NATURAL RESOURCES

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Natural Resources are the sources which are useful to man OR can be transformed into a useful product.

Types

1) Renewable resources.

capable of being regenerated by ecological processes within a reasonable time period.

Eg. Soil, water, air .....

Further classified as

a) continous resources.

b) Extrinsic resources.

2) Non - renewable resources.

Not capable of being regenerated by ecological proccesses.

Eg. Mineral, coal, oil....

Natural resources

Renewable sources (can be regenerated)

1. Forest Resources
2. Water Resources
3. Food resources
4. Energy resources.
5. Land resources

Non - renewable sources (cannot be regenerated)

1. Mineral
2. Fossil fuel
3. Nuclear fuels.
4.

Forest Resources.

Forest is one of the land area inhabitat by growth of trees, herbs and shrubs.

Use of forest :-

Commerical use :-

Provides timber, firewood wood pulp, food (honey, tables and fruits, gums, resins, Non - edible rubber)

3/6th OR 1/2th of timber cut each year is used for fuel.

1/3rd of wood harvest is used

Wood harvest is converted into pulp and used for paper industry.

Ecological uses.

1. Production of CO_2.
2. Reducing of global warming
3. Wildlife habitat.
4. Regulation of hydrological cycle.
5. Soil conservation.
6. Pollution moderation
7. Forest Lands.

Over Exploitation of forest.

Human depend on forest for food, Medicine, Shelter, wood and fu

Demand for timber, pulp, mineral, fuel, wood result in larg scale logging, Mining, road building clearing of forests.

Forest contributes to Nationa economy.

causes and effects :-

Excessive use of fuel wood nd charcoal, expansion of urban, gricultural and industrial areas.

over grazing have together led to over exploitation of our forests leading to their rapid degradation

1. Effect of climate
   ↓
   → Global warming
   → loss Rainfall
   → Hot climate.
2. Effect on Biodiversity.
   ↓
   → Extinction of species
   → loss of Medicinal plants
   → loss of timber.
   → Fuel wood.
3. Effect ON Resources.
   ↓
   → loss of land resources
   → loss of soil fertility
   → Soil erosion, flood and Drought.
   → Drastic changes in Biogeochemical cycle.
4. Effect on economy.
   ↓
   → Increase inflation
   → Hike in Medicinal values

→ Demand and scarcity of industrial Products.

4. Effect on food.

↓

→ Loss in fruit production
→ Loss of root based food.
→ Loss of flesh & Meat due to loss of Animals.

Prievention Measures.

a) Steps should be taken by the government to discourage the immigrated of people into forest land.

b) Tree plantation programs have to be started.

c) Education & Awarness programes must be conducted..

d) Strict implementation of law of forest conservation act.

e) Use of Alternation fuel.

Deforestation.

The destruction of forest covers by the activities of Man and domestic animals.

The total forest area of the world in 1900 was estimated to be 7000 million hectares.

But it is reduced in 2890 Million hectares in 1975 and fell down as 2300 in 2000.

Deforestation rate is relatively loss in temperature countries like India.

causes.

1. Shifting cultivation
2. Fuel requirements.
3. Raw Material for industrial
4. Development projects.
5. Growing food Needs.
6. Over grazing.
7. Forest fire.

Effect and prevention Measures.

⇒ Effects of timber Extraction.

*. Thinning of forest (OR) deforestation.

*. loss of biodiversity especially tree breeding birds.

*. Soil erosion & loss of

*. Migration of tribal people in search of New forests.

* Extinction of tribal people, loss of tribal culture.

Effect of Mining.

1. Clear cutting of forest leads to deforestation

2. Destruction of Habitat.

3. Soil erosion and slit run off.

4. Soil subsidence, formation of wide and deep cracks in soil.

5. Destruction of landscapes.

Dam - effect ON Forest.

1. Forest has been cleared.

Eg. Tehri Dam submerged 1000 hectares of forest affecting 430 species of plants.

2. Destroy wild life.

3. River valley projects cause water logging, salinity problems reduce soil fertility.

4. Induce Micro climate changes.

5. Flood, drought, landslides are Common.

Dam effect on Tribe People.

1. Displacement of Tribe People.
2. It changes tribal culture are ill treated by Modern society.
3. Many of the displaced were not recognised and resettled OR compensated.

Agro forestry :-

A modified version of social forestry. A new name for an ancient land practice where land is used for agriculture, forestry and Animal husbandry.

