

## Define the term Environment

The term Environment is derived from french word which means to encircle everything that affect an organism during its life time

Thus environment can also be defined as the physical, chemical and biological world that surrounds us as well as the complex, social and cultural conditions affecting an individual or community.

Environ- or <sup>bring</sup> social changes to important consequence of environmental conservation to ensure the elimination of man-made stresses on the environment. UNESCO has identify the following objectives of the environmental education.

- ① Awareness :- which is to be develop regarding sensitivity to the environment, & associative problems.
- ② Knowledge :- which is to be develop in developing in terms of ethics, values & concern.
- ③ Attitude :- which is to be developed in terms of values, ethics & to motivate for active participation in environmental conservation.
- ④ Skill :- <sup>develop</sup> skill for identification & solving environment problems.
- ⑤ Evaluation ability :- i.e to develop ability to evaluate environmental measure & programme as well as activities in terms ecological, social, economic & other educational factors.

Participation :- i.e to ensure active participation of people at all levels of society to resolve environmental problems and also to be successfully



→ Stockholm the United Nation on ~~environment~~ environment also known as conducting under through an

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# ~~Forest~~ Resources Natural Resources  
on the basis of origin

Biotic include all living organisms  
abiotic refers to all non-living things or non-renewable

on the basis of renewability

renewable  
non-renewable eg metal

on the basis of distribution

Ubiquitous ⇒ those which present everywhere eg sunshine, air  
localised ⇒ conc. at specific place eg mineral, fossil fuel

problems also with over exploitat<sup>n</sup> of N. Resources.

- it leads to ecological imbalance
- <sup>N. Resource</sup> will lead to scarcity of N. Resources
- leads to hazards like floods.
- leads to huge costs involvement.

## ① Forest Resources

uncultivated, uninhabitant village boundary community of natural plants. It is a family of trees, plants also organisms covering a considerable area.

types of forests

☐ Tropical

⇒ evergreen

• evergreen; 49% of world forest; grow in high temp. & high rainfall, there's dense

& trees are very tall with broad leaves. not dense; shed leaves

☐ Temperate

or deciduous

16% of world forest; grow in temper region temp & rainfall is moderate;

☐ Coniferous

35% of forest area, grow in cold region; with shape of leaves is needle like. Trees are short



teak, palm, gum, bamboo.

hardwood, timber, teak, maple,

wood provide is soft;

## Importance

- water shed product
- reduce the runoff water
- prevents flash flood & soil erosion
- help in maintaining climatic condn
- provides many nutrients, variety of wood, fire, food, many medicines.

## \* Forest Resources in India

1. Himalayan Region  $\Rightarrow$  20%
2. Northern plane  $\Rightarrow$  8%
3. Peninsular hills  $\Rightarrow$  50%
4. Western ghats  $\Rightarrow$  10%
5. Eastern ghats  $\Rightarrow$  12%

## \* overexploitation of forests?

- a) expansion of agriculture
- b) human settlement, industrialisation, urbanisation
- c) mining activities, forest fires & disease

### effects

- contributes to high temp.
- inc. the soil erosion
- floods are increased by cutting down trees.
- ecological imbalance, desertification & land degradation, loss of biodiversity

## \* Conservation of forests.

- ~~not~~ cutting in a planned manner
- control over forest fires
- reforestation
- afforestation:
- check on forest clearance & rehabilitation & protection of existing forest
- development of green belts around cities & conservation of species of trees.

## \* Causes for deforestation

- 1) agriculture
- 2) mining, for wood, ~~forest~~ fires
- 3) urbanisation, Reckless timber harvesting.

## \* Consequences

- soil degradation
- desertification, control of deforestation.
- loss of vegetation cover
- damage forest ecosystem
- changes climate condition.

## \* Control

- prevention of human settlement.
- urbanisation not be done
- controlled mining & check on reckless falling trees.

