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# Environmental Management

## Unit-4 Biosphere

relation: Individual of same species living together

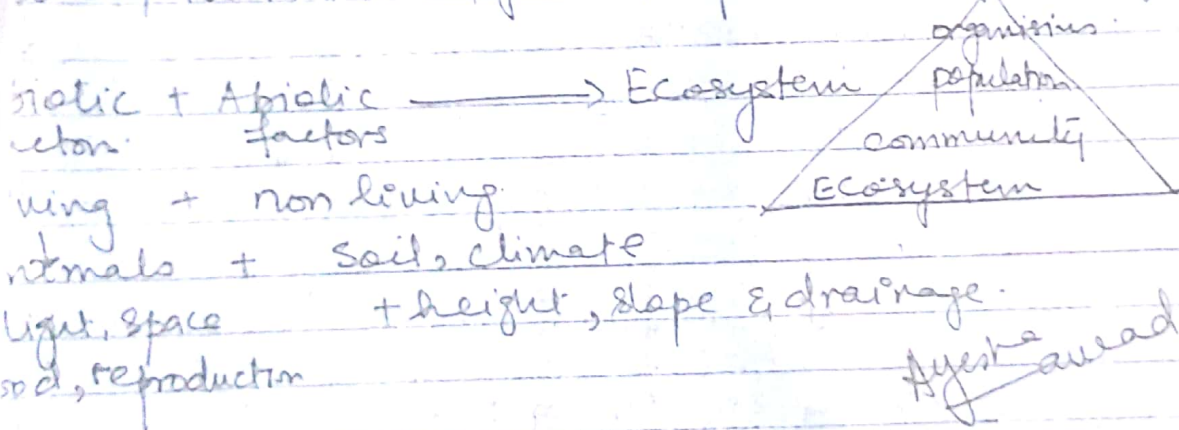
Community: Different populations living together

ecosystem: Relationship between biotic and abiotic factors

habitat: A habitat is an organism's natural home

Niche: Every organism has a role in the functioning of the ecosystem, which is known as its niche.

Communities are well-ordered & highly integrated. They are also very competitive due to intense competition between living organisms for the available resources of light, water, soil, nutrients, food & space.



### Adaptations to Physical factors

Sun is the main source of energy

a- Tropical rain forest

→ Adaptations in → Tall trees attain maximum

Sunlight → Crown of leaves is almost 30 meter above the ground → Broad leaves, enable to

intercept great amounts of sunlight → leathery

leaves survive the daytime heat & rapid water loss → drip tips - shed water quickly

during the torrential tropical downpours.

- Primaries
- Most of insect species live in canopy layers
- Jaguars, tapirs, anteaters, deer, ant & termites.

## Desert Environment -

Adaptation

Extreme climate, hot temperature, less rainfall. Surface vegetation is sparse, small & separated by large areas of bare ground.

Adaptations of plants → Deep effective root systems → Succulent stems with thorns

→ Produced strong seeds → Plants need to grow far apart so they are not competing with scarce resources like water. The

Panel is a desert animal adapted to hot, dry & sandy environment

### Physical & Physiological adaptations

→ Hump stores fats, reserves of energy ining food, thick furry hide insulated body against sun & heat → large water holding capacity in the stomach for 6-8 days.

→ Long eye, lashes, closing nostrils to hind blow sand out → Mucus lined nasal passage prevents water loss during breathing

→ Broad feet makes sinking in sand.

### Relationship of living organisms

living organisms depend on each other in several ways.

- Pollination
- 2 - Dispersal of fruits & seeds
- Vegetation succession.

Pollination: Plants, animals & bees played

> Flowers → strong scent or brightly coloured  
reducing nectar → deep narrow petal tubes such  
as honey suckly → Moths or butterflies whose  
long tongues can reach down the tube to the  
nectar.

Dispersal of fruits & seeds :- Many fruits  
seeds are adapted in such a way that they  
are carried a long distance away from the  
parent plant to avoid competition → winds  
, animals are the main agents of dispersal.

> Some fruits grow hoods (hoods catch the fur  
of passing mammals & the seeds fall out as  
the animals move about) → Many are  
eaten by birds & mammals → pass out with  
the droppings in dung.

Vegetation Succession: ~~Agenda~~ ahead

(After landslide / volcano eruption)  
then the new surface is exposed or created after  
landslide and the sequence of events that results in  
an area becoming covered by vegetation over a  
period of time.

In vegetation succession, plants improve the  
living environment making it more favorable  
for plant growth.

Pioneer Community → lichens + Mosses which  
do not need soil to survive.

Producers: Plants which make their own food  
through the process of photosynthesis.

omnivores: Animals eating plants are consumers

herbivores :- Plants eating animals. They  
are primary consumers.

carnivores: Primary consumers may be eaten  
by the meat eaters which are tertiary

as Secondary consumers

Large carnivores may also kill & eat other animals which makes them tertiary consumers. A carnivore which eats & kills other animals is a predator.

