SUSTAINABLE DEVELOPMENT IS A LONG-TERM CONCEPT THAT GIVES EQUAL IMPORTANCE TO DEVELOPMENT OF FUTURE GENERATIONS: A VIEW

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Abstract: *Reaching environmental sustainability demands a careful vbalance between human activities aiming to promote the development* and *maintenance of a stable environment. Environmental sustainability is essential to the global effort to reduce poverty, since environmental degradation is closely linked with problems such as hunger, gender inequality and health. The fundamental requirements for the eradication of poverty are related to an efficient management of natural resources that constitute the basis for economic and social development, as well as to changes in production and consumption patterns. You have already understood that the concept of sustainable development is a long-term concept that gives equal importance to development of future generations also. Sustainable development also emphasizes that actions and measures taken in one part of the world has consequences for people in other parts of the world. For development to be sustainable we must think of development not only for our community or village or country but for the world as a whole. To give an example, if factories emit smoke in North America, then that air pollution from North America affects air quality in Asia. Similarly, pesticides sprayed in Bangladesh could harm fish stocks off the coast of West Bengal.*

Key words: Sustainable development, Intergenerational equity, Long-term development, Future generations, Environmental sustainability, Economic sustainability

OBJECTIVES OF THE STUDIES

- To know the definition and significance of environment;
- To understand the various environmental problems such as pollution, degradation, depletion of resources;
- To explain the meaning of sustainable development, tell the ways to achieve sustainable development.

The Environment: **Definition and Significance**

The environment encompasses all living and non-living things occurring naturally on Earth or some region thereof. It includes all the biotic and abiotic c factors that Environment and Sustainable Development Notes- 8 Contemporary Economic Issues 102 influence each other in nature. All the living elements like birds, animals, plants, forests, etc. comprise the biotic elements. On the other hand, everything non-living like air, water, rocks, sun, etc. are examples of the abiotic component of the environment. A study of the environment is thus a study of the inter-relationship between the abiotic and the biotic components of the environment.

Significance of the Environment:

The environment provides various resources

To man-both renewable and non-renewable. Renewable resources are those resources which are replenished easily over time, and hence can be used without the possibility of the resource becoming depleted or exhausted. Examples of renewable resources include trees in the forests, fishes in the ocean, etc. Non-renewable resources, on the other hand, are those resources which can get exhausted or depleted over time as they are used up. Examples of non-renewable resources include fossil fuels and minerals like petroleum, natural gas, coal, etc. Thus, these resources need to be used carefully, while keeping in mind the requirements of the future generations.

- Do you know? Based on current projections, within around 50- 75 years, all the world's extractable coal, oil, natural gas, and uranium-235 deposits- that is, all our current energy sources-would have been used up.

The environment is also an absorber of harmful wastes and byproducts,

That is, it assimilates waste products. The smoke from chimneys and exhaust pipes of vehicles, sewage from cities and towns, industrial effluents are all absorbed by the environment. These harmful wastes and byproducts are absorbed, cleaned and recycled by various natural processes.

The environment also sustains life by providing bio diversity.

The genetic variations created by the pressures exerted by the environment on various life forms allows those life forms to adapt, evolve and produce genetic variations which can survive in harsh environments. Hence the environment produces and maintains relationships between different life forms and the abiotic components and sustains life. It is therefore important to preserve these life forms by preserving the environment.

Apart from the biological significance of the environment,

The environment is also important from the aesthetic point of view. It provides scenery and landscapes to us which are priceless to us, and often play an important role in man's culture around the world.

Environmental Problems:

With the advance of human civilization, human wants have expanded and diversified. This has led to a rapid depletion of natural resources. Many resources are being used up at a rapid rate, which has caused over-utilization and depletion of many resources. With the rapid use of resources, a lot of accompanying environmental problems has cropped up. These include pollution of air and

water, degradation of natural resources like soil and forests, and the depletion of non-renewable resources like fossil fuels and minerals. In the sections below you will read about these environmental problems and understand the significance of their impact on the economy and the planet earth. Pollution the term pollution refers to an undesirable change in the quality of a natural resource or the natural ecosystem. The change may be harmful to life immediately or over a long period of time. Thus, pollution adversely affects the health of living beings. Pollution is caused by a pollutant. A pollutant is a waste material or substance which causes an undesirable change in a natural resource or ecosystem. Smoke, dust and poisonous gases in the atmosphere and industrial effluents and sewage from cities in water are some common examples of pollutants. Further, human activities also generate heat and create noise or harm living beings in a multitude of other ways. Air pollution Air pollution is the introduction of chemicals, particulate matter, or biological materials that cause harm or discomfort to humans or other living organisms, or cause damage to the natural environment or built environment, into the atmosphere. Major air pollutants include sulphur oxides, nitrogen oxides, carbon monoxide, carbon dioxide (which is also a major greenhouse gas), toxic metals, and particulate matter. Do you know? The World Health Organization states that 2.4 million people die each year from causes directly attributable to air pollution. Worldwide more deaths per year are linked to air pollution than to automobile accidents

Effects of air pollution:

The health effects caused by air pollution may include difficulty in breathing, wheezing, coughing and aggravation of existing respiratory and cardiac conditions. These effects can result in increased medication, increased doctor or emergency room visits, more hospital admissions and premature death.

