



MPPSC MAINS-2021 PAPER-3 UNIT-9

**Subject:
ENVIRONMENT**

Sample Notes



Syllabus

- **Definition scope and dimensions of environment physical economics cultural Educational psychological etc concepts of environment in indian context concepts of environment in modern world**
- **Effect of human activities on environment ethics and values related to environment changes Issue and challenges related to environment causes and effect of environment degradation**
- **Environment education programmes for mass awareness environmental education and its relationship with health and safety Eco friendly technologies conservation of energy constitutional provisions related to environment and its protection**
- **Environmental protection policies and regulatory framework**



Defination Scope and Dimensions of Environment: Physical, Econimic, Cultural, Educaitional, Psychological etc, Concepts of Environment in the Indian context, Concepts of Environment in Modern World.

The environment of India comprises some of the world's most biodiverse ecozones. The Deccan traps, gangentic plains and the Himalayas are the major geographical features. The country faces different forms of pollution as its major environmental issue and is more vulnerable ot the effects of climate change being a developing nation. India has laws protecting the environment and is one of the contries that signed the convention on biological diversity (CBD) treaty. The ministry of environment, forest and climate change adn each perticular state forest departements plan implement environmental polices throughout the country.

Enviroment

The environment can be defined as a sum total of all the living and non-living elements and their effects which influence human life. While all living or biotic elements are animals, plants, forests, fisheries, and birds, etc. The non-living or abiotic elements include water, land, sunlight, rocks, and air, etc.

Physical environment

physical environment is where individuals live, learn, work, and play. People interact with their physical environment through the air they breathe, water they drink, houses they live in, and the transportation they access to travel to work and school.

Cultural environments

Cultural environments are environments shaped by human activities, such as cultural landscapes in the countryside, forests, urban areas and cities,



fixed archaeological structures on land or water, constructions and built environments from different ages, along with bridges, roads, power lines and industrial.

Economic environment

The economic environment refers to all the economic factors that affect commercial and consumer behavior. The economic environment consists of all the external factors in the immediate marketplace and the broader economy. These factors can influence a business, i.e., how it operates and how successful it might become

Functions of Environment

1) Supply of Resources

- The environment offers resources for production.
- It includes both renewable and non-renewable resources.
- **Example:** Wood for furniture, soil, land, etc.

(2) Sustains Life

- The environment includes the sun, soil, water, air which are essential for human life.
- It sustains life by providing genetic and biodiversity.

(3) Assimilation of Waste

- Production and consumption activities generate waste.
- This occurs mostly in the form of garbage.
- The environment helps in getting rid of the garbage.

(4) Enhances Quality of Life

- Environment enhances the quality of life.
- Man enjoys natural beauty like rivers, mountains, deserts, etc.
- These add to the quality of life.

Objectives of Environment Education

- **Knowledge:** to help social groups and individuals, gain a variety of experiences and acquire a basic understanding of the environment and its associated problems.
- **Awareness:** to help social groups and individuals acquire an awareness of and sensitivity to the total environment and its allied problems.



- **Attitudes:** to help social groups and individuals to acquire a set of values and promote a feeling of concern for the environment and provide motivation for actively participating in environmental improvement and protection.
- **Participation:** to provide social groups and individuals with an opportunity to be actively involved at all levels, working towards the resolution of environmental problems.
- **Skills :** to help social groups and individual to acquires the skills for identifying and solving environmental problems
- **Evaluation Ability:** to evaluate environmental measures and education programs in terms of ecological, economic, social and aesthetic factors.
- The overall goal of environmental education can be expressed in another form as three principal

Scope of environment

The wide spread use of chemicals in agriculture and industry has introduced new dimensions to sustain eco balance in the system. This possesses potential threat to human health through the spread of pollutants through water and soil, as well as through food chain. The need for use of environment science is drawing the intention of policy makers for pollution control to sustain the life and nature.

Study of environmental science helps us to understand the various components of environment and disturbing factors and helps to find solution to overcome the negative effect of these factors. The industrial waste which contains highly toxic elements like lead, mercury and arsenic is discriminately discharged into the rivers. The water used for drinking, irrigation and other purposes from these contaminated sources is a serious threat to the human health. Study of environment science has helped in manufacturing pollution control equipment, sewage and effluent treatment plants, and biomedical waste treatment.

The essence of environmental science is multidisciplinary in nature and helps to identify environmental issues which are directly or indirectly concerned with environment. College and university students, corporate houses can prove leaders to protect the environment and conservation of



natural resources by understanding the multidisciplinary nature of environment studies.

Policy makers from various government organisations can play an important role to protect and conserve environment by understanding the nature of environmental issues facing the country. Natural resources of any country are either renewable or non renewable.