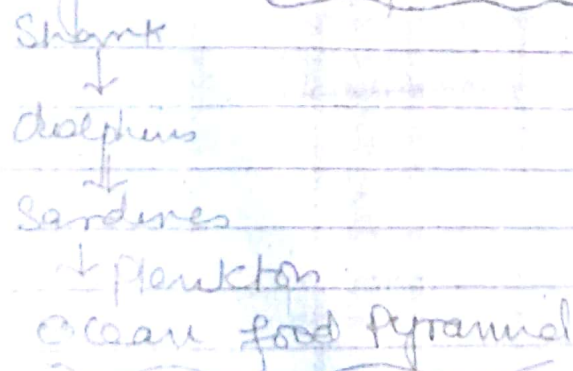
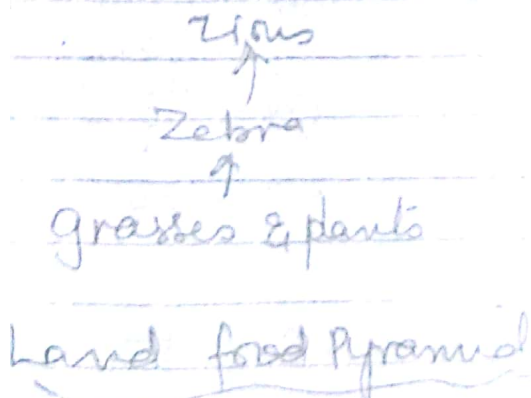
Competition for food between predator is often great.

Food Chain:- A series of organisms each dependent on the next as a source of food. It always starts from the producers.

Food web:- A system of interdependent food chains. It will also explain the transfer of energy through a food web.

Organisms at the bottom of food chain are usually very numerous and where as animals at the top of the chain are large & few in numbers.

Herbivores such as wildbeast & zebras live in vast herds on the East African Savannas where as carnivores like lions & hyenas live in small family groups. At the bottom of all food chains are plants, both on land & in water because they are sole producers.



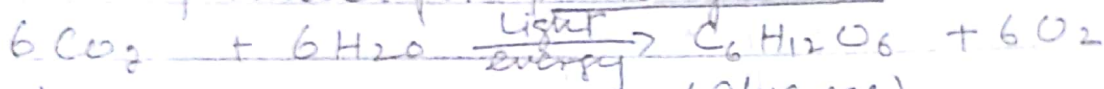
energy flows in food chains.

Energy to drive the systems comes from sun-light. All living organisms need food to build new cells & tissues for growth as a source of energy.

All ecosystems are sustained by a flow of energy through them.

→ Green plants use  $\text{CO}_2$ , water & sunlight to make glucose. The process by which they achieve this is photosynthesis.

The formula for photosynthesis is



(glucose)

(sugar)  
(carbohydrate)

→ Oxygen is released as a waste from this process but it is essential to animal & human life.

~~fishes~~  
~~aweed~~

→ Plants and their photosynthetic production of organic matter are the only way that this energy can be stored in the biosphere. This energy is released when green plants are consumed by organisms higher up the food chain.

→ Each stage in the chain where energy is exchanged is called a trophic level. Green plants such as grasses, bushes & trees are in the trophic level 1, herbivores in level 2 & Carnivores in level 3.

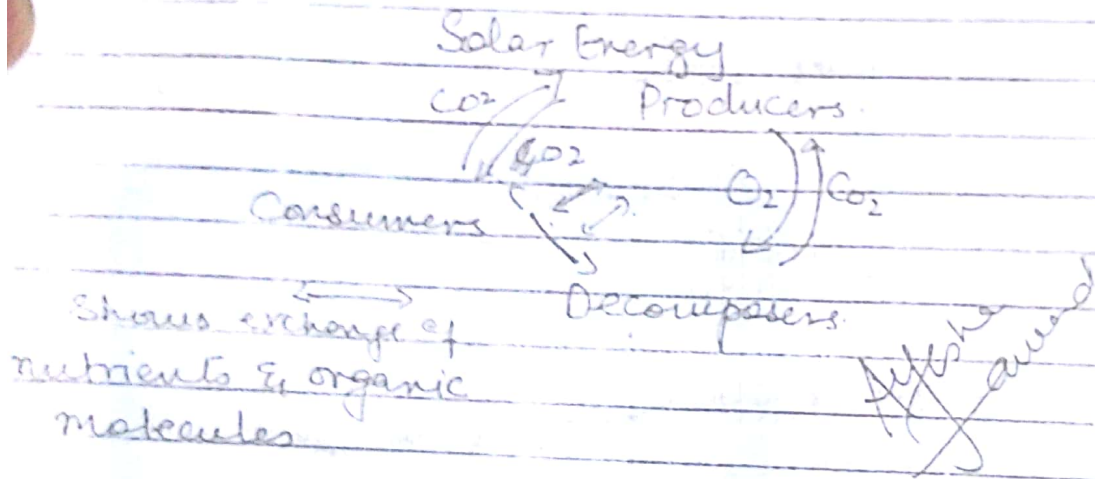
During photosynthesis plants themselves take only 1% of total light reaching the ground. Between each trophic level the loss is about 99%, leaving only 10% to be passed on the next stage for growth.

→ Energy is used in life processes such as breathing, generating heat, growing &

moving around, which is why a smaller number of organisms can be supported in the chain above.

