Social Issues and The Environment

From unsustainable to sustainable development-

Definition-

"The development that meets the needs of present generation without compromising the ability of future generation to meet their own needs."

G,H,Brundtland ,1987 (Former prime minister of Norway and director of WHO)

Key aspects of sustainable development-

- Inter – generational Equity-
- Intra – generational Equity

Measures for sustainable development-

1) Using appropriate technology
2) Use 3’R approaches
3) Promoting environmental education and awareness.
4) To utilize resources as per carrying capacity of Environment.

Water conservation-

Measures for conservation of water

- Proper use of water resources
- Prevention of run-off losses
- Recharge of ground water
- Use modern agriculture irrigation system
- Use organic manures
- Other conservation methods-

Other conservation methods-

- Reuse and Recycle of waste water
- Avoid misuse or overuse of water resources
- Rain water harvesting
- Water shed management
- Conservation of natural wetlands
- Enforcement of Laws
- Public awareness

Rain water harvesting

Rainwater harvesting means catch the water where it falls

Rainwater harvesting is a technique of increasing the recharge of groundwater by capturing and storing rainwater.

Objectives of Rainwater harvesting

- It checks the run-off water
- It helps in meeting the increasing demand of water
- It increases the water table or Recharge the ground water.
- It also reduces groundwater contamination

Methods of Rainwater harvesting

1) Rainwater harvesting from Rooftop in underground tank.

Volume of rain water harvested (M^3) = Amount of rainfall (M) X Area of rooftop(M^2)

1) Rainwater harvesting from surface of ground in to underground.

Catchment areas

It is the surface area from which run off water is collected.

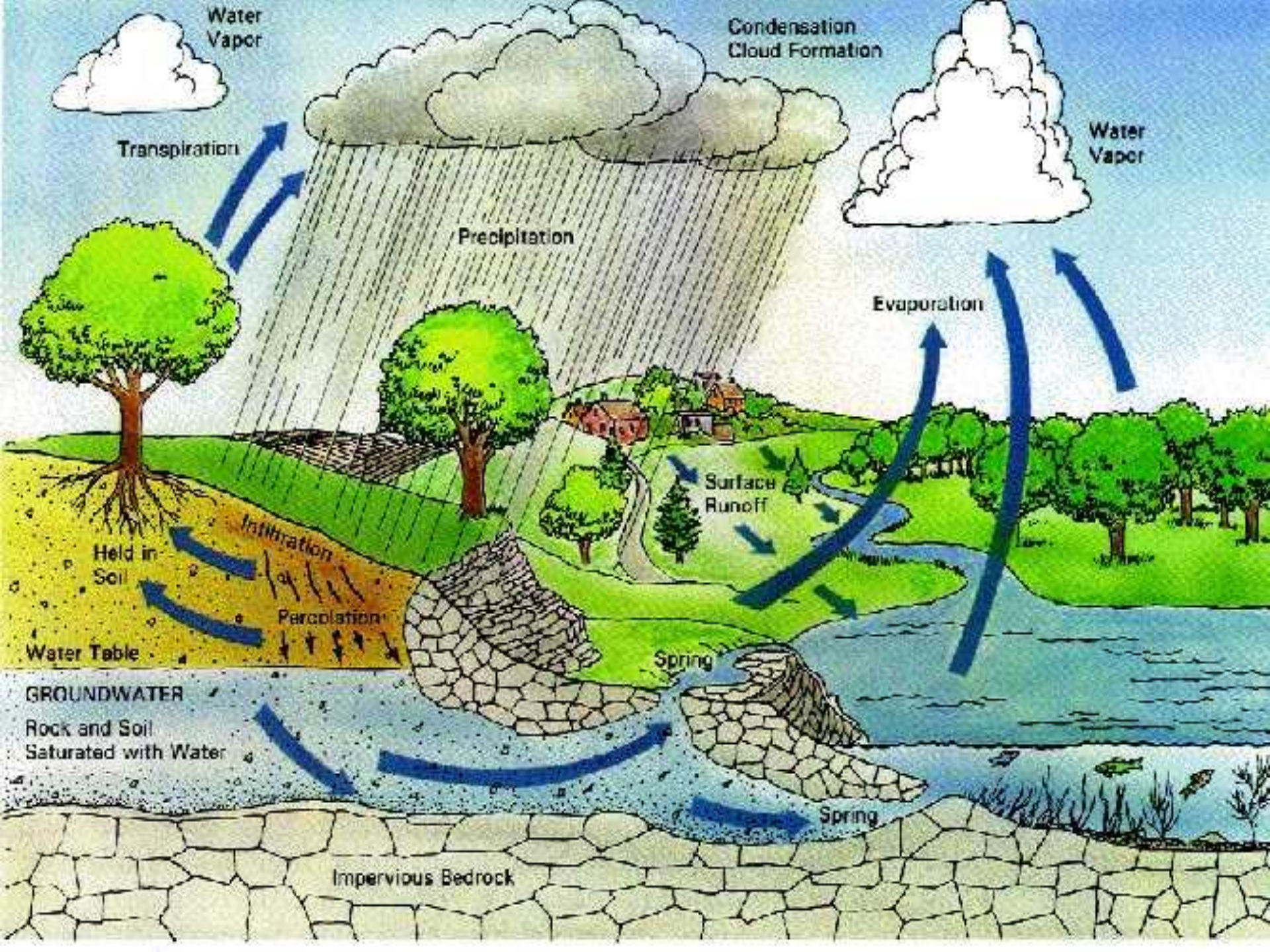
E.g.- Roof top area and surface or ground