## \* Timber extraction Mining & Dams

- over extraction results in deforestation & loss of vegetation & affects the habitat
- leads to displacement & resettlement of tribal people

### Mining effects

- both results in deforestation & loss in vegetation
- leads in loss of forest product
- leads to fire & gas hazards.
- adverse effect on environment

### Effect of dam

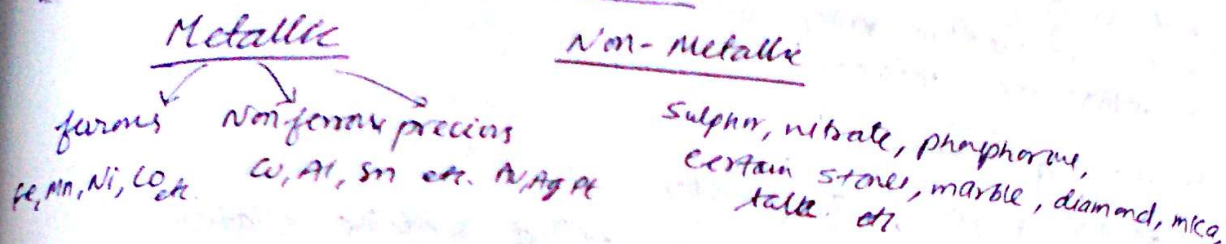
- large scale destruction of forests
- Soil erosion is caused in areas
- loss of biodiversity
- loss of habitat of animals & plants



## # Mineral resources

- quarrying
- search of minerals where they formed
- exploitat<sup>n</sup> and developing of mine for its working
- actual working of mine or extract<sup>n</sup> of mineral
- refining of ore.
- administrat<sup>n</sup> of mines.
- importance of minerals

## # Classificat<sup>n</sup> of minerals



## # Mineral Belts

1. North eastern plateau
2. South western "
3. <sup>North</sup> Western plateau
4. Gondwana belt

## • Conservat<sup>n</sup> of minerals

1. restrict<sup>n</sup> on over exploitat<sup>n</sup>
2. recycling of waste
3. efficient recovery
4. protect<sup>n</sup> of adjacent deposits
5. educating people

## # Water Resources

- water is most imp requirement for sustaining
- used for irrigat<sup>n</sup>, thermal plants, navigation, fisheries, drinking, waris, industrial purposes, many domestic purpose, fishing, wildlife preservat<sup>n</sup>, recreation.



## # Sources of water

- results as a part of surface water on earth & gets accumulate (underground water)
- surface water.

→ Rainfall like west coast, Assam region as much as 21 times the average rainfall on other hand Rajasthan, Ladkhak they get avg rainfall.

## → guess

- there are 14 major river which covers area of 2000000 sq km
- each 44 medium river with area of 2000 - 20000 sq km.
- minor river includes 2000 sq km

## # Drawbacks of g. water

- danger of pollut<sup>n</sup> of g. water
- over use results in accumat<sup>n</sup> of saline water.



find the structure & functioning of ecosystem and its major component.

We study overall ecosystem into two component i.e. structure & function

The structure includes characteristics of an ecosystem defining the systematic physical organisation of the biotic & abiotic component i.e.

- it comprises the composition of biological community including species, plants, animals and microbes, biomass, lifecycles.
- the quantity, distribution and cycling of non-living materials such as major and micro-nutrients and trace elements and water.
- the range or gradients of conditions like temp., relative humidity, wind, topography.

The function includes, or can be studied by systematic study of trophic level interaction ecological succession and biogeochemical cycle



- a) rate of biological energy flow showing the production and respiration of the community.
  - b) range of material and nutrients cycle.
  - c) biological or ecological response with includes an regulation of environment by living organism.
- Thus structure & function are always studied.

Define consumer, producer, consumer.  
The ecosystem are structured acc. how different population acquire energy grouping them in three major diff. trophic level.

1. Consumer
2. Producer
3. Consumer

Producers or primary producer are autotrophic organism that can make food themselves and indirectly for other consumer. Eg. green plants

Consumer are the heterotrophic organisms i.e. depend on other animals. There can be further be subdivided into more

herbivores:- are those org. which feed directly on producer and also called primary consumer <sup>Rabbit</sup>