- 1- Nutrient cycling
- 2- The Carbon cycle
- 3- The Nitrogen cycle

1- Nutrient cycling  
(Re-cycling in an ecosystem)



→ The fastest & largest nutrient recycling system is found in tropical rainforests. Dead leaves & branches together with the dead bodies of other microorganisms, fall to the ground surface where they decay rapidly in hot humid conditions.

→ Decomposers organisms break down the continual supply of organic matter.

→ Minerals released are rapidly absorbed by the roots of growing plants, which are concentrated within the upper layer of soil.

→ The Nutrient stock is small compared with the amount of vegetation cover, it is quickly & continuously recycled.

## → Different types of G.M Crops

→ 1- Pest resistant ~~at~~ crops:  
(Bacillus thuringiensis) Bt kills Caterpillar & other insect larvae.

2 - Herbicide tolerant

→ Useful herbicide kill weeds *Alpha Saweet*

3 - Disease Resistant

→ armed with vaccine that stops them being destroyed.

4 - Modifying plant products.

## → Habitat Destruction & its effect on species

\* "Mass extinction of species by natural process increased alarmingly by human activities" destroying their habitat?

\* Human beings ~~use~~ cleared the natural vegetation for agriculture & industry & cities.

Deforestation: Clearing forests & woodlands is the way, people have changed the face of the earth.

Uses of Forests: → Support habitat with high biodiversity.

→ contain useful <sup>food</sup> resources & raw materials for industries

→ improve soil structure, depth & fertility → prevent or slow down soil erosion → important part of

Scale irrigation systems.

6- Green Revolution (from about 1950 A.D to the present) HYV seeds, seeds for special physical conditions, G.M crops, breeding animals for specific purposes.

## Genetic Engineering & G.M Crops

- It is the process of altering the genetic composition of an organism by modifying its own genes or introducing genes from a different species.
- It involves the transfer of genes from one organism to an unrelated species.
- This doesn't happen in the natural world, which is why word 'engineering' used to describe it.
- Genetic engineering is different from selective breeding but it achieves the same objective as genetic engineering.
- Biotechnology companies are Monsanto & Syngenta → became internationally known in recent years for publicizing G.M crops.
- Main G.M crops planted in 2007 ~~are~~ were Soya, beans, cotton, corn (maize) and Canola (oilseed rape).
- U.S.A using 51% G.M crops whereas Argentina - 17%, Brazil 13%, Canada 6%, India 5%, ~~China~~ and China uses 3%.
- More than other 40 countries also use G.M crops.

Alpha  
awad



rate of vegetation measured by the increase in the biomass over a year.

Bio diversity: It refers to the number and variety of living species, plants & animals which includes the whole range of species in the world. → It includes different kinds of ecosystems which are valuable not only the species they contain but also as unique living communities of plants & animals with their surrounding environment.

→ It is estimated that 50% of world's 10 million species live in tropical rainforests.

→ Clearing the natural vegetation results not only in loss of species but also in reduced productivity.

→ The Earth's genes, species & ecosystems have evolved through 3000 million years & form the basis for human survival.

## Unit 4.2: Human activities & their impacts on the Earth's environment.

→ Humans began as hunter gatherers. They were entirely dependent on the plants & animals of natural ecosystems.

→ Farming & fishing are the examples of primary activities → Numbers engaged in these secondary activities increased with time. Secondary → in which raw material is changed into another product by people → More food results in

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Agenda

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# The Nitrogen cycle

Page No. \_\_\_\_\_  
Date \_\_\_\_\_

When plants & animals die, decay & decompose ammonia ( $\text{NH}_3$ ) is one of the important products released.  $\text{NH}_3$ , a compound of nitrogen is released into the soil by this decay. Waste from living animal also contains nitrogen, their droppings are also decomposed by soil bacteria.

→ Just as humans use glucose in respiration, bacteria use ammonia as a source of energy & produce nitrates. Plants readily take up nitrates. These nitrifying bacteria increases soil fertility by making nitrogen available for plants.

Nitrogen is removed from the plants in 3 ways

- 1- uptake by plants.
- 2- Leaching
- 3- Denitrifying bacteria. (to obtain energy they breakdown nitrates to nitrogen gas which escapes from the soil into the atmosphere.)

## Resource potential of Biomes.

- Biomass is the total weight of all the organisms in a population, community or habitat.
- The size of the biomass is a reflection of the productivity of the ecosystem.
- Productivity is the rate at which energy is absorbed or fixed by green plants.
- Net primary productivity is the growth

# The Carbon cycle:-

Carbon is an element which is present in all living organisms. It is obtained by plants from  $\text{CO}_2$  in the atmosphere as a result of their photosynthesis.

When the plants are eaten by animals, the organic plant material is digested, absorbed, & built into compounds making up the animal's tissues. Carbon atoms from the plant become part of the animal.