Most countries are exploiting their resources at fast rate. Increased population is creating stress on these resources. India, being in the phase of development is exploiting its resources at a fast rate. Increasing industrialisation, deforestation, soil erosion, increased mode of transformation and adoption of high intensity agriculture has contributed to degradation of environment .Our ecosystem which is constituted of air, soil and water cannot survive for long, unless efforts are made to protect the environment from pollutants. Without suitable habitat, living organisms cannot survive. With increased level of living standards, rate of consumption and disposal of waste has created problems due to enhanced activities for product manufacturing, marketing, and management, etc. Changed environment doesn't affect only the poor but also affects the rich people.

Environmental studies has lot of scope in the areas like control of environment pollution, conservation and management of natural resources, balance disturbance in ecology and biodiversity ,control and education of human population and systematic development with keeping eye on environment pollution .Environmental science is problem oriented and seeks knowledge about the natural environment and its impact on living organisms. So there is a need of best idea and information to deals successfully with environmental problems.

Cultral enviroment

A cultural environment is a set of beliefs, practices, customs and behaviors that are found to be common to everyone that is living within a certain population. Cultural environments shape the way that every person develops, influencing ideologies and personalities. Cultural environments are determined by the culmination of many different aspects of culture that influence personal choices and behaviors.



Religious beliefs are an important building block of a specific cultural environment. For many cultures, a certain religion has been a critical part of everyday living for generations. Outsiders need to be aware of the customs and traditions related to specific religion in order to respectfully navigate a certain cultural environment.

Family and the relationship within the family are additional factors that determine a cultural environment. Many cultures are structured around families, while others promote individuality and self-sustainability. Like religion and family, language is the third most important element of a cultural environment. Outside of these components, educational and social systems affect the structure of a cultural environment.

Social systems may determine customs or taboos that are important to a particular region, while education may determine what types of ideologies are publicly shared. When visiting a new country or region, it is important for visitors to understand the cultural environment in order to protect themselves from shame, embarrassment or the act of offending a stranger.

Economic environment

The economic environment refers to all the economic factors that affect commercial and consumer behavior. The economic environment consists of all the external factors in the immediate marketplace and the broader economy. These factors can influence a business, i.e., how it operates and how successful it might become.

The economic environment consists of different things for different people. For example, for a farmer, the weather and price of fertilizers are important factors.

Physical environment

The physical environment is where individuals live, learn, work, and play. People interact with their physical environment through the air they breathe, water they drink, houses they live in, and the transportation they access to travel to work and school. Poor physical environment can affect our ability and that of our families and neighbors to live long and healthy lives.



Clean air and safe water are necessary for good health. Air pollution is associated with increased asthma rates and lung diseases, and an increase in the risk of premature death from heart or lung disease. Water contaminated with chemicals, pesticides, or other contaminants can lead to illness, infection, and increased risks of cancer.

Very short Question (3 marker)

Qus: Define Environment?

Ans: An Environment is everything that is around us which includes both living and non-living things such as soil, water, animals and plants which adopt themselves to their surroundings.

Qus: What is ecosystem?

Ans: An ecosystem is a geographic area where plants animals and other organism, as well as weather and landscape, work together to form a bubble of life.

Qus: What is ecotone?

Ans: An ecotone is a transition area between two biological communities meet and integrate. It may be narrow or wide and it may be local or regional.

Qus: What is Biome?

Ans: The complex of several communities in any area represented by biological organisms sharing a common climate.



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Qus: Define Ecological succession?



Ans: It is a natural process by which different communities colonise the same area over a period of time is a definite sequence.

Qus: What do you understand by ecological niche?

Ans: The ecological niche of an organism includes a specific volume of physical space occupied by it circumscribed by the interaction of various environmental factors and its trophic position



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Qus. who is the famous Indian environmentalist.

Ans: Salim ali was an indian ornithologist and naturalist, known as the 'birdman of India' salim ali was among the first Indian to conduct systematic bird surveys across India.

Qus: Who is the father of Indian ecology?

Ans: Ramdeo Misra: He was laid the foundation of ecology and environmental science in the country. He was called 'Father of Indian Ecology' by the ecologists' world over.

Qus: When did global warming start.

Ans: Scientist generally regard the later part of the 19th century as point of which human activity started influencing the climate, but the new study brings that date forward to 1830.

Qus: What is CBD environment?

Ans: The Convention on Biological Diversity (CBD) is the international legal instrument for "the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources" that has been ratified by 196 nations.

Qus: What is Atoll.

Ans:The habitat inside the **atoll**, protected from the open sea by the sturdy reef, is called a lagoon. An **atoll** is a ring-shaped coral reef, **island**, or series of islets. An **atoll** surrounds a body of water called a lagoon. Sometimes, **atolls** and lagoons protect a central **island**.