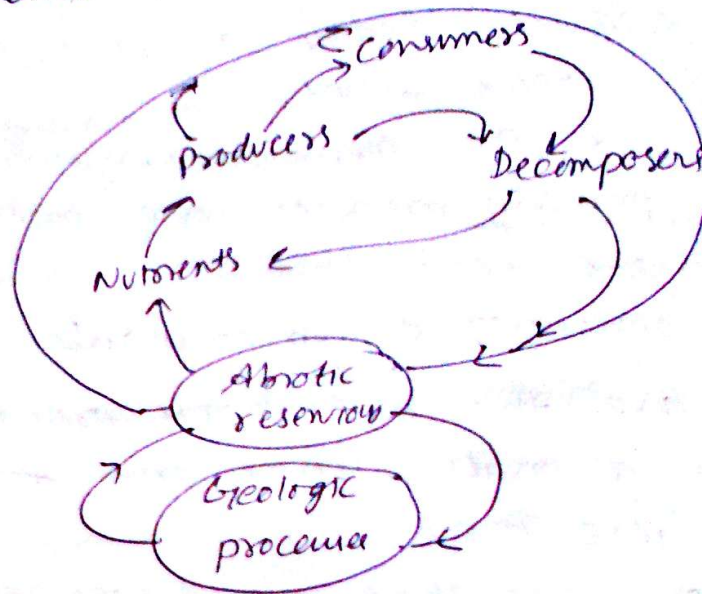
Carnivores:- these are sec. or ter. consumers that feed on other consumer. etc

Decomposers:- organism that obtain energy & nutrients from the remains of dead decaying producer & consumer eg. Bacteria

Biogeochemical cycles:- All vital elements as well as water tend to circulate or flow in biosphere in characteristic paths from the reservoir flow food in environment to organism & this back to the env. from org. This pathways cycle & involve chemical, biological org., environment, soil B.C.



as there are abt 40 chemical vital for living organisms. As they r limited to the earth atmosphere, thereby it becomes important to ensure that they r under continuous cycling process. the biogeochemical cycle are of two types i.e. sedimentary cycles and gaseous cycle. A general biogeochemical cycle is shown in the figure



# What is an ecological succession and what are their diff types.

The term ecol. succ. referred to the process in which plants species. replaced other commens. or veget over a composition.

It is of foll. types

① primary succession.

⇒ In this type of succession, establishment of plants occur on lands that was not previously vegetative and thus begins with colonisation and establishment of first species.

② Sec. succession

⇒ In this, the invasion of habitat by plants on land that was previously vegetative occurs.



the elemental<sup>n</sup> of preservat<sup>n</sup> may be caused by natural or human disturbance. eg. weather.

### ① allowgenics succum

or caused by change in enured mental cond<sup>n</sup> each influences the comport<sup>n</sup> of plant community. this is a succum in which both plants & community & environment changed. and this caused by plant activity.

### ② progenius succum

this is a succum where community becomes complex and contains more species and biomass over there.

### ③ Retrogenius succum

this is a succum where community becomes more sophisticated and contain fewer species & less biomass over there.

Lesson

## Resettlement and rehabilitation of people

Uprooting ~~the~~ of people from one place and placing them to another place requiring alter land is called as resettlement. while rehabilit<sup>n</sup> is restoring someones or community help on normal life through different major like training or therapy after resettlement.

The major factors for displacement are:-  
1) Construction of dams, mining, Express ways or the notification of national park, disint<sup>n</sup> light, the lifes of people who live there.  
The major disadvantage of this activity is that it reduces peoples ability to subsist on their traditional natural resource base and also creates psychological pressure especially for tribal people whose lifes are woven. closely



around their own natural resources, can't adapt to a new way of life or new place.

In India lakh of people have been unfairly displaced by thousands of dam created since independent. The dams have been built virtually ~~at~~ <sup>on</sup> the cost of these poor local people who have been pushed to resist govt. bills. "Rehabilitation" involvement more than just providing a piece of land.

The greatest battle to save their own precious land has been carried out by the tribal of the Narmada river, which is carried out in name of 'Narmada Bachao Andolan' is one of the example. The other example is of 'Tehri project' in which dam was sanctioned in 1972 where local people have been opposing the dam and resisting its construction.

**CE Set** Briefly explain the important features of ecological system. succession

- It is directional i.e. species comprising community appear/disappear with time.
- Temporary community appear or disappear in regular succession starts when an area is incomplete or entirely devoid of vegetation, bcz of some disturbances.
- The first community which inhabits the area is termed pioneer community. & the last stable community and produced area is referred as climax community while the temporary communities are called seral communities.
- The whole series of changes in communities from one stage to climax stage constitute a ~~series~~ <sup>seral</sup> and the intermediate stages are the seral stages.