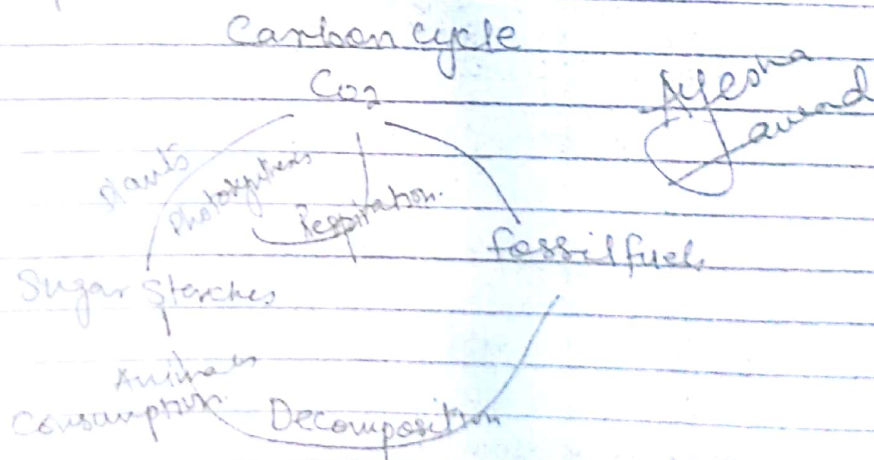
Carbon is added to the atmosphere in 3 main ways

- 1- Respiration
- 2- Decay
- 3- Combustion

Plants & animals obtain energy by oxidizing carbohydrates in their cells.  $\text{CO}_2$  &  $\text{H}_2\text{O}$  which are excreted.  $\text{CO}_2$  returns to the atmosphere.

Organic matter from dead plants & animals is used by decomposers as a source of energy.

Wood, coal, oil & natural gas are all fuels which contain carbon.



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the water cycle → major carbon store.

Human beings:

Wet lands: Ecosystem dominated with swamps, marshes, lakes & deltas.

They cover 6% of the land surface.

Examples are

- \* Okavango Swamps in Africa
- \* Everglades in U.S.A
- \* River deltas, Mangrove Swamps in South & South East Asia.

Threats to wet lands: \* Water pollution due to pesticides

- \* water is drained, sea walls & dams are built to keep out the water
- \* Reclaiming of land ~~is~~ <sup>is</sup> ~~caused~~ <sup>caused</sup>

Uses: High productive ecosystem rich in plants, water birds & fish.

Floods: Due to floods → loss of habitat, rotting of vegetation produces  $CH_4 + CO_2$

→ Decomposed vegetation increase nitrates causing eutrophication.

Tourism: An example of tertiary industry

For some countries it is a route to economic development for example Seychelles, Mauritius & many small ~~Caribbean~~ Caribbean islands (An important industry for them).

Advantages of Tourism:

Economic: \* Earn foreign exchange  
\* provides jobs \* improved infrastructure

Social: reduced migration due to availability of jobs

Environmental: \* More awareness for environment \* profits earned can be used for conservation & repairs.

Aysha Awar

Disadvantages of Tourism

Economic: \* Variation in income due to seasons

\* unskilled jobs & poorly paid  
\* Tourist development replace farming & fishing

\* Social: traditions & cultures lost

Environmental: \* Pollution problems  
\* Destruction of habitat for building

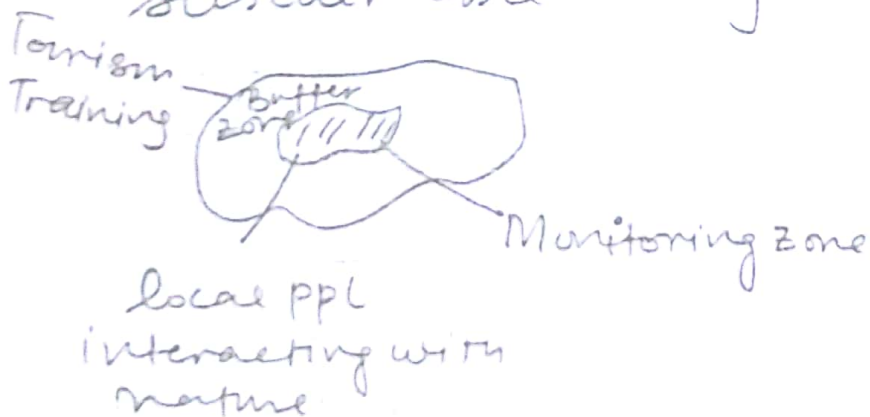
## Unit-4.3 Strategies for Conservation

→ Set up a gene bank as 10% genes already lost.

1- Biosphere Reserves      2- National Parks  
Example Case Study: Kenya National Parks & wildlife reserves.

\* Big herds of animals \* Coastal wetlands \* white coral reefs.

1- Biosphere Reserves: Research oriented interaction between man & nature in a sustainable way  
\* Areas of ecosystem which promotes conservation of biodiversity in a sustainable way



Alisha Javed

→ \* usually with borders & controlled by government  
\* No tourist allowed in the core zone  
nor any activities

reserve in China & reserve in India is the example.

## 1- National Parks:

\* Protected area notified by the legislature & huge area of land can't be monitored 24 hrs.  
↳ like a park, tourist allowed to roam inside & boating & other activities allowed & wild life conserved with access to visitors.

\* Mombasa, Masai & Amboseli examples of Kenya National parks.

ECO Tourism: *Ayesha Jawad*

Tourism that is environmentally sound

\* Natural environment & wild life safe guarded  
\* natural resources are protected in a sustainable manner.

2) Tourism that is socially sound

\* local communities are not damaged & local people can share the benefits & ways of



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life & traditions are maintained.

