Project Topics :⟶ Moodle.

Assign	20%
Project	30%
Mid	20%
Quiz	10%
End	20%

05/08/2025 Comprehend Environment & Issues

(1) Genetic Erosion : Erosion is the process of loss
↳ Loss of native genes.
All plants & animals can adapt to most condⁿ...
But, changes in genetics leads to this redⁿ in ability.
The hybrid plants cannot handle climate changes.

(2) Use of fertilizers & pesticides : Contaminates soil & water bodies nearby.

(3) Soil pollution

(4) Deforestation

(5) Industrial waste : Dumping waste into water bodies.

(6) Animal poaching : Leads to extinction of wild life.

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Understanding our Env :

Cond^{ns} on Earth are unique

Perfect for the existence of life as we know it.

The life sustaining ecosystems on which we depen on are unique, as far as we know.

Definitions

Environment : External cond^{ns} under which organisms survive

Env. & Org. are interconnect.

Relationship b/w Env & Org = Ecology

Impact of env. on org & vice versa.. Its study is env.al ecology

Capital : Solar, Earth, Env
- Solar → Primary src of en. Ecosystem is there curr of this.
- Earth → Goods & services ... All O_2 giving, CO_2 taking, pollination!
- Env → Air, Soil, water ... Rsces present on earth.

Carrying Cap : What is the sustainable cap.

How much it can produce in a given time.

if prd^{n} > carry ⇒ Collapse.

Variable : How cond^{ns} are changing (time & space).

Seasonal — Climatic

Short — Long

Sust. & dev. : There should be usage but limited..

Economy will rise initially but it'll go down later.

has to be a bal b/w env. & ecology.

Resources:

(1) Renewable : Plants & Animals.
Perish & Replenish.
Cont. regeneration

(2) Non renewable : Coal, Petroleum.
Over time there'll be use in these
Consumption ↑ ⇒ loss of these rsces

Are renewable... potentially renewable?
If we keep cutting down before repro.n phase, we'll lose these. Same for fishes & other wildlife.
We're using the regeneration.

Biodiversity:

Genetic	Species	Ecological diversity
Genes can have many Species -	Group of organisms Within a gene -- Say solanum, there are species like tuberosa, melongena.	Aquatic → freshwater, salt Forests → evergreen, grassland Marine → Oceans -- All these comb. forms.

Env. deg: Excess extraction & consumption.
Use of fossils & all release greenhouse gases.
↳ Deg.

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Env. ethics :

To know why & how we should save rsces.

Env. Sci is not Environmentalism

⇓ ⇓

Humans & Environment relation — Brings awareness in ppl.. Movements. eg: Chipko

Env. Science

I Earth's life supp. sys. — II Human Cultu respher.

Atmosphere
Hydro
Litho
Bio

⟷ Population Size, World views & ethics, Economics, Politics.

Pop. size ↑ ⇒ All I's get affected

Projects should get approval of EIA..