Qus: Environment in mordern wold



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Qus: who is the leader of Chipko movement?

Ans:One of the most prominent leaders has been Sunderlal Bahuguna, a Gandhian activist and philosopher.

Short Question (5 marker)

Qus: What are the scopes of environment?

Ans: The scope of environmental studies is very wide and it deals with many areas like.

- (i) Conservation of natural resorces.
- (ii) Ecological aspects.
- (iii) Pollution of the surrounding natural resources.
- (iv) Controlling the pollution.
- (v) Social issue connected to it.
- (vi) Impacts of human population on the environment.

Qus: Define physical dimensions of environemtn?

Ans: The physical environments consist of abiotic or non-living component such as land, air and water. These are called lithosphere, atmosphere and hydrosphere.

- (a) **Lithosphere**- It is the solid part of the earth which is made of rocks and soils.
- (b) **Atmosphere**- It is the blanket which surrounds the earth on all sides. The atmosphere plays a crucial role for the sustenance of life on the earth.
- (c) **Hydrosphere**- It consists of water bodies on the earth's surface. It refers to oceans plus their extensions into other realms like lakes and rivers, water.

Qus: What do you understand by cultural dimension of environment?

Ans: It is concerned with the social behaviours of the organisms. All the organisms of the floral and the faunal environment.

Organisms organise themselves into social groups and form what is known as social environment. It involves population interaction and



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major environmental issue in India currently.

Qus: What type of environment is India?

Ans: India has some of the world's most biodiverse ecozones- desert high mountains, highlands, tropical and temperate forests swamplands plains, grass land, area and surrounding rivers and an island archipelago. It hosts three biodiversity hotspots the Western Ghats, the Himalayas and India- Burma region.

Qus: What is major environmental issue in India?



Ans: Air pollution, poor management of waste growing water scarcity, falling groundwater tables, water pollution, preservation and reality of forests, biodiversity loss and land/soil degradation are some of the major environment issue india faces currently.

Qus:What is environmental science and its scope?

Ans:It is the science of physical phenomena in the environment. It studies of the sources, reactions, transport, effect and fate of physical and biological species in the air, water and soil and the effect of from human activity

Long Question (11marker)

Qus: How climate change effect Indian environment?

Ans:India has questioned the rush at the United Nations (UN) to declare climate change an international security issue, potentially giving the Security Council the right to take action on it, and pointed out the pitfalls in the approach.

- According to India, A “mere decision of the Council” to take over enforcement of climate change action would disrupt the Paris Agreement and multilateral efforts to find solutions.
- Climate change is a global threat to security in the 21st century. We must act now to limit future risks to the planet we share and the peace we seek.
- **Global Temperature Rise:** The planet’s average surface temperature has risen about 1.62 degrees Fahrenheit (0.9 degrees Celsius) since the late 19th century, a change driven largely by increased carbon dioxide and other human-made emissions into the atmosphere. Most of the warming occurred in the past 35 years, with the five warmest years on record taking place since 2010.
- **Warming Oceans:** The oceans have absorbed much of this increased heat, with the top 700 meters (about 2,300 feet) of ocean showing warming of more than 0.4 degrees Fahrenheit since 1969.
- **Shrinking Ice Sheets:** The Greenland and Antarctic ice sheets have decreased in mass. Data from NASA’s Gravity Recovery and Climate



Experiments show Greenland lost an average of 286 billion tons of ice per year between 1993 and 2016, while Antarctica lost about 127 billion tons of ice per year during the same time period. The rate of Antarctica ice mass loss has tripled in the last decade.

- **Glacial Retreat:** Glaciers are retreating almost everywhere around the world — including in the Alps, Himalayas, Andes, Rockies, Alaska, and Africa.
- **Decreased Snow Cover:** Satellite observations reveal that the amount of spring snow cover in the Northern Hemisphere has decreased over the past five decades and that the snow is melting earlier.
- **Sea Level Rise:** Global sea level rose about 8 inches in the last century. The rate in the last two decades, however, is nearly double that of the last century and is accelerating slightly every year.
- **Declining Arctic Sea Ice:** Both the extent and thickness of Arctic sea ice has declined rapidly over the last several decades.
- **Ocean Acidification:** Since the beginning of the Industrial Revolution, the acidity of surface ocean waters has increased by about 30 percent. This increase is the result of humans emitting more carbon dioxide into the atmosphere and hence more being absorbed into the oceans.

Qus: Write essay on Global warming.