Eco-tourism lead to sustainable tourism

- entry fees like Galapagos Islands (coral reef preserved)
- tourist industry in Mauritius

Mauritius laws: \* Compulsary environmental surveys for planned development

- \* waste treatment works in plans for all hotels
- \* Ban on collection of corals & turtle shells.

\* Two international approaches to species conservation

\*\* Habitat conservation

\*\* Ban on hunting, collecting & trading of rare species.

Habitat Conservation

In last 40 years more laws & agreements formulated to save habitats.

- Earth Summit in Rio de Janeiro in 1992 - 162 countries signed on problems of climate change & Biological diversity

## NWF World Wide Fund for Nature

uses slogan

"Taking action for a living planet"

Launched in 1961, operated 90 countries  
Set up amid fears that habitat destruction & hunting would soon bring extinction.

→ CITES: (Convention on International Trade in Endangered species of wild Fauna & Flora)

\* international agreement signed or involved 80 countries

\* aim to save specimen of wild animals & doesn't threaten their survival

Effect: More than 30,000 species protected & saved.

## Unit 4.4: Biomes & their distribution. ~~Myers~~ <sup>Myers</sup> ~~Jawed~~

Biomes are large scale ecosystem, identified & named by their dominant vegetation cover.

- 1- Tundra
- 2- Taiga (coniferous forests)
- 3- Tropical rainforest
- 4- Monsoon forest
- 5- Deserts
- 6- Tropical Grassland & Savanna

## 1- Tundra biome

- Cold climate restricts all types of vegetation growth & surface is covered ~~for~~ with snow
- ~~6+~~ for at least half of the year.
- Tundra is different from other biomes due to the absence of trees.
- Growing season is less than 3 months & even in mid summer, it is still not warm.
- Strong winds blow all year
- Soil ~~is~~ above the Permafrost are water logged the depth of free-draining soil is too shallow for tree roots.

Features: Summer temperatures are below  $10^{\circ}\text{C}$

In winters ( $-30^{\circ}\text{C}$  & lower) ~~There is~~ <sup>Heavy</sup> snow  
Annual precipitation is irregular & falls mostly as snow - rainfall - (under 300 mm) low.

Species: Mosses & Lichen Poor species  
\* plants are slow-growing \* complete their life cycle within 30-60 days.

- \* Few plants reach more than half a meter.
- \* Seeds are hardy & armoured with thick cases, to survive the winter cold.

2- Taiga (Coniferous forests): called as coniferous because they reproduce from cones, which protect their seeds.

- \* Uniform shape, height & size.
- \* North America, Eurasia, Canada, Scandinavia, Russia & Siberia are dominant.

by coniferous.

Within  $1 \text{ km}^2$  - 2-3 species only trees present "close together" and no species on the ground.

Trees adapted

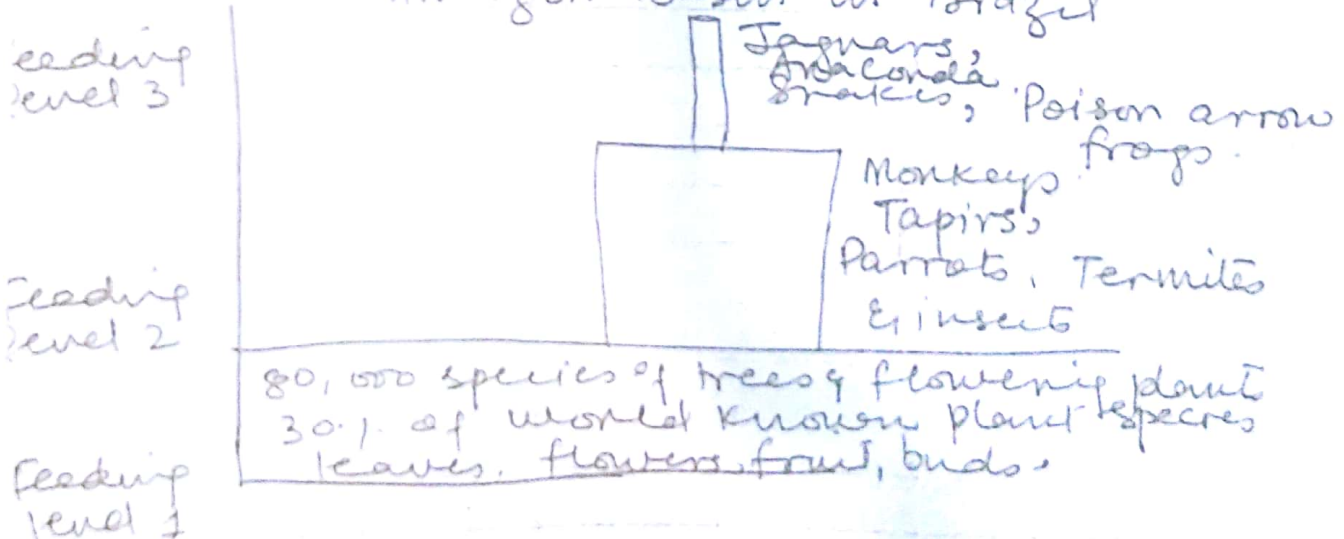
- i) Conical shape
- ii) Downward sloping branches
- iii) Evergreen
- iv) Needles/leaves to reduce water loss.
- v) Thick bark - protect it from extreme cold
- vi) Tap roots (root hairs take up water containing small quantity of minerals)