Water Resources.

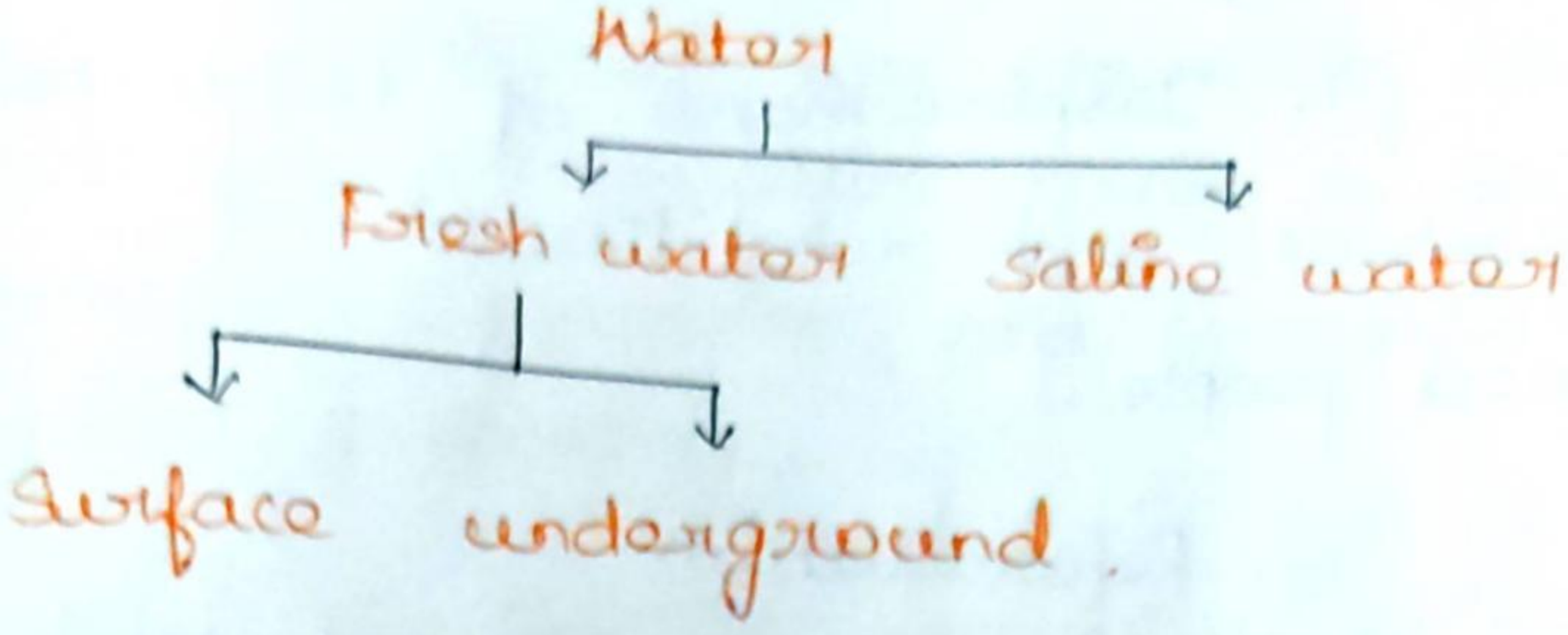
⇒ 77% OR 2/3 of earth surface is covered by water.

⇒ 97% salty 3% fresh, 0.003% ground water.

⇒ world water day 22nd March.

⇒ In 2024, 2/3rd of world Population suffer from water shortage.

Sources



Dams.

Dams are build across the rivers in order to store water for future use.

Benefits.

1. control flood.
2. To capture and store run off.
3. Produce hydio electrive power.
4. Irrigation.
5. Provide drinking water in remote areas.
6. Recharge ground water
7. Transfer of water to areas of deficit using canals.
8. Promote navigation, fishery.

Problems of Dams.

1. Displacement of tribal peop Resettlement and rehabilitation of displaced people.

2. Reforestation

3. Loss of Non-forest land.

4. Siltation and sendimentation of reservious.

5. Salinity and water lagging due to irrigation.

6. Stagnation and water logging near reservious.

7. Growth of aquatic water.

8. Micro climatic changes.

9. Reservious induced seimicity cause earthquake.

10. Due to structured defect the dams may collapse and destroys Organisms.

Mineral Resources.

Mineral are Naturally occuring inorganic, crystalline having a definite chemical composition and characteristics physical properties.