The various factors affecting run off as fallows-

1) **Intensity of rainfall , Duration of rainfall ,Timing of rainfall**
2) **Surface characters (weather it is smooth or rough)**

Benefits of Rainwater harvesting

1) It provides pure and clean water for various purposes.
2) Reduce the dependence on water dam or reservoirs.
3) Reduce the pressure on water dam or reservoirs.
4) Reduce the soil erosion
5) Reduce the flooding
6) Recharge the ground water.
7) Save the electricity and energy.
8) Save the energy and time of people.


Water Vapor
Condensation Cloud Formation
Transpiration
Water Vapor
Precipitation
Evaporation
Surface Runoff
Infiltration
Held in Soil
Percolation
Water Table
Spring
GROUNDWATER
Rock and Soil Saturated with Water
Spring
Impervious Bedrock


Rain-Return®
PATENTED PIT &
CONTROL SYSTEM

Global warming

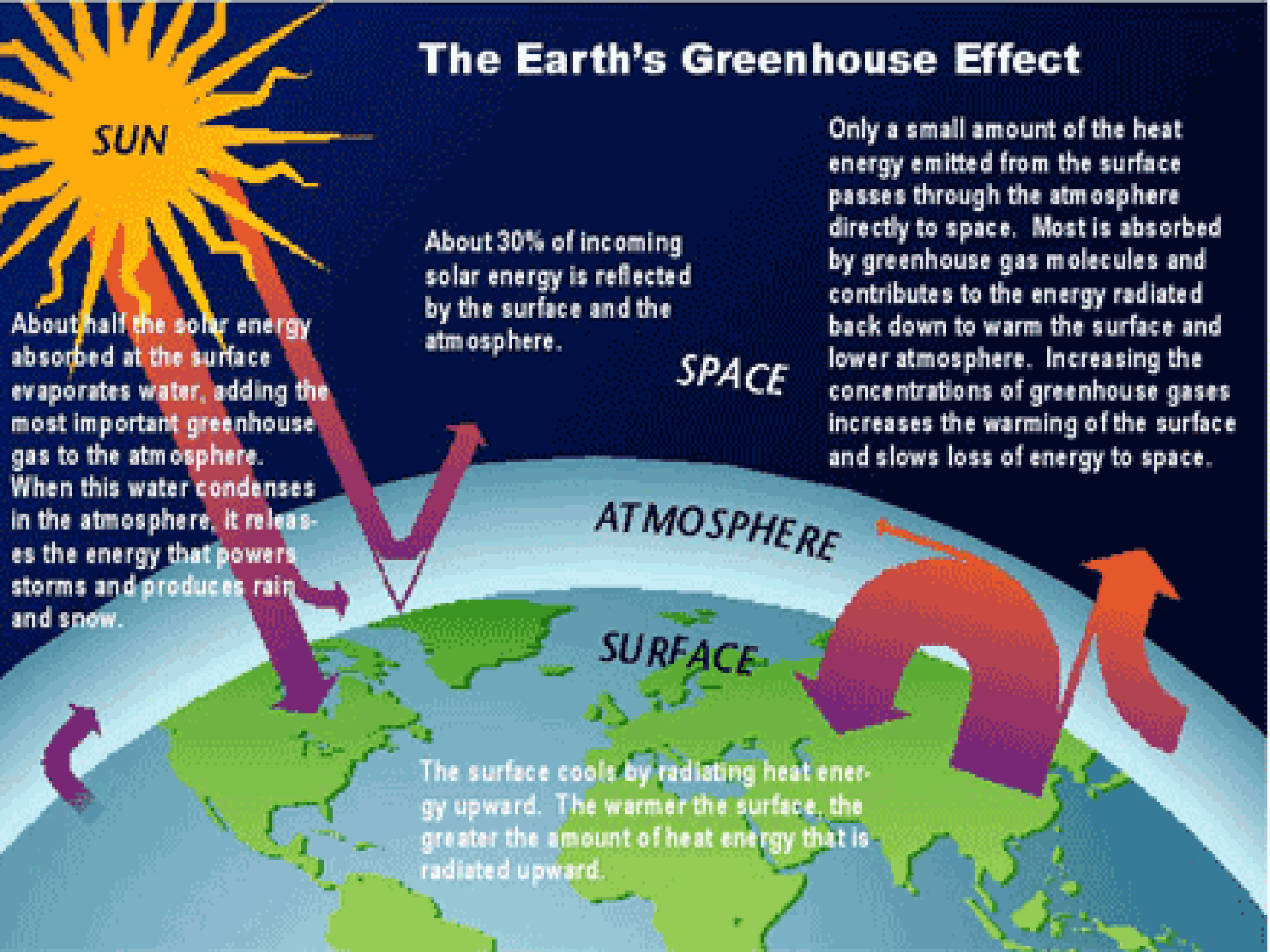
Global warming

- A glass house is used for raising the delicate plants is called as Green house.

