

3rd term Exam

EVS - 001

O-1(i)

The environment is defined as the whole physical and biological system surroundings also other organisms with various factors (soil, air, water and light).

These are abiotic factors and biotic factors including all forms of life.

Components of environment

- ↳ • Atmosphere → A thick gaseous layer, surrounding earth spread upto 300km above earth's surface. Other than gases there are dust, water vapour etc.
- ↳ • Lithosphere → Outmost shield of Rock planet. The earth is oblate spheroid, including core, crust, mantle.
- ↳ • Hydrosphere → All water surface on earth comes under Hydrosphere, around 71% of water is present on Earth.

Also on basis of structure it can be classified as :-

Abiotic

- ↳ Non living
- ↳ Physical factors: Temperature, water, light etc.
- ↳ Inorganic and organic substances

Biotic

- ↳ Living parts
- ↳ Interrelated population belonging to different species

Interaction →

They effect each other somehow, temp, light, soil affect climate and habitat, some long term modification have been significant, as incorporation of Oxygen, causes break down of CO_2 by Aerobic Micro-organism. Also, like forest affect climate, temp etc

This is how environment interact.

Q-1 (iii)

Ecosystem → It is basic functional unit of ecology. The term is geographic area where plants, animals and other organisms, as well as landscape, weather etc work together to form bubble of life.

* Pyramid of ~~Aquatic Ecosystem~~ Biomass for aquatic ecosystem:

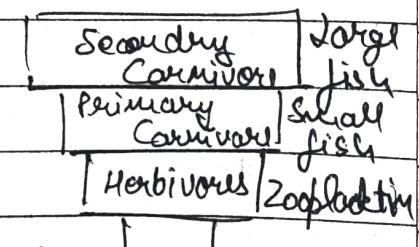
→ Each level takes amount of biomass produced by each trophic level.

Here, pyramid is inverted, primary producer is much less than the

Zooplankton which is less

than the small fish and

big fish having the Max. biomass.



↳ Phytoplankton

* Pyramid of Energy for Aquatic ecosystem

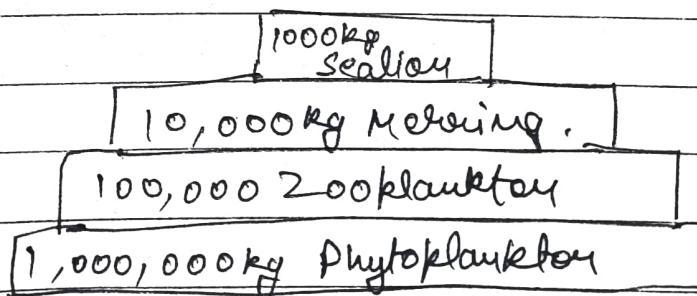
Only type of pyramid that is always upright as energy flow in food chain is unidirectional

Top predators	Gray shark Bluefin Tuna
Intermediate predators	Bar Jack / Black grouper
First Order Consumer	Zooplankton / Blul tongue / Queen conch
Primary Producers	Phytoplankton / Seagrass / Algae

* Pyramid of Numbers

If shows population, or abundance in terms of individual level of food chain.

→ Around 1,000,000 kg of phytoplankton are present in ocean, 100,000 kg of zooplankton, 10,000 kg of Merring and 100 kg of sealion.



Aquatic ecosystem

Q2 (i)
Ans 2)

Advantages

- RECREATION → They provide facilities supporting activities as boating, skiing etc
- Flood control → Controls flooding and loss of life and property, Divert water for other uses.
- Water storage → Create reservoirs, that supply water in industrial / Municipal / agricultural way.
- Irrigation → Irrigate cropland by water stored behind dams, useful in increasing jobs in crop yield.
- Navigational → They provide inland river transportation throughout heartland of nation.

Others, → Mine Tailings, Electrical Generation, Debris control.

Disadvantage

- Extremely expensive to build, adhere to very high standard is needed.
- Takes decade of operation to make it profitable due to high investments.
- Flooding in large areas because of dam destroy natural environment.

→ RELOCATION → People ~~are~~ need to move to free the area in manufacturing the dam. This is ethical concern.

→ Create Geological Damage as, triggered earthquakes are there creating land movement.

→ Stops aquatic fauna migration.

O2(i)

Ans(ii), Forest functions

- Watershed protection → Reduce rate of surface run-off water → Prevents effect of drought.

- Atmospheric regulation

→ Absorption of Solar heat during evapo-transpiration

→ Maintain CO₂ level → Maintain local climate condition

- Erosion control → Holds soil [By preventing rain from directly washing soil away]

- Land bank → Maintain soil nutrients and structure

- Local use → Food [Plants, fishing], Fodder, Fuel [wood, charcoal], Poles, Timber, Fiber, Sericulture, Apiculture, Medicinal plants.

- Market use → Create source of income,
 - minor forest produce - (non wood produce)
 - Major timber extraction → Paper pulp, industrial use etc.

