NCERT SOLUTIONS

CLASS - 11th



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Class : 11th

Subject : Economics

Chapter : 9

Chapter Name : Environment and Sustainable Development

Q1 What is meant by environment?

Answer. Environment is defined as the total planetary inheritance and the totality of all resources. It includes all the biotic and abiotic factors that influence each other. All living elements- the birds, animals, plants, forests and fisheries are biotic elements, while abiotic elements include air, water, land, rocks and sunlight.

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Q2 What happens when the rate of resource extraction exceeds that of their regeneration?

Answer. The most vital function of environment is supply of resources; both renewable and non-renewable. The environment is able to perform functions without interruption as long as the demand on the functions is within its carrying capacity. When resources are extracted above the rate of regeneration, the environment fails to perform its vital function of life sustenance and this results in environmental crisis. The rising population of developing countries and the affluent consumption and production standards have placed huge stress on the environment.

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Q3 Classify the following into renewable and non-renewable resources (i) trees (ii) fish (iii) petroleum (iv) coal (v) iron-ore (vi) water.

Answer. Renewable resources are those which can be used without the possibility of the resources being depleted or exhausted. Trees, fish, and water are renewable resources.

Non-renewable resources are those which get exhausted with extraction and use. Petroleum, coal, iron ore are non-renewable resources.

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Q4 Two major environmental issues facing the world today are _____ and _____.

Answer. Two major environmental issues facing the world today are global warming and ozone depletion.

- ➔ Global warming is a gradual increase in the average temperature of the earth's lower atmosphere as a result of the increase in greenhouse gases since the Industrial Revolution. Much of the recently observed and projected global warming is human-induced. It is caused by man-made increases in carbon dioxide and other greenhouse gases through burning of fossil fuels and deforestation.
- ➔ Ozone depletion refers to the phenomenon of reductions in the amount of ozone in the stratosphere. The problem of ozone depletion is caused by high levels of chlorine and bromine compounds in the stratosphere. The origin of these compounds are Chlorofluorocarbons (CFCs), used as cooling substances in air conditioners and refrigerators or as aerosol propellants and bromofluorocarbons (halons), used in fire extinguishers. As a result of depletion of the ozone layer, more ultraviolet (UV) radiation comes to the Earth and causes damage to living organisms.

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Q5 How do the following factors contribute to the environmental crisis in India? What problems do they pose for the government?

(i) Rising population

(ii) Air pollution

(iii) Water contamination

(iv) Affluent consumption standards

(v) Illiteracy

(vi) Industrialization

(vii) Urbanization

(viii) Reduction of forest coverage

(ix) Poaching

(x) Global warming

Answer. India supports approximately 17 percent of the world's human and 20 percent of livestock population on a mere 2.5 percent of the world's geographical area. The high density of population and livestock and the competing uses of land for forestry, agriculture, pastures, human settlements and industries exert enormous pressure on the country's finite land resources. High population implies higher consumption of resources, the government has to allocate the limited resources according to the needs of this population, leading to over exploitation of resources.

In India, air pollution is widespread in urban areas where vehicles are the major contributors and in a few other areas which have a high concentration of industries and thermal power plants. Vehicular emissions are of particular concern since these are ground level sources and thus, have the maximum impact on the general population. The number of vehicles have increased over the years, contributing significantly to total air pollution load.

Water bodies are contaminated by the toxic chemical wastes from industries and households. This water is consumed by humans and animals, leading to epidemics like dengue, malaria, etc. The government has restricted the industries to throw toxic waste into the water bodies. The government also has to take measures to clean and purify the water.

The upper and the middle class have started consuming luxurious goods to improve their living standards, putting great pressure on the resources and generating more waste and pollution. The government has to restrict the use of luxury items by increasing taxes on them.

People are unaware of the limited resources in the environment leading to overuse of the resources and generating more waste. Population explosion is also a result of illiteracy. The government expenditure on education has to increase and also awareness regarding environmental issues needs to be made.

Industrialization led to set up of a number of industries, this has increased the untreated wastes in the water bodies causing air and water pollution. They also extract natural resources in large quantities. The government should restrict the emission of harmful wastes in the environment without treatment.