Ans: Global warming is the phenomenon of a gradual increase in the temperature near the earth's surface. This phenomenon has been observed over the past one or two centuries. This change has disturbed the climatic pattern of the earth. However, the concept of global warming is quite controversial but the scientists have provided relevant data in support of the fact that the temperature of the earth is rising constantly.

There are several causes of global warming, which have a negative effect on humans, plants and animals. These causes may be natural or might be the outcome of human activities. In order to curb the issues, it is very important to understand the negative impacts of global warming.

Impacts of Global Warming:

- Rise in Sea level

- Changes in rainfall patterns
- Increased likelihood of extreme events such as heat wave, flooding, hurricanes, etc
- Melting of the ice caps
- Melting of glaciers
- Widespread vanishing of animal populations due to habitat loss
- Spread of disease (like malaria, etc)
- Bleaching of Coral Reefs
- Loss of Plankton due to warming of seas.



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- ❖ **Natural Causes of Global Warming:**
- ❖ **Volcanoes-** Volcanoes are one of the largest natural contributors to global warming. The ash and smoke emitted during volcanic eruptions goes out into the atmosphere and affects the climate.

Qus: Give Indian response to climate change and global warming.

Ans: The first Assessment of Climate Change over the Indian Region has been published by the Ministry of Earth Sciences (MoES).

- It is **India's first-ever national forecast on the impact of global warming on the subcontinent in the coming century.**
- These projections, based on a climate forecasting model developed at the **Indian Institute of Tropical Meteorology (IITM), Pune**, will



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- The region is **already highly vulnerable** to climate-related variability in temperatures, rainfall and snowfall.
- **By 2100, the frequency of warm days and warm nights might also increase by 55% and 70% respectively**, as compared to the period 1976-2005 under the RCP 8.5 scenario.
- The **incidences of heat waves over the country could also increase by three to four times**. Their **duration of occurrence might also increase** which was already witnessed by the country in 2019.
- **Between 1900 and 2018, the average temperatures of India rose by 0.7°C.**
- This rise in temperatures has been largely attributed to **global warming** due to GHG emissions and land use and land cover changes.



- However, it has also been **slightly reduced by the rising** aerosol emissions in the atmosphere that have an **overall cooling characteristic**.
- The **latest global climate change assessments** indicate a **rise in worldwide average surface air temperatures by 5°C** by the end of the century if human activities keep emitting GHGs at the current rate.
- The **global average temperature** in the last century has **gone up by 1.1°C**, according to the latest estimates by the IPCC.
- ❖ **Rainfall:**
- **Overall rainfall during the monsoon season has decreased by 6%** between 1950 and 2015.

Qus: Explain ozone layer depletion and its effect.

Ans: Ozone layer depletion refers to the thinning of the protective ozone layer in the atmosphere.

- This happens when certain chemicals come into contact with ozone and destroy it.
 - Chemical compounds that cause ozone layer depletion are called Ozone Depleting Substances (ODSs).
 - Examples of ODSs are chlorofluorocarbons (CFCs), hydrochlorofluorocarbons (HCFCs), carbon tetrachloride, methyl chloroform, hydrobromofluorocarbons, halons, etc.
 - Chlorofluorocarbons (CFC): The use of CFCs is one of the main reasons for the depletion of the layer. They are usually used as a coolant in refrigerators and air conditioners used in cars, etc. It is also used as an industrial solvent, in foam products and hospital sterilization equipment.
 - Methyl chloroform: Finds its applications usually in industries for chemical processing, etc.
 - Carbon tetrachloride: Normally used as a solvent.
- Chlorofluorocarbons are the most abundant ODS. The indiscriminate use of these chemicals causes ozone layer depletion. These ODSs are also powerful Green-House Gases (GHGs) and have a long life as well.



There are a few natural causes also which cause ozone depletion such as volcanic eruptions, sunspots and stratospheric winds. However, these do not cause more than 1 – 2% of the ozone depletion.

❖ **Ozone Layer Preservation Depletion-** The depletion of the Ozone Layer is a serious issue and various programmes have been launched by the government of various countries to prevent it. But, steps should be taken at the individual level as well.

- The IMO (International Maritime Organisation) mandated that cargo ships must not use fuel that has sulphur content any higher than 0.5%.
- This will be implemented from 1st January 2020 as this is one of the many environmental-related issues that is associated with the shipping industry.

The Vienna Convention for the Protection of the Ozone Layer was signed in 1985 under which UN member countries recognized the importance of curbing damage to the ozone layer.

- As per the Convention's provisions, countries agreed to adopt the Montreal Protocol to further the goals of the Vienna Convention.

The Montreal Protocol was signed in 1987 and entered into force in January 1989.

- The protocol gives provisions to reduce the production and consumption of ODSs in order to protect the ozone layer.



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