CASE STUDY

Joint Forest Management

The need to include local communities in Forest Management has become a growing concern. Local people will only support greening an area if they can see some eco-nomic benefit from conservation. An informal arrangement between local communities and the Forest Department began in 1972, in Midnapore District of West Bengal. JFM has now evolved into a formal agreement which identifies and respects the local communities rights and benefits that they need from forest resource. Under JFM scheme, Forest Protection Committees from local community members are formed. They participate in restoring green cover and protect the area from being over exploited.

Q3(i)
Q3(ii)

Nuclear Pollution Case Study

It has become a new form and perhaps more harmful type of pollution. It has increasing concerns after the disastrous Fukushima nuclear leak on March 11, 2011. In order to assess the impact of the Fukushima accident on ECS a highly model is set for evolution of ^{137}Cs concentration. Here account ~~as~~ on radionuclides exist in ocean. It is found they from Fukushima peak do reached ECS, through concentration far below harmful level.

ECS reached peak in 2019; afterwards the out flux Tokara Strait and Tsushima exceeds the influx through two southern waterways and material returns in 2021 in original state.

Global Warming Case Study

It is accelerating faster than what climatologists had calculated a few years ago. In 1995, the intergovernmental Panel on Climate Change predict that global warming would rise temperatures by 3.5 to 10 degrees C during the 21st century, if the present trends continue. It is now believed that this could be much greater. This would lead to not only temperature changes but in the amount of rainfall. India may see great annual fluctuations in rainfall leading to floods and drought.

Q3(i)
Ans 3(i)

- * Surface water resource → Commonly used method to supply resource, primary includes - rivers, lakes, streams, reservoirs and wetlands, it has freshwater.
- * Ground water Resources → These are underground resource filled through cracks and larger sources, used by well, tube well etc.
- * Storm water resources → Comes by heavy weather such as rain, snow or hail? Water flows over the land. Gathers in contaminants.
- * Waste water resources → Water used in households, manufacture, agriculture, disposed through drains (contaminates)
- * Saltwater resource → Oceans make 70% of the planet, the salty water is contained in sea as a major source.

Rain water Harvest → It is important to store rain water, as we use water for basic needs. It is stored through Harvesting and use it as ground water, This system maintain balance around water used and recovered.

Q4(i)
Ans 4(i)

- * Investments → Higher consumption has increased investments as needed.
- * Oversize of Resource → Oversize of country's natural resources is where majority population depends on agriculture / transport for livelihood.
- * Urbanisation → problems such as housing, power, water transport etc.
- * Per Capita Income → Leads to rise in cost of consumption of goods, decline accumulation of capital as increased family needs
- * Standard of living → Increased demand of food/cloth, etc is not evenly fulfilled increasing costs so, standard is decreased.
- * Employment → Major population becomes unemployed as resources are limited so, jobs do not increase
- * Social Infrastructure → Rapid growth, needs investments in direct sources from asset.
- * Environmental Damage → Over grazing and cutting of forest is due to accumulate population and food.

- * Capital formation: As population increases, more food with less money is required which retards capital formation.
- * Agricultural development → Agriculture is main occupation, so with growth the land-man ratio is distributed, Pressur of population on land increases.

(Q4(i)) dis 4(iii) programs and schemes for women and child welfare are.

- * Swayamsidha: It is integrated scheme for self-help groups. Covers services access to micro-credit and promote micro-enterprises.
- * Swasthakti project: Aims to increase access to resources for better quality of life, and time reduction devices, for health and education too to impart skills.
- * Child Development Services scheme (CDS) → Started in 1975 to give special coverage to slums in urban areas. Includes delivery of packages of immunization, healthy checkups, nutrition etc.
- * Support to Training and Employment Programme for women → Provide new skills and knowledge to poor assets women in agriculture, animal husbandry etc also has handwoven khadi and village industry sectors of employment.

- * Swarajamban → This scheme provides training and skills to women to enable them to obtain employment or become self-employed.

Other Schemes

- * Cradle/Day care center for children of working andiling mothers
- * Hostels for working women
- * Swoadhar
- * Rashtriya Mahila Kosh
- * Welfare of street children.

Q5(i)

Pollution is the introduction of contaminants into the natural environment that cause adverse change, pollution can take the form of chemical substance or energy, such as noise heat or light.

Role of individual in preventing pollution

a) Individual should use cycles instead of motor vehicles.

b) Reuse of items if possible

c) Products that are made of Recycled material should be in use

d) Use gunny bags of jute rather than plastic bags

e) Take part in environmental conservation drives such as tree planting

f) use water resource efficiently

g) Use Solar heaters and cookers to save energy

h) Promote family Planning, Be aware, Use less resources.

(Ans 5iii)

(Ans 5iv)

India is mega diversity:

- * Mega - diverse is one where harbours the majority of Earth's species.
- * India has diversity North to South, East to west.
- * It has 14 major basins through which drain numerous rivers.
- * Thousands of crop variety are grown, nearly 140 native breeds of farm livestock, continue to thrive in diversified farming system.
- * Recognized as one of the eight Neolithic centers of origin and diversity of crop plants, have more than 300 wild ancestors.
- * India has high species richness and more no. of endemic species unlike other small countries.
- * India is diverse with only 2.4% of the land area of world, but accounts for 7.8% of the recorded species of world.
- * Wild relatives of crop plants in Indian Native breeds are many. They migrate from one place to another.