- A green house has higher temp. inside than outside though the interior part receives less radiations ,it is called as green house effect.

- Green house effect refers " Selective energy absorption by some selective gases ,which allow short wavelength energy to pass through but absorbs longer wavelength and reflect heat back to earth"

The Earth's Greenhouse Effect

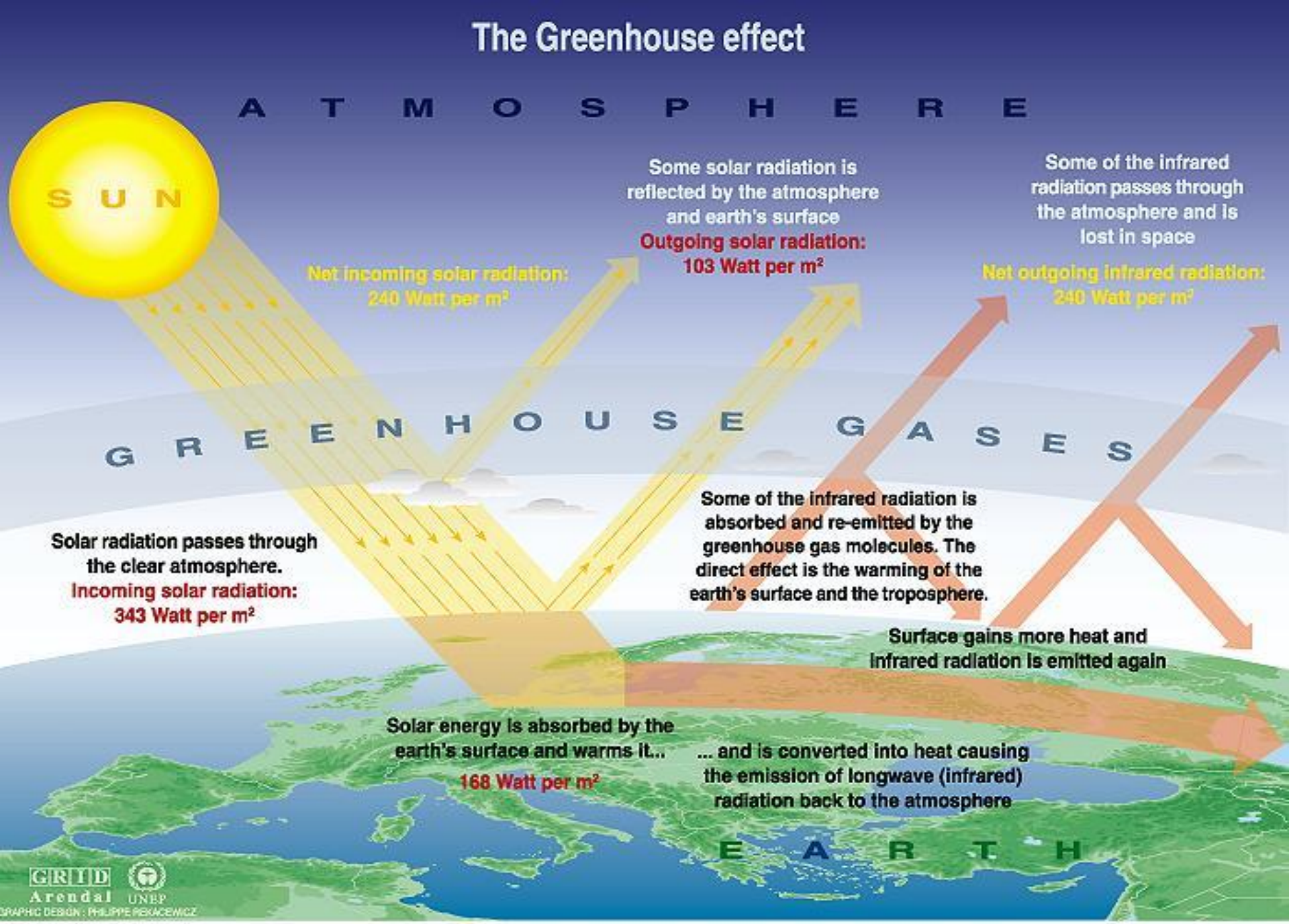


Sources of Global warming-

CO_2 ,CFC,N_2O,CH_4,O_3,H_2O

Sr. No.	Green house gases	Sources	Contribution in %	Atmo.Concentration	Increase in % /Year
01	Carbon dioxide	Burning of fossil fuel, Industrialization Population ,Deforestation ,	60	360ppm	1.5ppm/yr.
02	CFC	Leakage of air conditioners ,Refrigerators, Industrialization	14	0.00225 ppm	0.5 % / yr
03	Methane	Decomposition of organic matter, Wetlands, Paddy fields	20	1.675 ppm	1 % /yr
04	Nitrous oxide	Release from nylon product, Nitrogen rich fertilizers Burning of biomass,	6	0.3 ppm	0.2 % /yr

The Greenhouse effect



Sources: Okanagan university college in Canada, Department of geography, University of Oxford, school of geography; United States Environmental Protection Agency (EPA), Washington; Climate change 1995, The science of climate change, contribution of working group 1 to the second assessment report of the intergovernmental panel on climate change, UNEP and WMO, Cambridge university press, 1996.