Eg. Quartz, dolomite & calcite

Uses.

1. Developmental and Industrial plants and Machinery.
2. Generation of electricity.
3. construction, housing, settlements.
4. Transportation.
5. Defence equipment, weapons, atraments.
6. Medical system in Ayurvedic.
7. Agriculture.
8. Formation of alloys for various Purpose.
9. Jewellry.
10. Communication purpose.

Uses of Metals.

Al → Packing food Materials, transport

Pb → Leaded gasoline, car batteries, paints

Au → Jewellery, Medical electronics

Ag → Photography, Jewellery electronics

Uses of Non-Metals.

Lime stone → concrete, agriculture

Gypsum → Inplaster wall board

Potash → Fertilizer.

Mining

[Extraction of Mining, fossil fuels]

- Surface Mining (From shallow deposits)
  - open pit Mining [Machines dig holes & Remove ores]
  - Dredging [chained buckets and draglines are used to Scrap Minerals]
  - Strip Mining [ore is stripped off by using bulldoz Strapp wheel
- Sub surface Mining (From deep deposits)

over exploitation of Mineral resources.

causes → a) population growth.

b) Industrial growth.

Effects → a) Rapid depletion of Mineral deposits.

b) cause Environmental pollution.

Environmental Effects of Extracting and Uses.

a) Effects on lands.

a) land subsidence.

b) Defacing of landscape.

c) Deforestation.

d) Loss of fertility.

e) create pets.

f) Soil pollution.

b) Effects in water.

*. Ground water contaimination

*. surface water pollution.

c) Effects on air.

Smelting and roasting Methods to Purify the Metals emits enormous amount of air pollutants. SPM, SO_2, Cd, Pb shoots up the atmosphere near Smelters.

d) Effects on biodiversity:

+ loss of vegetation
+ Adverse effect on the growth of vegetation due to leaching out of trace elements and minerals.

Food resources

components of food :-

* Carbohydrates
* Protein
* Fat
* Minerals
* Vitamins
* Water

Types of food supply.

+ CROP LAND
+ RANGE LAND
+ OCEANIC FISHERIES.

Over grazing.

Eating away the vegetation without giving a chance to generate.

Effect of overgrazing.

1. Land degradation
2. Soil erosion
3. Desertification
4. Loss of useful species
5. Reduces grass cover and impact on global warming.

Agriculture.

Science of Managing the growth of plants, animals for human use.

Traditional Agriculture.

- Small plots, simple tools, Naturally available water, organic, fertilizers, a Mix of crops
- Results low production.

Effect.

a) Deforestation
b) Soil erosion
c) Depletion of Nutrients.

Modern Agriculture.

- Hybrid seed of single crop.
- Hitech Equipments.
- Lots of fertilizers
- Improved irrigated facilities

Effect of Modern Agriculture.

I. Problems related to high yeilding varities

II Fertilizers

III a) Micronutrient inbalance due to Macronutrients.

b) Nitrate pollution

c) Eutrophication.

Eu - More, trophic - nutrition,

Excess use of N, P in the agriculture fields in washed off along with run off water and rich of water bodies causing over nourishment of lakes. This process is known as Eutrophication.

III Pesticidies Related Problems.

a) Death of Non - target species

b) Produce New pest.

c) Biomagnification

Many of the Pesticides are Non-biodegradable and keep on and accumulating in the food chain. This process is known as Biomagnification.

d) In Human Health.

IV Water logging.

Surface water logged land is that land where the water is at OR near the surface and water stands for most of the year.

Causes.

Excess water supply to crop lands
Heavy rain
Poor drainage.

Effects.

⇒ Pore voids is soil filled with water and water table raises.

⇒ Water logging results in global warming.

Prevention

*. Prevention excess irrigation
*. Use drip irrigation
*. Use sub surface drainage
*. Eucalyptus.

V Salinity

water which is not absorbed by the soil undergoes evaporation, leaving behind a thin layer of dissolved salts in the top soil.

causes

- Excess IRRagation
- Irrigation with canal and ground water contain more dissolved salts than is rain water.
- Dry climate where evaporation rate is more.

Effect :-

- ⇒ Stunt plant growth.
- ⇒ lower crop yield
- ⇒ Kills plant Ep Rain land.

Remedy :-

Salt deposits is removed by flushing them out by applying More good quality water to soil.

Using sub surface drainage system, salt water in flushed slowly.