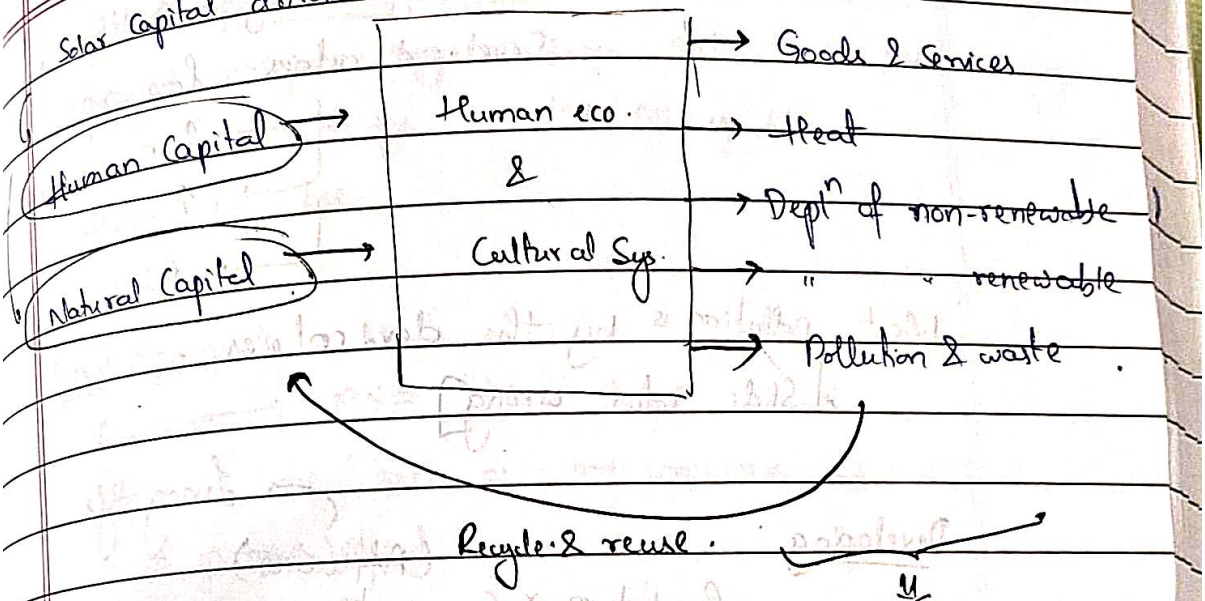
But there's a clash b/w politicians, industrialists.

The info is not that clear.. So, compensation of rsces are yet due.. This causes degradation.

The tragedy of the commons

- Garrett Hardin, 1968.
- In a "commons" open to all, unregulated use will deplete limited rsces
- See eg. in slide
- Everyone starts utilising rsces for themselves.. This exhausts rsces

Solar capital drives the other 2



- More fossil fuels ⇒ More Greenhouse, lead to LST, Forest ↓, water bodies ↓, Land Surface Temp; We pollute everything, CO_2 ↑ses, waste ↑ses, CO_2 sinks ↓se

Natural capital degrad.

- Pop ↑ses ⇒ Too much rsces convert to products
- Unsustainable rsc use : Uses are less. even then everyone wants to create products. e.g: Cars more.. Buyers less.
- Poverty : They'll degrade rsces for their survival.
- Not including env. costs of eco goods & serv. in their market prices'. Taking nature for granted.
- We try to manage & simplify nature with barely any knowledge
- Exp. ↑se of flow of mat. rsces through world ↑ses economic Sys. but it'll ↓se later.

Global Outlook : Poverty mostly in Southern part
Developed nations : low pop.
↳ ↑ rsc consumption
↳ ↑ wealth
↳ Pollute more

Most pollution is by the developed nations.
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Developing : (Affluence) ← Living style.
Population x Consumption per person x
Technological impact per unit of consumption (T)

= I : Env. impact of pop.

P x A x T = I

See studies

* EVS helps avoid mistakes made by past civilizations

Lesson of Easter Island :

300 AD Initially less pop, more rsc.
600 AD Flourished
750 AD Decline starts .·. overused resources.
1722 AD Entire civ. became a barren landscape.
↑ wind breaks

Denude forest → erosion → fast runoff → less freshwater
↳ starvation / pop decline ← lowering crop yields ↵
↳ Civilisation collapse.

Fall of Mesopotamian civilization

prolonged irrigation sys → degr. soil → not arable
→ food shortage ← ↓ce crop yields.
↳ Pop ↓se.

Great Sparrow:

~~America~~ : 1958 : Mao : China.

Sparrows were seen as over consumers of cereals.

60M sparrows killed

Almost reduced sparrows.

Sparrows feed on insects that spoil crops.

Now that they're dead, there was more damage --

Environmental Problem:

Perception of what constitutes a problem varies b/w individuals & societies & time.

e.g: DDT: Kills mosquitoes.

But, other countries banned DDT.

~~It~~ Is carcinogenic.

~~EVS~~:

Minamata:

Mercury poisoning

Has impact on nervous system.

EVS: Systematic study of our env. & our place in it.

Since, env. probs are complex, evs draws on many