Effect of Global warming-

1) **Global temperature increases-** up to 1.5 – 5.5 up to 2050.

2) **Rise in sea level –** Increased by 0.2 – 1.5 m over the next 50-100 year.

Submerging problems of costal area and costal cities like Shanghai , Mumbai , Cairo , Bangkok , Sydney etc.

3) Effects on Agriculture :- Soil moisture decrease

Increase in evapo-transpiration rate

Increase in harmful pest and bacteria

Reduce in crop production

Changes in rainfall pattern

4) Effects on Human being:- High temp. favorable for growth of many germs or bacteria of different diseases like Malaria , Filarasis , Elephantiasis

Effect of Global warming-

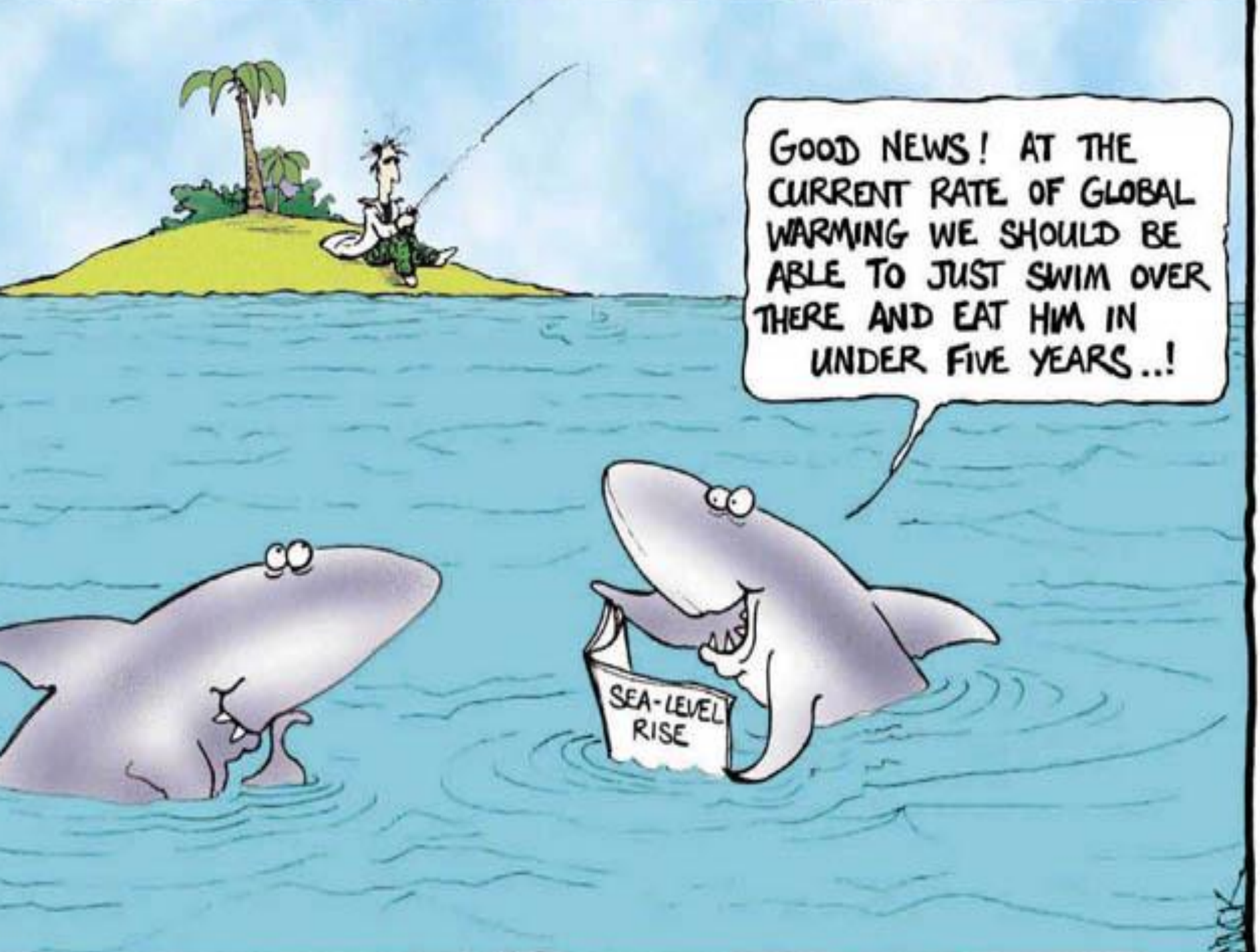

GOOD NEWS! AT THE CURRENT RATE OF GLOBAL WARMING WE SHOULD BE ABLE TO JUST SWIM OVER THERE AND EAT HIM IN UNDER FIVE YEARS..!
SEA-LEVEL RISE