Sources of Air Pollution Major artificial sources (caused by human beings) of air pollution include:

- Smoke from power plants, factories, incinerators, furnaces, etc.
- Exhaust of vehicles and automobiles like cars, buses, bikes, airplanes, ships, etc.
- Chemicals like pesticides and fertilizers and dust from farming and other agricultural practices.
- Fumes from paint, hair spray, varnish, aerosol sprays and other solvents. Waste deposition in landfills, which generates methane, which also contributes to global warming. Major natural sources of air pollution include:
- Dust from natural sources, usually barren land.
- Methane, emitted by the digestion of food by animals, for example cattle.
- Smoke, particulate matter and carbon monoxide from wildfires.
- Volcanic activity, which produce sulphur, chlorine, and ash particulates.

Effects of water pollution:

A number of waterborne diseases such as cholera, typhoid, diarrhea etc. are produced by the pathogens present in polluted water, affecting human beings and animals alike. Water Pollution affects the chemistry of water. The pollutants, including toxic chemicals can alter the acidity,

conductivity and temperature of water. It also kills life that inhabits water-based ecosystems like fish, birds, plants, etc. and hence disturbs the natural food-cycle,

Air and water pollution:
Potable water and the air we breathe are essential conditions for human survival. Pollutants like carbon monoxide and sulfur dioxide can cause irreversible damage to the brain, respiratory diseases and cancer. About 2.5 billion children, mainly from southern countries, die annually due to their families using biomass and manure as fuel inside homes. Water pollution is the contamination of water bodies (example lakes, rivers, oceans and groundwater) by pollutants discharged directly or indirectly into water bodies without adequate treatment to remove harmful compounds. Major sources of water pollution include industrial chemicals and effluents, nutrients, waste water, sewage, etc.

Effects of noise pollution:
Noise pollution in the form of unwanted sound can damage physiological and psychological health. Noise pollution can cause annoyance and aggression, hypertension, high stress levels, hearing loss, sleep disturbances, and other harmful effects. Chronic exposure to noise may cause noise-induced hearing loss. People exposed to significant occupational noise demonstrate significantly reduced hearing sensitivity compared to non-exposed people. High and moderately-high noise levels can contribute to cardiovascular effects, a rise in blood pressure, and an increase in stress thus affecting the physical and mental health of people.

Sources of Noise Pollution Major Sources of noise pollution include:

- Vehicular traffic, like cars, buses, airplanes, trains etc.
- Industrial processes like stone crushing, making of steel plates, sawing, printing, etc.
- Construction work on roads, bridges, buildings, etc.
- Various noises from houses like stereos, televisions, etc
- Consumer products like air conditioners, refrigerators, etc.

Climate changes:

According to the Intergovernmental Panel on Climate Change (IPCC), the planet's global temperature has raised 0.6º C (33º F) and the warming rate has almost doubled in the last 50 years. Which causes instability in e Sources of Water Pollution Major sources of water pollution include: Global warming observed over the last 50 years has had an adverse impact on precipitation patterns, on the increased frequency of extreme climate phenomena (droughts, hurricanes, etc.), on raised sea levels, on new threats to human health, on change to ecosystems, including migratory routes and reproductive patterns. The number of refugees due to climate changes is already higher to that due to military conflicts. There are further factors that, although indirectly, contribute to accelerate environmental degradation, such as demographic changes, economic factors, market flaws and distortions, scientific and technological evolution, poor governance and social and political factors

- Discharge from sewage treatment plants and sewage pipes from cities and towns.
- Industrial effluents released by factories into water bodies.
- Chemicals like pesticides and fertilizers from agricultural farms which constitute runoff from farms.

- Contaminated storm water from storm water drains in cities. Release of heated or radioactive water by power plants into water.
- Oil spills and leakages from tankers and oil rigs. Growth of algae in water bodies'

Noise pollution Noise pollution is an excessive and displeasing environmental noise that disrupts the activity or balance of human or animal life.