Succession stops when species composition changes no longer occur with time and this community is called climax community which is stable in dynamic eqbm with its environment.

Explain the general purpose of ecological succession the process of primary succession occurs to one of series which follow a no. of steps-

① Nudation :- It is the first stage of the process of succession and that involves the growth of their land. There are main three causes of nudation

- topographic
- climatic
- biotic

② Invasion :- It is the 2nd stage of process of succession involve establishment of species on the region developed by nudation. There are 3 stages.

- migration
- ~~colonies~~ <sup>acces</sup>
- immigration

③ Competition :- It is the 3rd stage, after species number increases ~~growing~~ <sup>going</sup> to the process of invasion. The competition b/w species for food, shelter and protection starts.

④ Reaction :- This occurs along with competition in the given area. When they're in large no. of organism living in that area. This can be true or false i.e. beneficial or downfall that may influence one another.

⑤ Establishment :- final stage of process and can't be replaced by interaction, competition or by any other external factors. This is usually in eqbm with on itself.



10 Define food chain:

A food chain is a basic way showing the food relationship b/w plants and animals for eg - grass → grasshopper → frog → snake → hawk.

The arrows flow in the dir<sup>n</sup> of energy in the form of food.

### Different types of food chain in ecosystem

• Grazing food chain

In this type of food chain the green plants serve the base as they're capable of trapping energy from sun and

• Detritious food chain

In this type of chain, the dead organic matter serves the base. So the organism that consume detritus called

Such organisms include bacteria, insects, algae.

fallen leaves → snails → small fishes → fish eating fishes.



## Water shed management

Management of single unit of land with its drainage system which includes soil and water management along with developing vegetative cover. Technically a water shed is the divide separating one drainage area from the other. It is a unit of area which covers all the land contributing run off to a common point or outlet surrounded by line. It is drainage area on the earth surface from which run off resulting from precipitation flows past a single point into a larger stream, river, ocean.

### water shed classification

Depending upon the size it is classified into three types:-

- 1> Major water shed
- 2> water shed
- 3> sub water shed

#### ① Major water shed

There are tributaries to river and may cover areas ranging in between 20000 to 150000 hectares. They may comprise ecosystem. It can be used for broad planning.

#### ② Water shed

They are units of more or less similar to ecosystem and may vary in size from 5000 to 20000 hectares. It can be used as a unit for development planning as in proved practises are identified for different land uses.

#### ③ Sub-water shed

The area covered very strong 2000 to 5000 hectare. It can be used for detailed development planning.



including erosion control structures, dams, reforestation and grazing problem.

## \* Environmental ethics issues and possible solutions

Environment have two component -

- a) biotic (which comprise all living thing)
- b) abiotic (non-living factor) which surrounds us and interact with biotic.

Environmental ethics deals with issues that are related to how we utilise and distribute resources.

Environmental ethics deals with issues related to rights of individual that's fundamental to life and well being. This concerns not only the needs of each person today but also for those who will come after us. It also deals with a right of other living creature that lives on Earth.

## \* Three common ethical level

1. Anthropocentrism (human oriented)
2. Biocentrism
3. Ecocentrism

### 1. Anthropocentrism

- It is an ethics completely centred on the interest of human being.
- Anthropocentrism is a theory that believes human are the centre of this universe.
- This theory are used as human possessed complete authority over decisions about the environment and natural resources which'r open to human manipulation.
- Nature is solely for benefit of man.

### 2. Biocentrism

Its ethical view extends to all living things. Biocentric thought is nature based.

It comprise of all environmental ethics that entire the status of moral objects from human.



- being to all living being to nature.
- It splits into different subgroups as some places have greater responsibility of protecting plants species rather than animals.

### 30 Ecocentrism

- This ethics is based on perfect utilisation of whole ecosphere.
- It goes beyond anthropocentrism and Biocentrism.
- It fixes organisms to the inorganic or organic nature that incapsulate them.
- Here Earth and its whole resources should be treated as a community.