Photo Credit/Crédit photographique: Dan Crosbie


Worth1000.com


New york City

Manhattan

Control Measures of Global warming-

- 1) Reduce the use of fossil fuel-
- 2) Plant more trees
- 3) Avoid deforestation
- 4) Cut off use of CFC
- 5)Adopt sustainable agriculture system
- 6) Laws
- 7) Public awareness

Acid rain

Acid rain means-

When fossil fuels like coal , petroleum and natural gas are burned then Sulphure dioxide and Nitrogen dioxide are release in to atmosphere and when these gases reacts with rain water or water vapors then there is formation of sulphuric acid and nitric acid and which is fall on the ground is called as acid rain.

Various industries

Vehicular emission

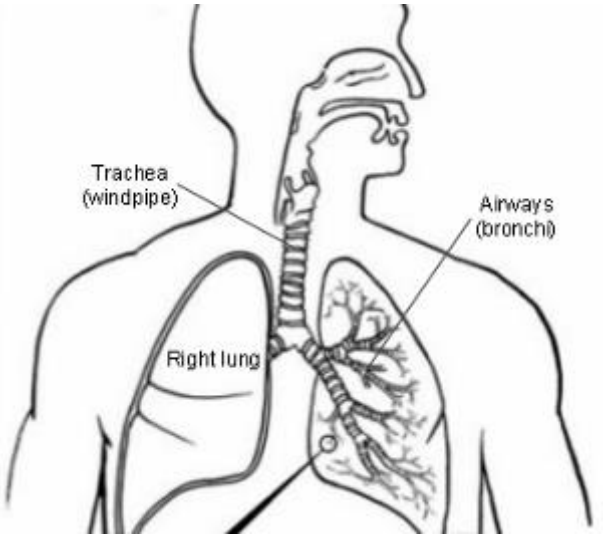
Effects of Acid rain

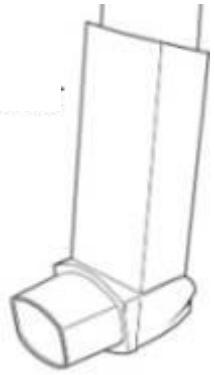
- Damage the forest ,Crops and soil ,fish and other living organism and total biodiversity damage
- Acidification of lake ,streams and soil.
- Corrosion of metal and building materials.
- Degradation of buildings , Historical buildings.
- Degradation of Paints
- Degradation of statues and monuments
- Disturb the forest and aquatic ecosystem i.e. reproduction failure and killing of fishes

Effects of acid rain on human being-

Humans can become seriously ill, and can even die from the effects of acid rain. One of the major problems that acid rain can cause in a human being is respiratory problems.

Also difficult to breathe, especially people who have asthma. Asthma, along with dry coughs, headaches, and throat irritations can be caused by the sulphur dioxides and nitrogen oxides from acid rain.