Prevention :-

- Reduce irrigation
- Switch to salt tolerant crop like cotton, sugar beet.
- Recharge soil with fertile ores
- Not to grow any crop for 2-5 years continuously.

Energy Resources.

Energy is defined as the ability OR the capacity to do work.

Types.

a) Renewable
b) Non-Renewable.

Renewable energy sources.

Renewable energy sources are sources which can be regenerate naturally ... are inexhaustible. They

d) Solar water heater
e) Solar power plants.

b) wind energy.

It is derived from high speed winds using wind mills. A cluster of wind mills is called warm farm.

c) Hydropower.

The mechanism behind this is water flowing in a river is collected in a dam and the stored water is allowed to fall from a hight (10cm). The blades of turbine located at bottom of the dam move with the fast Moving water which inturn rotates to generate and produces electricity.

Tidal Energy.

Ocean tides produced by the Sun and Moon produced enormous amount of energy. The high tide and low tide refers to rise and fall of water in Ocean

It is harnessed by constructing a tidal barriage.

During high tods, sea water flows into the reservioue of barriage.

These are few places in the by rotating the generates.

Ocean thermal energy.

The energy available due to the difference in temperature of tropical oceans at the surface of deeper level:

A difference of 20°c is needed between the surface water and the deeper water in order to run the OTE.

The warm surfaces water of Ocean is used to boil a liquid like NH_3.

The High pressure Vapour of the liquid formed by boiling are then Used to turn the turbine of the generator to produce electricity.

Geothermal Energy.

The Energy harnessed from hot rocks present inside the earth.

Merits

- Unlimited supply.
- Energy security.
- Reliable.
- Decentralised energy production

Non - Renewable Energy sources.

Coal → a) Solid fossil fuel.

b) wood, Peat, Lignite, Bituminous coal, Anthracite is the various stages of coal.

Petroleum. → Liquid fuel, prepared by fractional distillation Method.

Nuclear Energy

a) By Nuclear fission

↓

Heavy to smaller

b) By Nuclear fusion

↓

Smaller to

Land resources.

Land degradation :-

Land degradation is the process of deterioration of soil OR loss of fertility

Effect :-

a) Soil texture & soil structure are deteriorated

b) Loss of soil fertility.

c) Loss of invaluable nutrients.

d) Increase in water logging, salinity, alkalinity and acidity problems

Causes.

a) population

b) Urbanisation

c) Fertilizers and Pesticides

d) Damage of top soil

e) water logging, soil erosion

Salination and contamination of the soil.

Soil erosion

Removal or loss or movement of soil components layer from one place to another.

Agents of erosion :-

Flowing water and wind.

Effects

* Soil fertility is lost because of loss of top soil layer.
* Build up of sediments and sedimentary rocks on land and water bodies.
* Leads desertification

Prevention of soil erosion.

a) conservation till farming or Notil farming.
b) contour farming
c) Terracing.
d) Strip cropping
e) Alloy
f) Shelter belts.

Desertification

Desertification of the biological Potential of the land which can lead ultimately desert like conditions

Desertification lead to conversion of rangelands or irrigated cuplands to dessert like conditions in which agricultural productivity falls.

causes.

- Deforestration
- Overgrazing.
- Mining.
- Poor water Management.

Effects.

- Reduction in Agricultural land
- Devegetation and low of vegetal
- Reduction in cattle population
- loss of fertility.
- Severse soil erosion
- Low standard of living.

Control.

- Rain water harvesting.
- Afforestation
- Reduction over grazing.
- construction of wind breaks or shelter belts.

Role of individual in conservation of Natural resources.

I. conservation of Energy.

Switch off lights, fans and other electrical goods when not in use.

*. Use solar cooker for cooking food.

*. Use solar cooker for in Sun light

*. Dry clothes in sunlight.

*. grow trees to get cool breeze.

II conservation of water.

*. Use minimum water for all domestic purpose.

*. Reuse the soapy water to wash courtyards & drive ways

*. check for water leakes in Pipes.

*. Use drop irrigation

*. Build rain water harvesting system.

III conservation of soil.

*. Grow different types of Plants to prevent soil erosion.

*. Don't uproot the trees while constructing the house.

*. Avoid using strong flow of water the plants.

*. Use mixed cropping to protect soil Nutrients.

IV conservation of food.

*. Eat Minimum amount of food.

*. Avoid waste food.

*. Don't waste food.

*. Don't cook food unnecessarily cook only required Amount.