Due to increasing population and lack of employment in rural areas, the rural-urban migration has increased, leading to deforestation and clearing lands to cater to the housing needs. Increasing population in urban areas has also led to the formation of slums which have become home for several diseases. Government needs to create more employment opportunities in rural areas to reduce the migration and reduce waste in urban areas.

Deforestation has become a common solution for land problems. Lands are cleared to make it available for housing and agricultural purposes to hold to growing population, affecting the ecological balance of the environment. Government should increase the number of trees planted to maintain the ecological balance.

Illegal hunting and killing of animals is called poaching, for selling the body parts of the animals at exorbitant prices. Animals are an important part of the environment, the government should restrict and punish such illegal acts and also preserve the animals.

Global warming is a gradual increase in the average temperature of the earth's lower atmosphere as a result of the increase in greenhouse gases since the Industrial Revolution. The government should restrict the burning of fossil fuels and promote afforestation to maintain the temperature of the earth.

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Q6 What are the functions of the environment?

Answer. The functions of the environment are :

- ➔ It supplies resources; both renewable and non-renewable resources.
- ➔ It assimilates waste
- ➔ It sustains life by providing genetic and bio-diversity
- ➔ It also provides aesthetic services like scenery, etc.

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Q7 Identify six factors contributing to land degradation in India.

Answer. Some of the factors responsible for land degradation in India are :

- ➔ Loss of vegetation occurring due to deforestation
- ➔ Unsustainable fuel wood and fodder extraction
- ➔ Shifting cultivation
- ➔ Encroachment into forest lands
- ➔ Forest fires and overgrazing
- ➔ Non-adoption of adequate soil conservation measures

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Q8 Explain how the opportunity costs of negative environmental impact are high.

Answer. Opportunity cost is the cost of the opportunity lost or sacrificed when a choice is made or decision taken. The opportunity cost of negative environmental impact are high:

The past development has polluted and dried up rivers and other aquifers making water an economic good. The extensive extraction of both renewable and nonrenewable resources has exhausted some of these vital resources and we are compelled to spend huge amounts on technology and research to explore new resources.

The health costs of degraded environment quality- decline in air and water quality has resulted in increased incidence of respiratory and water-borne diseases. Hence, expenditure on health is rising.

Global environmental issues like- global warming and ozone depletion also contribute to increased financial commitments for the government.

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Q9 Outline the steps involved in attaining sustainable development in India.

Answer. Following are the steps and strategies involved in attaining sustainable development in India :

Use of non-conventional sources of energy – India is hugely dependent on thermal and hydro power plants to meet its power needs. Both of these have adverse environmental impacts. Wind

power and solar rays are good examples of conventional but cleaner and greener energy sources but are not yet been explored on a large scale due to lack of technological devices.

LPG, gobar gas in rural areas – households in rural areas generally use wood, dung cake or other biomass as fuel. Thus practice have several adverse implications like deforestation, reduction in green cover, wastage of cattle dung and air pollution. To rectify the situation, subsidised LPG is being provided, gobar gas plants are being provided through easy loans and subsidy. LPG reduces household pollution to large extent.

CNG in urban areas – The use of Compressed Natural Gas (CNG) as fuel in public transport system reduces air pollution significantly and air becomes cleaner.

Wind power – In areas where speed of wind is usually high, windmills can provide electricity without any adverse impact on the environment. Wind turbines moves with the wind and electricity is generated.

Solar power through photovoltaic cells – India is naturally endowed with large quantity of solar energy in the form of sunlight. With the help of photovoltaic cells, solar energy can be converted into electricity. This technique is totally free from pollution.

Mini hydel plants – in mountainous regions, streams can be found almost everywhere. Mini-hydel plants use the energy of such streams to generate electricity. These power plants are more or less environment friendly as they do not change the land use patterns in areas where they are located.