Lake acidification

Impact of acid rain on aquatic animals

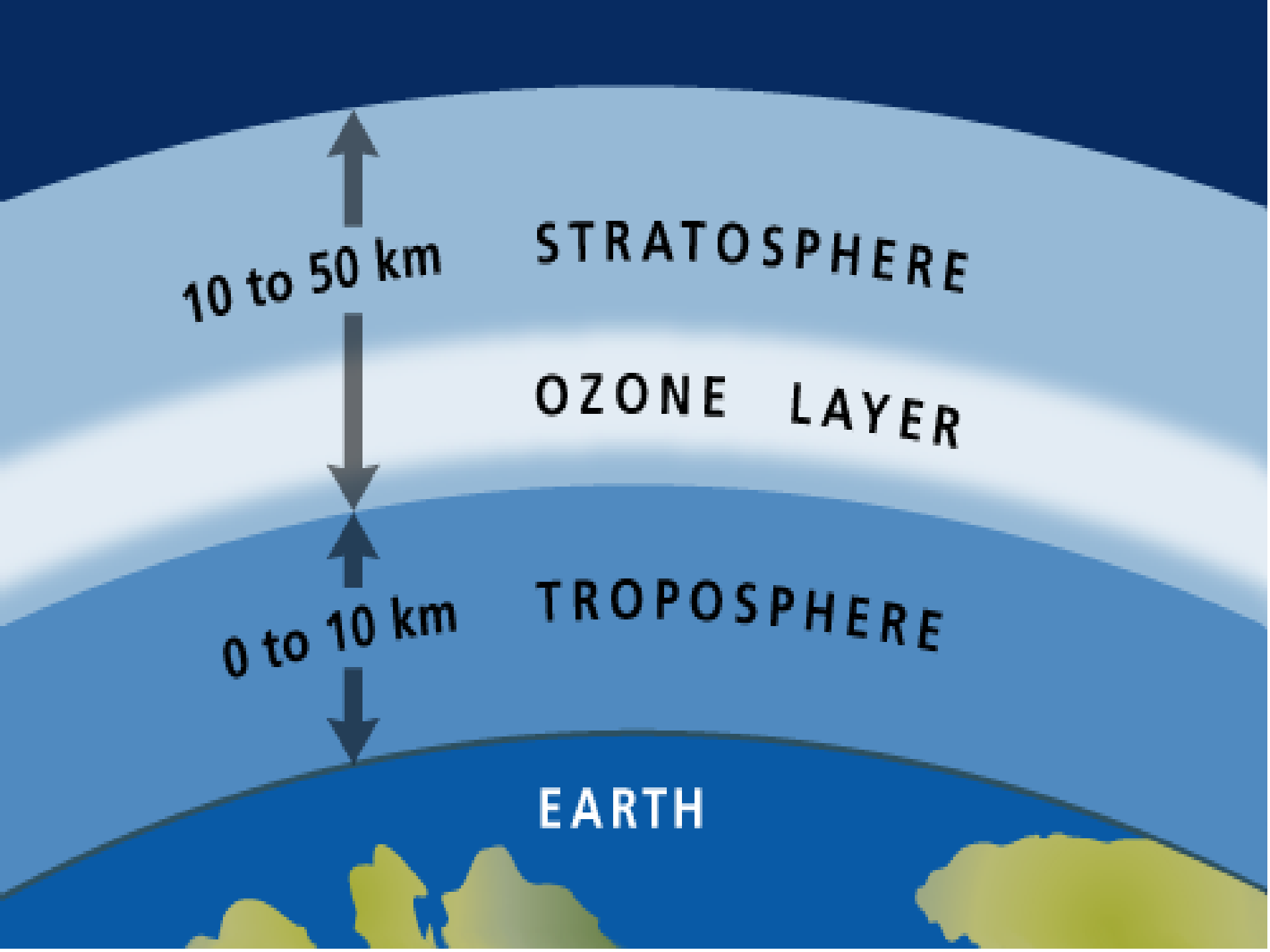
Impact of acid rain on non living material