Tropical Rain Forest: (Hot & wet climate)

- 90% of biomass consists of evergreen trees. Trees of the same type do not grow together but widely spread.
- 1,200 species per hectare
- Straight slender trunk
- thin smooth branches
- leaves are leathery & drip tips
- Buttress like roots

Ayesha Jawad

Amazon Basin in Brazil



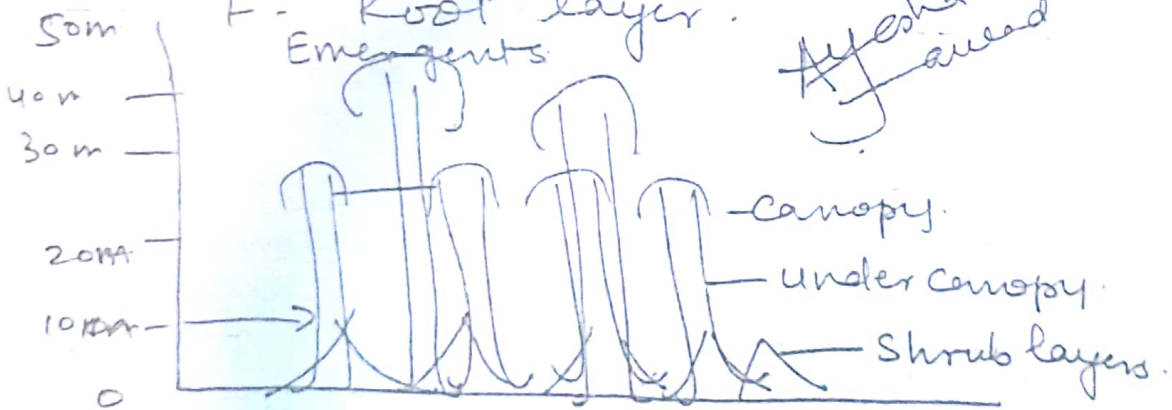
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The distinctive feature of rainforest is its Stratification (Easy to recognize its layers)

There are 6 layers in Tropical rain forests

fig 4-52  
Pg 216

- A - Emergent top tree canopy
- B - Crowns of large trees (middle canopy)
- C - Lower tree canopy (densely packed crowns)
- D - Shrubs - small tree canopy
- E - Ground vegetation - herbs, mosses & ferns.
- F - Root layer.



Go through fig 453 on Pg 217.

~~leafy~~ Has a lot of nutrient recycling

leaves fall → decomposed by bacteria → humus absorbed by plants → dense vegetation

# 1- Monsoon forests.

Yesha  
Dawed

- ✓ Similar to tropical rainforests
- \* high temperatures (20°C)
- \* one wet & one dry season
- \* Annual rainfall 1000-3000 mm

In North Myanmar & in Eastern Assam in India, trees dominated are deciduous forests such as 'Teak' & 'Sal'.

- \* larger canopy of trees to get maximum sunlight
- \* lot of spaces between plants
- \* few lianas & epiphytes, thick shrubs & bamboos on the ground

## 5- Savanna Grassland

- \* Described as grasslands with trees
- \* Eastern African Savannas are famous.

- \* high temp all year 25-35°C
- \* Moderate rainfall - 500-1000 mm
- \* Rainfalls in summer
- \* long dry season in winter

→ Trees are usually drought-resistant  
All are deciduous (shedding leaves to reduce water loss during dry season) Example - Baobab tree

- \* thick trunk up to 9 meters in diameter
- \* Spongy layer in

which water can be stored.

- \* Umbrella like top of the acacia tree shades
- \* long tap roots to reach underground water stores.
- \* Tree growth is slow.

→ Grasses grow quickly in wet seasons often 3 or more meters high.  
in dry season - grasses turn brown & die back (adding organic matter to the soil).

## 6- Hot Desert-

- \* Plants cannot exist in deserts
- \* Strong sun light \* temp  $40^{\circ}\text{C}$
- \* rainfall is less than 250mm

features \* Root system is the key to survival

→ Branching root system allow water to be drawn from the greatest possible volume of soil.

→ deep roots enable ground water supplies

Species:

Cacti & other succulents use different methods → ways: \* Shallow surface roots spreads sideways to take maximum benefit from rain showers \* leaves are reduced to spines in cacti to minimize transpiration \* Succulent leaves & stems have sunken stomata & close their opening during the day.

water loss, open them at night to allow respiration.

\* ~~Dormant~~ seeds are usually dormant wait for heavy showers to complete their short-light cycle before the grip of dryness returns.

## Unit 4.5 Deforestation & Sustainable Management.

Deforestation: Clearance of natural vegetation.

→ 1/3rd of the world's natural forest have already been destroyed due to

\* felling \* burning \* grazing.  
→ People cleared it due to Urbanization  
\* farms \* factories \* cities

→ By 1950, natural forests were left only in two world zones...

\* The zones of coniferous forests across North America \* Eurasia about 60° N \* tropical rainforests \* Central & South America around equator \* Africa \* South east Asia.

\* Soils under coniferous forests are infertile

\* Needles of coniferous forests



decompose slowly & release few minerals into the soil.