Traditional knowledge and practices – traditionally Indian people have been lost to the environment. India is very much privileged to have about 15,000 species of plants which have medicinal properties. With the advent of western culture, we were ignoring the traditional systems such as Ayurveda, Unani, Tibetan and folk systems. These products are environment-friendly as well as free from any side effects and do not involve large-scale industrial and chemical processing.

Bio composting – to increase agricultural productivity chemical fertilisers were extensively used. The result is that large tracts of productive land have been adversely affected, water bodies including groundwater system have suffered. Farmers have started using compost made from organic wastes of different types. Earthworms can convert organic matter into compost faster than normal composting process.

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Q10 India has abundant natural resources – substantiate the statement.

Answer.

- ➔ India has abundant natural resources in terms of rich quality of soil, hundreds of rivers and tributaries, lush green forests, plenty of mineral deposits beneath the land surface, vast stretch of the Indian Ocean, ranges of mountains, etc.
- ➔ The black soil of the Deccan Plateau is particularly suitable for cultivation of cotton, leading to concentration of textile industries in this region.
- ➔ The Indo-Gangetic plains - spread from the Arabian sea to the Bay of Bengal – are one of the most fertile, intensively cultivated and densely populated regions in the world.
- ➔ India's forests, though unevenly distributed, provide green cover for a majority of its population and natural cover for its wildlife.
- ➔ Large deposits of iron-ore, coal and natural gas are found in the country. India alone accounts for nearly 20 percent of the world's total iron-ore reserves. Bauxite, copper, chromate, diamonds, gold, lead, lignite, manganese, zinc, uranium etc. are also available in different parts of the country.

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Q11 Is environmental crisis a recent phenomenon? If so, why?

Answer. In the early days, when civilization just began, or before this phenomenal increase in population, and before countries took to industrialization, the demand for environmental resources and services was much less than their supply. This meant that the population was within the absorptive capacity of the environment and the rate of resource extraction was less than the rate of regeneration of these resources. Hence environmental problems did not arise.

With population explosion and with the advent of the industrial revolution to meet the growing needs of the expanding population, things changed. The result was that the demand for resources for both production and consumption went beyond the rate of regeneration of resources, the pressure on absorptive capacity of the environment, increased tremendously – this trend continues even today. We are now faced with increased demand for environmental resources and services but their supply is limited due to overuse and misuse.

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Q12 Give two instances of

(a) Overuse of environmental resources

(b) Misuse of environmental resources

Answer. (a) Overuse of environmental resources –

- ➔ Extensive deforestation has led to the removal of the top layer of the soil which carried away all the essential minerals.
- ➔ Increasing irrigation for modern agricultural practices have depleted the groundwater.

(b) Misuse of environmental resources –

- ➔ Indiscriminate felling of trees for fuel wood and industrial use has led to many environmental problems.
- ➔ The misuse of water as an essential resource is responsible for its pollution and contamination, 70 percent of the water in India is polluted.

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Q13 State any four pressing environmental concerns of India. Correction for environmental damages involves opportunity costs – explain.

Answer. Air pollution, water contamination, soil erosion, deforestation and wildlife extinction are the most pressing environmental concerns of India.

Correction for environmental damages involves opportunity costs. This can be explained in the following ways :

The past development has polluted and dried up rivers and other aquifers making water an economic good. The extensive extraction of both renewable and nonrenewable resources has exhausted some of these vital resources and we are compelled to spend huge amounts on technology and research to explore new resources.

The health costs of degraded environment quality- decline in air and water quality has resulted in increased incidence of respiratory and water-borne diseases. Hence, expenditure on health is rising.

Global environmental issues like- global warming and ozone depletion also contribute to increased financial commitments for the government.

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Q14 Explain the supply-demand reversal of environmental resources.

Answer. In the early days, when civilization just began, or before this phenomenal increase in population, and before countries took to industrialization, the demand for environmental resources and services was much less than their supply. This meant that the population was within the absorptive capacity of the environment and the rate of resource extraction was less than the rate of regeneration of these resources. Hence environmental problems did not arise.

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Q15 Account for the current environmental crisis.