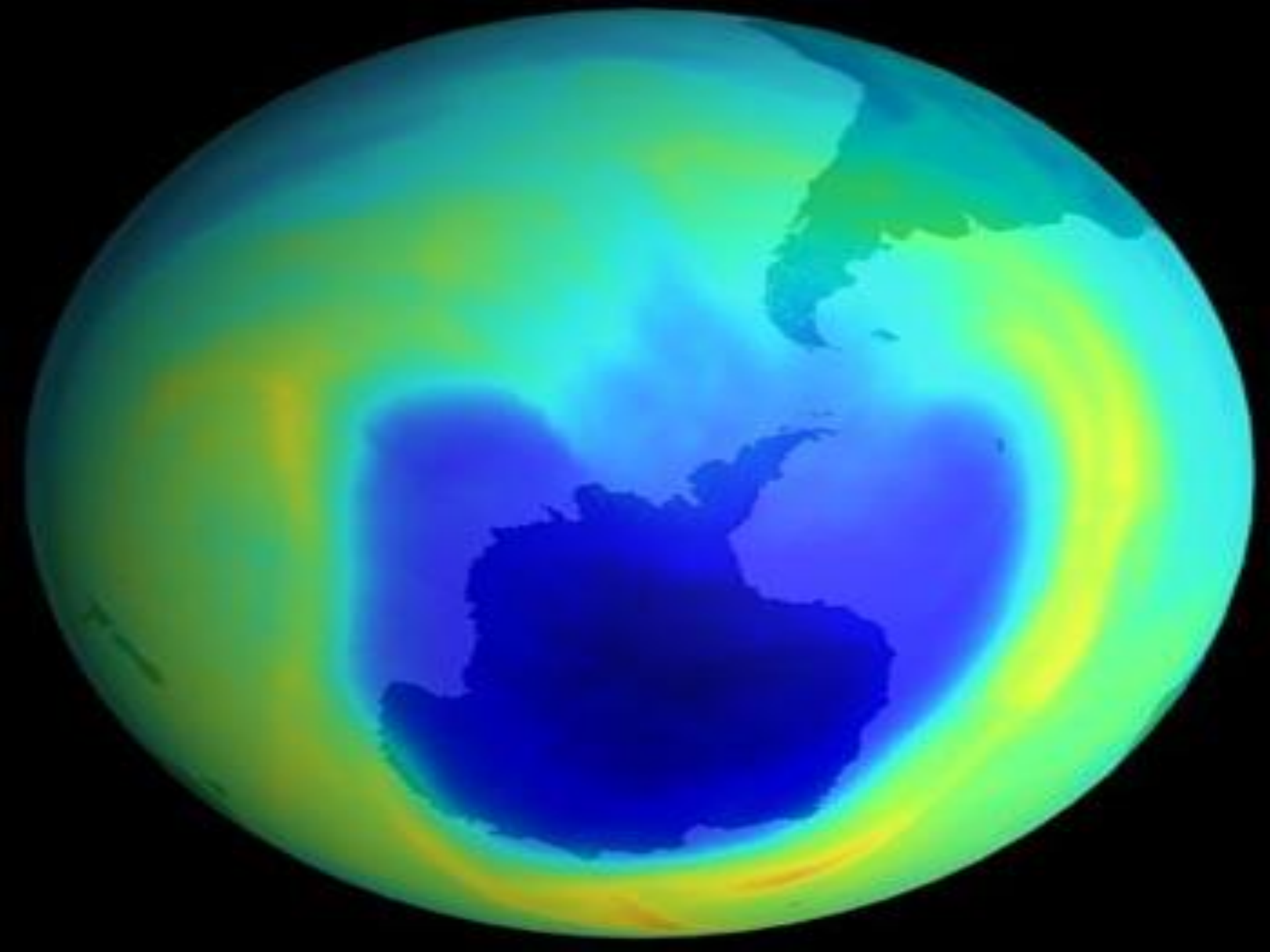
Impact of acid rain on Forest

Control Measures of Acid rain -

- Reduce the emission of SO_2 and NO_2
- The acidify soil and lake caused by acid rain can be neutralized by process of liming.
- Laws
- Public awareness

Ozone Layer Depletion


10 to 50 km
STRATOSPHERE
OZONE LAYER
0 to 10 km
TROPOSPHERE
EARTH



Ozone Layer depletion -

- **Ozone formula –** O_3 (3 oxygen atom)
- **Location –** Located in between 10 – 50 Km above the earth surface in **stratosphere**
- **Nature -** Three oxygen atom , Blue in color , has strong odor.
- **Formation -** Stratospheric ozone is formed by a photochemical reaction between oxygen molecule , oxygen atom and solar radiation.
- **Importance -** The ozone layer protects us from the harmful effects of UV rays radiated by sun.

Ozone Layer depletion -

Causes of ozone depletion – Increased stratospheric concentration of chlorine , From industrially produced CFC's ,Halons and selected solvents also Methyl Bromide , Air conditioners and refrigerators

Effects of ozone depletion - Temperature changes.

Rainfall failure .

Increases in the filtration of UV radiation to the lower layer of atmosphere leading to

Decrease in the chlorophyll contents of plants

Increases in the harmful mutations in all organisms.

Reduction in fish productive.

Increase in skin cancer among human being.

Ozone Layer depletion -

Measurement Unit – Dobson Unit (1 DU = 1 ppb)
225 DU in 1979
136 DU in 1985
94 DU in 1994

First Discovered - The Antarctic ozone hole was discovered by Dr. Joe C. Farman and his colleagues in 1985

Control measures of ozone layer depletion –

1) Ban or minimum use of Air conditioners and refrigerators
2) Laws
3) Public awareness.

Waste Land Reclamation

Waste Land Reclamation

Definition- The land which is not in use is called as waste land.

OR

Economically unproductive land suffering from environmental deterioration are know as waste land.

About one half of our countries is considered as a waste land.

Rajasthan has high waste land area (36 million ha.) followed by M.P. and A.P.

Types of waste land.

1) Culturable waste land –The lands which have capacity to develop natural vegetation cover .

E.g.-**Gullied land, Water logged land , Marshy land , Saline land , Lands with laterite lands , Shifting cultivation lands, Forest degraded lands and Industrial waste land etc.**