## Means of Rainforest destruction

- 1 - Cultivation: Subsistence farms also <sup>years it for themselves</sup>
- 2 - Ranching: activity of running large <sup>farm</sup> cattle farms
- 3 - Logging to cut down forests especially <sup>big</sup> companies
- 4 - Energy for fuel wood

Check fig 4.60 on pg 221 for importance of forests. *Ayesta Javadi*

## Case Study: Indonesia (Deforestation)

- \* hot & wet climate
- \* lot of deforestation due to
  - \* Govt
  - \* logging companies
  - \* population growth

### 1 - Political

- Causes:
- a - Govt settling ppl in suburbs
  - b - military gov't gave concessions to logging companies
  - c - little attempt to stop illegal logging

- 2 - Economic: a - unemployment b - major wood producer c - pay off international debts.

- Social: a - More people b - burning of farmlands.

Effects : on biosphere

- a- reduced biodiversity
- b- reduced biomass
- c- loss of animal habitat

on environment a- soil erosion

b- Air pollution & silting of rivers

in indigenous people : conflicts between logging company & local people.

## Sustainable forest Management

7 Re-growing of coniferous forests  
(for timber, pulp, paper, glue & turpentine)

Management a- To train, educate & research (local people)

b- Convert into national parks + nature reserves

c- Practice agro-forest

d- Growing of eucalyptus

e- selective logging

d- Reafforestation such as acacia & eucalyptus.

## Unit 4.6 Soil Erosion

→ Loss of top soil by wind & water → Natural process, happening all the time but becomes slow due to protective covering of vegetation.

Ayisha  
Awwad

- Causes:
- \* Farming on steep slopes
  - \* Over grazing
  - \* Over cultivation
  - \* Poor farming practices.

### Consequences of Soil erosion:

- \* Desertification (land turning into a desert)
- \* Crop reduce yield
- \* land becomes less productive due to infertile soil
- \* More load on fertilizers, cost goes up.

### Effects of desertification:

- \* Reduced total bio mass
- \* Reduce crop yield
- \* reduced wood bio mass
- \* reduced water availability
- \* Advancing sand dunes
- \* increased disruption to life

### Example: \* The Sahel in Africa

- \* Niger in West Africa
- land lost due to desertification
- growing of staple (basic food) millets & peanuts.

techniques: for improving fertility

- \* slash & burn techniques

Rainfall increased after 1980. 1990...

Strategies used are

- a- Research
- b- Advice & demonstration
- c- New seeds given
- d- spreading of perennial local plant seeds.

Methods to tackle the cause of desertification

Cause

Method

- Overcultivation: crop rotation  
drought resistant seeds
- Overgrazing: reduced the no of cattles  
rotate grazing land
- Deforestation: tree planting schemes  
alternatives to fuel wood.
- population pressure: policies for reducing  
birth rates  
alternative employment like tourism  
& craft industries.

Read pg 231, 232 for better understanding observe fig 4.71, 4.72.

*Handwritten signature*

## Unit 4.7 World population Growth

- 1- Crude Birth rate: Number of live births per 1000 people per year
- 2- Crude Death rate: Number of deaths per 1000 people per year. *Ageled*
- 3- Fertility rate: Average number of children born to a woman in her life time.
- 4- Natural Increase: Population growth because the birth rate is higher than the death rate.

Population Structures: - It is the make up of a country's population by age & sex. Date collected is shown in population Pyramid.

\* Data collected through census

- 5- Census: - An official count or survey, especially of a population calculated in a particular time period (Also calculated Economic, socials & other datas for the development of policies).

Reasons of low birth rates in European Countries

- widely available family planning practices by all married couples
- women are all well-educated
- Normal family size (1 or 2 children) accepted socially
- Economically children cost their parents money

## Reasons for high birth rates in Africa & Middle East

- Family planning is not always available
- ~~less~~<sup>little</sup> education of women & early marriages
- Socially, 5 or more children
- Economically children needed to work in farms

Death rates fell every where due to better medical & health facilities especially in developed countries, only the exception of poor, war-torn countries like Africa (Sierra Leone) more HIV, Aids in South Africa

For tables read Pg 233, 234, 235

## Demographic Transition Model

It is useful for making comparisons

between countries and for linking population. It takes no account however, of the time it takes for countries to pass through different stages.

Check fig 4.78 on pg 238

### Infant Mortality rate:

Number of deaths ~~per~~ of children under 1 year old per 1000 people

Life expectancy: Average no. of years a newborn baby is expected to live.

### Migration:

Push & Pull

Movement of people to live in a different place.

It is due to Pull & Push

factors

Push factors

- \* Poverty
- \* Pressure on land
- \* Drought & famine
- \* Lack of services
- \* Remoteness
- \* Less improvement

Pull factors

- \* better paid jobs
- \* Reliable food sources
- \* More schools, hospitals
- \* water & electricity supply
- \* better roads
- \* better life style

## Types of Migration:-

Voluntary

forced

Aalsha  
Aslam

Example Rural to Urban  
Rural to Rural  
Urban to Rural

\* Movement to camps  
& temporary shelters  
\* refugees to other  
countries.

→ World's wide spread type of migration  
& was before industrial Revolution.