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### Bio diversity

Introduction :- It is also known as biological diversity and refers to the variety and variations of life found on earth. It is a major of variety of organisms in different ecosystem. It also help to describe the connections b/w species and its essential in maintaining and balancing the environment. In Biodiversity each species has an important role to play in ecosystem. It helps us in our day to day life and major health of Biological system and to see if there is a danger that too many species become extinct.

### Definition :-

levels of Biodiversity  $\Rightarrow$  there's three levels of

Biodiversity -

- ① Species diversity (taxonomic di.)
- ② Genetic " (morphological di.)
- ③ Ecosystem " (ecological di.)



1. Species diversity  
It refers to the variety of diff. types of living things on earth. These living things interact with each other. Different species have different roles to play within ecosystem. Many species of plant and animal depend on one another. The complex relationship b/w are often disturbed when organisms are transported to new places or ~~unknown~~<sup>new</sup> element is introduced.

2. Genetic diversity  
Genetic diversity of charac. is essential for the survival of healthy population in natural communities. When the environment of community changes some individuals will have characteristics that suit the new environment. They are more likely to survive and produce off-spring that are also suited to the <sup>new</sup> environment. As a result the whole population may change. It is imp. for groups of plants and animals existing to have genetic diversity. It allows groups to adapt to change in their environment. A larger group has more genetic diversity. This group will be stronger and better able to adapt to change.

3. Ecosystem diversity  
It is the variation in the ecosystem found in Amazon, over the whole planet. It includes the variation in both terrestrial and aquatic ecosystems. It can also take into account the variation in the complexity of a biological community including the no. of different niches, no. of trophic level, other ecological processes. An ex. of eco. diversity is the variation in grasslands.



## \* Biogeographic classification of India

It is the division of India acc. to biogeographic characteristics. India has diff. climate and topography in different parts and hence is termed as a mega diversity country. India occupies 10th place among the plant rich countries of the world. Biogeographers have classified India into 10 biogeographic zones with each zone having characteristic climate, soil, and biodiversity. These zones are:-

- |                         |   |
|-------------------------|---|
| 1) Trans-Himalayan zone | 6) Deccan Plateau zones                 |
| 2) Himalayan zone       | 7) Granitic plate zones                 |
| 3) Desert zone          | 8) North-east zones                     |
| 4) Semi-arid zone       | 9) Coastal zones                        |
| 5) Western Ghats zone   | 10) Island present near the shore line. |

## • Value of Biodiversity

As all the organisms in an ecosystem are interlinked and interdependent, value of biodiversity in the life of all the organisms including humans is enormous. It is directly used as a source of fibre, fuel and other extractable resources. It plays an important role in the ecosystem processes, providing the regulatory, cultural and supporting services. Forest vegetation cover protects the soil from erosion by binding soil particles and minimizing the effects of water run-off. Value of Biodiversity is classified as -

- direct values
- indirect values



## ① Direct values

DV includes food resources which are obtained from plants and meat, fish, egg, milk and milk product from animal resources. There also includes other values like medicine, fuel, timber, wool, wax, resin, silk, and decorative items. The direct values are of 2 types -

- a) consumptive direct values
- b) productive used values

① consumptive used values :- There are the direct used values where the Biodiversity product can be harvested or consumed directly.  
eg- food, fuel, & drugs. Foods can be obtained directly from plants and animals. Basically the crops wheat, rice, maize constitute more than  $\frac{2}{3}$  of the food required, all over the world.  
Fish and fish products largest source of protein in the world. Wood, fossil fuel, like coal, petroleum, natural gas are also product of Biodiversity which are directly used by humans as fuels. Yet many drugs and many medicines are derived from plants are used by medical practitioners to prevent & cure the disease.

## ② Productive used values

There are the direct used values where the productive is sold in national & international ~~end use~~ <sup>market</sup>. Many industries depend upon these values for ex textile, leather, silk, paper & pulp industry.



- ① Option values  
It refers to the value of detaining option + available for future such as yet undiscovered new crops and medicines
- ② Environment service values  
The most benefit of B.D. is maintenance of environment services which includes photosynthesis, maintaining of essential nutrients by C, O, N, S, & P cycles, maintains water cycles, soil protect format<sup>n</sup> & protection from soil erosion, detoxification & decomposition of waste etc.
- ③ Biodiversity at global & local level

(Srr dense)