% of methane, 5% of propane and butane.

⇒ It is a cleanest fossil fuel