→ Resulted in Urbanization.  
Cause: Rural to urban migration.

Urbanization: Increase in the  
percentage of people living in  
urban areas.

Effects of Rural-Urban migration.

- 1- Housing problem
- 2- Traffic problem
- 3- Environmental degradation
- 1- Increase in crime rate
- 5- limitation of infrastructural facilities
- Deforestation
- Diseases & uneven distribution of population



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### Causes of unemployment:

- Mechanization in agricultural sector
- Rural urban migration
- low literacy rate
- Revolution in I.T
- Political instability *Ayesha Jawed*

Effects : 1- Child labour 2- Increase in crime rate 3- expansion of cities 4- Poor living conditions 5- Pressure on infrastructure

Solutions: 1- educating people  
2- Training of labour force  
3- Providing technical education  
4- Promoting tourism 5- Population Control  
6- Providing facilities to villages 7- Industrialization.

### Environmental Problems in Rural areas

- Soil damage → Desertification
- Salinization due to over use of irrigation → Pollution of surface streams → Deforestation for new farm lands → over grazing.

### Environmental Problems in Urban areas

- More squatter settlements & factories, loss of wood land

- Pressure on water supplies (need to build new dams, emptying of Aquifers)
- Centres for all types of Pollution  
Air, water, land & noise pollution

## Implication of population Structures

- Young people — expensive, burden due to health & education
- Old people — expensive, burden due to Pensions, healthcare
- Burden on working population (pay more & more taxes).

## Strategies for Managing <sup>Asia</sup> population growth

- family planning information & services
- better education → later marriages
- improved health care → Migration to cities → education & careers for women.

Example

→ China & its one child policy —

- \* Strict & illegal to have more than one children (education & health care free for one child)

- But Chinese policy unpopular
  - \* love children \* more sons needed to work in farms \* killing girl babies for a boy \* shortage of female partners in future.

Policies in other Asian countries like Thailand, Singapore (Japan) (More successful due to effective family planning programmes)

- They used mixture of media, economic incentives, community involvement
- high standard of living
- financial benefits for rural farmers who registered for family planning.

- India - Pakistan again not successful due to illiteracy & poor offers of family planning by govt. (religious belief in Muslim countries like Pakistan)

## Strategies for Managing <sup>Age</sup> Urban population

- Ring Roads \* Metros \* train services (better transport & flat system)
- Example Cairo
- Mercedes factory located in suburbs employed 400 ppl.
- better & repaired sewerage

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system → Aided self help housing schemes.

Case Study: Orangi Pilot

Project (Pakistan) Chinnai in (India)

Examples of Aided Self help housing schemes.

Read Pg 251, 252, 253

Unit 4.8: World Inequalities in trade & Aid.

- Contrasts in development between rich & poor.
- Economically developed countries (North America, Europe, Japan & Australia)
- Developing countries (Central & South America, South & South-East Asia)
- A developed country is a rich country
- Survival for food & shelter is the priority for people in

# developing countries

→ We can measure economic development by G.D.P. (Gross domestic product) if it is higher than developed country.

Check map 4.97 on pg 255 for G.D.P per head (US dollars)

## Other Measures for development

- Housing
- Health
- Education
- Nutrition

*पूँजा*  
*आवास*  
*आजी*

Poverty is based upon economic factors. it is difficult to separate social & economic factors.

Family Poverty leads to babies ~~malnourished~~ malnourished, less food growth, unsafe drinking water → diseases are common.

## The Need for fair Trade

Trade : exchange of goods & service between countries

Advantages : - Trade of any surplus product, ~~and~~ import of goods & services  
→ ~~mapkar~~ mapkar down pours.

What does it have

## Pattern of World Trade

Developed Countries

Developing Countries

export primary  
goods, minerals, timber  
farm crops

→ pile up of  
loans & debts

→ Interest rate  
rise, debt  
is bigger due  
to need of all  
basic requirements

Problem for developing  
Countries

- bulky to transport
- low in value
- subject to great  
price fluctuations

Developed countries <sup>also</sup> export manufactured goods, sell at high prices due to value added.

Result: Trade gap or 'Trade trap'

## The Fair Trade

- A reasonable price covers the following
- \* Grower's costs of production

- \* Good working conditions & environmental standards
- ▷ long term contracts to allow sustainable production.
- \* Social premium for community development purposes.

Fair trade means for farmers a guaranteed minimum price, when world prices fall.

Read pg 259.

Aid

~~Ajisha~~ ~~award~~

Money given to country in need (food, medical supplies, goods & equipment)



Short term

long term

immediate after by disasters like Earth quake, flood, cyclones & drought

\* for sustainable future to raise living standard & quality of life

Example Ethiopia (for famine).  
Bangladesh (for cyclones)

\* NGO's sponsored funds

to the ...

## Long Term development Aid

- Technical training in farming practices
- Provision of new seeds
- Construction of water storage systems
- Community projects for loans
- Setting up co-operatives to market production surpluses.

### Example

Since 1990, many NGOs have been working in Ethiopia providing practical help

- By providing high quality seeds
- Planting drought resistant trees
- Digging ponds & wells
- Providing loans for buying tools
- Setting up co-operative for marketing.

Read Pg 260 4.12 for  
Types of Aids.

Ayesha awad