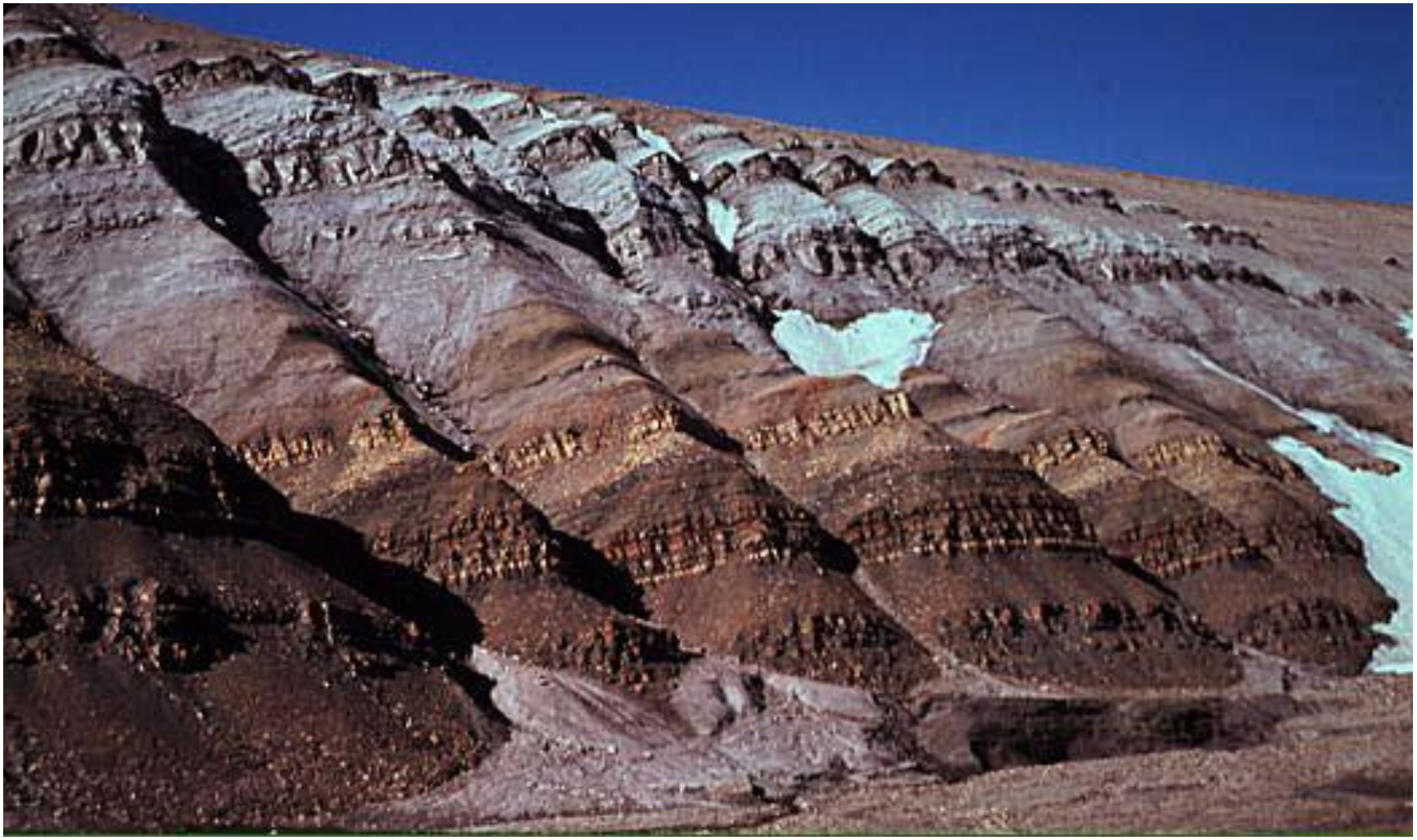
2)Un-Culturable waste land – The lands which have no capacity to develop natural vegetation cover .

E.g.**barren rocky land , steep slope land also ice and glaciers.**

Culturable waste land

The lands which have capacity to develop natural vegetation cover

Gullied land



Water logged land

Marshy land

Saline land

Laterite lands

Shifting cultivation lands

Forest degraded lands

Industrial waste land

Un-Culturable waste land

The lands which do not have capacity to develop natural vegetation cover

Barren rocky land

Steep slope land

ice and glaciers land

Causes of waste land

Many man made causes – like

1) Misuse and overuse of water and land resources
2) Deforestation
3) Overgrazing
4) Shifting Cultivation
5) Misuse and overuse of Chemical fertilizers and pesticides
6) Monoculture agriculture practices and over irrigate to crop lands
7) Various Developmental activities.

Reclamation of Wastelands

1) **Aforestation**
2) **Avoid misuse and overuse of chemical fertilizers and pesticides in fields**
3) **Proper Leaching should be required**
4) **Proper drainage should be required**
5) **Use modern irrigation system**
6) **Sowing of saline soil tolerable crops- like ..Barley, sugar beet ,date palm (highly salt tolerant crops) Rice ,Millets , Maize , Pulses ,Sunflowers ,Sugar cane (Medium salt tolerant crops) and Wheat , Sorghum ,Pearl , Soybean and coconut (Low salt tolerant crops)**
7) **Addition of Gypsum-Excess amount of sodium is removed.**
8) **Social Forestry**
9) **Environmental Laws**
10) **Public Awareness**

Resettlement and rehabilitation problems

Resettlement and rehabilitation problems

Causes of Displacement-

1) Displacement due to big dam- Big river valley projects like Hirakud dam(Orissa) , Bhakra nangal dam (Punjab) , Tehri dam (Uttaranchal) and Sardar Sarovar Project (Gujrat)
2) Displacement due to Mining- Jharia coal fields (Jharkhand)
3) Displacement due to creation of National parks-
4) Displacement due to natural Disaster- Earthquake ,Tsunami , Drought and Flood etc

Social Problems-

1) Social network are disturbed
2) Community structures are broken
3) Cultural identity is lost.
4) Traditions are weakened
5) Displaced people lose their land homes and jobs , properties
6) Children's education is interrupted
7) Joints families are separated

Rehabilitation Policy-

1) To provides the adequate compension
2) Displaced people get an appropriate share in fruits of development.
3) To provides social infrastructure and community services
4) To provides the physical rehabilitation and related facilities
5) To relocate them to a locally of their preference
6) To improve their standard of living

Save the Earth and Environment