Answer. The developmental activities in India have resulted in pressure on its finite natural resources, besides creating impact on human health and well-being. The threat to India's environment poses a dichotomy- threat of poverty-induced environmental degradation and, at the same time, threat of pollution from affluence and a rapidly growing industrial sector. Air pollution, water contamination, soil erosion, deforestation and wildlife extinction are some of the most pressing environmental concerns for India.

The priority issues identified are :

- ➔ Land degradation
- ➔ Biodiversity loss
- ➔ Air pollution with special reference to vehicular pollution in urban cities
- ➔ Management of freshwater
- ➔ Solid waste management

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Q16 Highlight any two serious adverse environmental consequences of development in India. India's environmental problems pose a dichotomy-they are poverty induced and at the same time, due to affluence of living standards – is this true?

Answer. Two serious adverse environmental consequences of development in India are :

Land degradation – Land in India suffers from varying degrees and types of degradation stemming mainly from unstable use and inappropriate management practices. Some of the factors responsible for land degradation are (i) loss of vegetation occurring due to deforestation (ii) unsustainable fuel and fodder extraction (iii) shifting cultivation (iv) encroachment into forest lands (v) forest fires and over grazing (vi) non-adoption of adequate soil conservation measures (vii) improper crop rotation (viii) indiscriminate use of agro-chemicals such as fertilisers and pesticides (ix) improper planning and management of irrigation systems (x) extraction of ground water in excess of the recharge capacity (xi) open access resources (xii) poverty of agriculture-dependent people.

Air pollution – Air pollution is widespread in urban areas where vehicles are major contributors and in a few other areas which have a high concentration of industries and thermal power plants. Vehicular emissions are of particular concern since these have maximum impact on general population.

There is a paradoxical situation in the country due to the environmental problems. Rapid growth of population and poverty has led to deforestation. The industrial development is believed to boost the country's economy while it also leads to environmental pollution and degradation. The developmental activities in India have resulted in pressure on its finite natural resources, besides creating impacts on human health and well-being.

Yes, it is true that the threat to India's environment poses a dichotomy - threat of poverty-induced environmental degradation and at the same time, threat of pollution from affluence and a rapidly growing industrial sector.

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Q17 What is sustainable development?

Answer. Sustainable development is the development that will allow all future generations to have a potential average quality of life that is at least as high as that which is being enjoyed by the current generation. The United Nations Conference on Environment and Development (UNCED) defines it as "development that meets the needs of the present generation without compromising the ability of future generations to meet their own needs."

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Q18 Keeping in view your locality, describe any four strategies of sustainable development.

Answer. I would suggest the following strategies for sustainable development:

Use of non-conventional sources of energy – wind power and solar rays are good examples of conventional but cleaner and greener energy sources. In areas where the speed of wind is high, wind mills can provide electricity without any adverse impact. With the help of photovoltaic cells, solar energy can be converted into electricity.

LPG in remote areas – Households in remote areas generally use wood, dung cake, or biomass as fuel, this leads to deforestation, air pollution, etc. To rectify this situation, subsidized LPG is being provided. It is a clean fuel and reduces pollution.

CNG in urban areas – Use of Compressed Natural Gas (CNG) as fuel in public transport system has significantly lowered air pollution and the air becomes cleaner.

Bio composting - to increase agricultural productivity chemical fertilisers were extensively used. The result is that large tracts of productive land have been adversely affected, water bodies including groundwater system have suffered. Farmers have started using compost made from organic wastes of different types. Earthworms can convert organic matter into compost faster than normal composting process.

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Q19 Explain the relevance of intergenerational equity in the definition of sustainable development.

Answer. Environment and economy are interdependent and need each other, development that ignores its repercussions on the environment will destroy the environment that sustains life forms. Sustainable development is a development that will allow all future generations to have potential average quality of life that is at least as high as that which is being enjoyed by the current generation. Sustainable development is “meeting the basic needs of all and extending to all the opportunity to satisfy their aspirations for a better life. Meeting the needs of all requires redistributing resources and is hence moral issue. It aims at decreasing the absolute poverty of

the poor by providing lasting and secure livelihoods that minimize resource depletion, environmental degradation and social instability.

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