

The act of creation – a visual language

So ***impactful***,

It carries & conveys
the perfect ***message***.

*The brain processes visual information
60,000 times faster than text.*

Soil: Soul Of Infinite Life

- Soil Pollution - alteration in natural soil environment due to man made activities
- Soil Pollutant - Any factor which deteriorates the quality and minerals of the soil
- Soil Pollutants ~ deforestation & soil erosion
- Forests & grasslands > Excellent Soil Binder > Food Chain > Survival of Species
- Directly related to supply of foods

Types of Soil Pollutions

1. Agriculture Soil Pollution
2. Pollution by Industrial effluents & solid wastes
3. Pollution due to urban activities

(Bio Degradable + Non Degradable)

Mining Activities

Indian cities produces solid wastes upto 50k to 80k cu.m. per day

It is related to degree of industrialization and intensities of chemicals usage.

Common chemicals are petroleum hydrocarbon, solvents, pesticides, lead or heavy metals.

Land degradation and Solid waste Mgmt are top priority issues related to development activities which need attention.

Causes of Soil Pollution

Main Source	Causes
Physical Agent	Soil Erosion, Shifting Cultivation, Deforestation, Unskilled irrigation, Mining
Biological Agent	Micro Organism, Unwanted Plant
Air Borne Sources	Acid Rain
Biocides & Industrial effluents	Fertilizers , Pesticides
Oil	Oil Spill, Bio Magnification
Heavy Metals & Radio Active Substance	Lead, Mercury, Radio Active Wastes
Urban & Industrial Sources	Industrial Waste , Plastic and land fills, Urban Waste

Constitutional Provisions

- **India** - few countries contains specific provisions for environmental protection
- **Article 21:** Right to life and personal liberty-
Right to a wholesome environment(SC interpretation)
- **Article 48A:** State shall Endeavour to conserve and protect environment and forest
- **Article 51A:** It shall be a duty of every citizen to conserve and prote

Legal Provisions

- **Forest Conservation Act 1980:** Why-Deforestation-cause of soil pollution and plays vital role in maintaining balanced ecological system-provisions of this act
- **Environment Protection Act 1986:**
 - -EIA Regulations
 - -Section 2(e)-procedure to handle hazardous substance and empowers govt to enact

World Soil Day

- *5 December every year – by FAO*
- *Soils and Pulses – a symbiosis for life*
- *Soil provided living space for humans as well as ecosystem services which are important for water regulation , supply climate regulation and biodiversity conservation , carbon sequestration and cultural services.*

Chemical pollution

- *Presence or increase in amount of chemicals in the environment which causes hazards to health of life and environment.*
- *Most of the times these chemicals are produced by man made activities.*
- *These chemicals have immediate or delayed effects according to their reaction with biotic and abiotic factors of the environment.*

Classification of chemical pollutants

Basis of Classification	Types	
Source	Natural	Man made
Activity	Agriculture, domestic	Industrial, mining
Physical form	Particulate, gaseous	Liquid, solid
Chemical nature	Inorganic	Organic
Biostability	Degradable	Non degradable
Life span	Non persistent	persistent

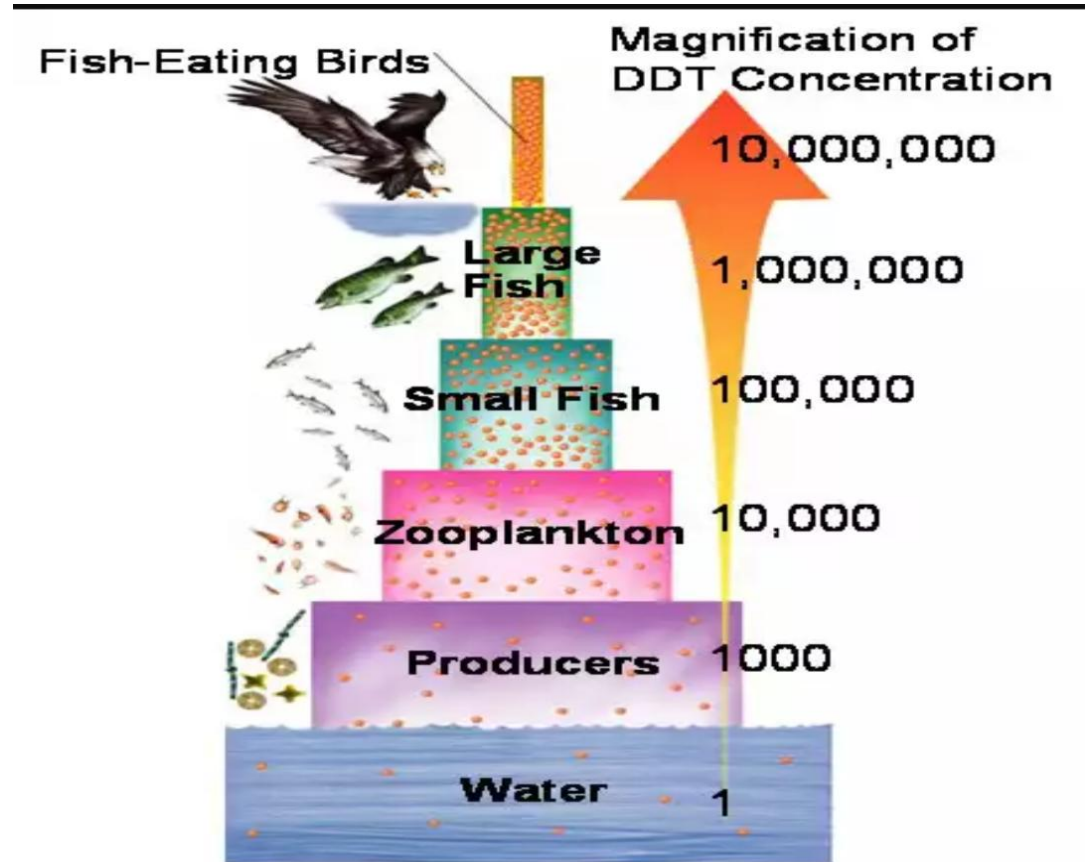
3. On Ecosystem

1. *Eco Toxicology*

2. *Bioaccumulation & Biomagnification*

3. *Impact on Food Chain*

4. *Habitat loss*



- *Hazardous Wastes (Management, Handling and Transboundary movement) Rules, 2008: case study- Suo Motu by SPCB against Vatva Industries Association Ahmedabad Guj-court judgment.*
- *The Manufacture, Storage and Import of Hazardous Chemical Rules, 1989*
- *The Chemical Accidents (Emergency Planning Preparedness and Response) Rules, 1996*
- *Hazardous Micro-Organism Rules, 1989*
- *Bio-Medical Waste (Management and Handling) Rules, 1998*
- *Plastic Manufacture Sales and Usage Rules, 1999*
- *The Municipal Solid Waste (Management and Handling) Rules, 2000*
- *Batteries (Management and Handling) Rules, 2001*
- *The Factories Act, 1948*
- *The Insecticides Act, 1968*
- ***Environment Management System (ISO 14001) and HAZOP study***

Remedies

- ✓ *3Rs (Reduce, Reuse, Recycle)*
- ✓ *Reforestation*
- ✓ *Economical innovation*
 - ✓ *Use of AAC Blocks & Fly Ash in place of only cement use*
 - ✓ *Plastic usage in Road Construction to increase durability*
- ✓ *SMC Works*
- ✓ *Phyto Remediation*
- ✓ *Bio remediation*
- ✓ *Sustainable use of resources*



AAC Blocks for Construction