Factors of Environmental Degradation:

Soil degradation:

Urbanization, intensive agricultural use, the construction of road infrastructures, among other factors, give origin to significant changes in the capacity of ecosystems.

Excessive use of natural resources:

The unreasonable use of natural resources is endangering their natural capacity for replacing themselves, even in the case of renewable resources.

Invasion by non-native species:

The globalization process has caused the movement of species to new environments. Frequently, the appearance of non-native species eventually creates imbalances in ecosystems and puts human health at risk. Air, soil and water pollution caused by chemical agents and organic residues. Pollution constitutes a risk factor to human health, reduces agricultural productivity and threatens the stability of ecosystems.

Consequences of Environmental Degradation:

Agricultural production systems:

The inadequate use of soils and irrigation systems, climate changes, demographic growth and market distortion are some of the factors that have been accelerating the erosion and impoverishment of agricultural soils, contributing to the precariousness of rural families. **Forests:** 3.4 billion hectares (8.4 billion acres) of forests contribute to the survival of 90% of the 1.2 billion people who live in extreme poverty, supplying wood, fuel, uncultivated food, shelter, water and genetic resources. Over the last decade the world has lost, annually, 9.4 million hectares (23 million acres) of forests.

Freshwater aquifers and ecosystems:

Fresh water represents only 2.5% of the planet's water. Due to global warming two thirds of the world's population will face water shortage conditions until 2025. Around the world, one person in five has less than 20 litres (4.4 UK gallons, 5.28 US gallons) of potable water per day (minimum quantity per human being). However, the average daily consumption of water by Europeans and Northern-Americans varies between 200 and 600 litres (between 44 and 132 UK gallons and between 52 and 158 US gallons).

Fisheries and marine ecosystems:

Oceans cover 70% of the planet's surface and represent its largest life habitat. 16.5% of animal protein consumed worldwide comes from fishery. However, 75% of the world's fishing areas are being explored above their sustainability level.

Air and water pollution:

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and cancer. About 2.5 billion children, mainly from southern countries, die annually due to their families using biomass and manure as fuel inside homes.

Soil degradation:

Soil degradation refers to an undesirable or deleterious change or disturbance in the quality of the soil. It leads to a change in the species of plants and animals in an area, and often leads to a loss of quality and productivity of the soil in an area. The soil loses its natural nutrients, minerals and organic matter (known as humus) and disrupts the natural balance of the natural ecosystem. The soil hence becomes unfit or unsuitable for growing plants and crops.

Causes of Soil Degradation Major Causes of soil degradation include:

- Excessive use of chemical fertilizers and pesticides, which causes soil acidification, increases salinity and alkalinity of the soil, reduces organic matter, and increases levels of organic pollutants and toxins and heavy metals (like Cadmium, Lead, etc.).
- Waterlogging caused by excessive irrigation and failure to subsequently drain the water from the fields causes an increase in salt content of the soil, making it unfit for growing plants, as well as serves as a breeding ground for mosquitos.
- Overgrazing by animals in fields, which reduces plant cover and leaves the soil prone to erosion.

Do you know? Damage from soil erosion worldwide is estimated to be $400 billion per year (around Rs 20 lakh crores per year). As a result of erosion over the past 40 years, 30 percent of the world's arable land has become unproductive.

Effects of soil degradation Soil degradation can significantly reduce the yield potential of soil for growing crops. The presence of pollutants in soil also leads to pollution of groundwater, which has increased levels of nutrients, organic toxins, and heavy metals. Also, degradation of soil causes the soil to lose its green cover, and hence reduces biodiversity in that region, as the growth of plants in an area is essential for animals to survive and for the food chain to function normally. This also leads to extinction of plant and animal species. Soil degradation also leads to desertification, that is, the land gradually gets converted into a desert which becomes unfit for cultivation or habitation.

Habitat degradation Habitat degradation refers to the process in which habitats lose their normal functioning or quality to support native life due to human activities. Habitat degradation leads to a reduced carrying capacity of that area, that is, the number of animals or plants of a particular species the area can support. This leads to a reduced population of various species in that area (or habitat) which in turn leads to an imbalance in the natural food chain and ecosystem. This imbalance can lead to the mass extinction of many plants and animals on our planet. Causes of Habitat Degration Major Causes of habitat degradation: Deforestation and wood extraction for the timber industry. Conversion of forest land into agricultural land urban expansion of natural habitats Soil erosion and desertification, which can lead to whole forests degenerating into deserts. Slashing or slash-and-burn agricultural methods, where forests are burnt and crops grown using the ashes as a natural fertilizer. Effects of habitat degradation: Habitat destruction vastly increases an area's vulnerability to natural disasters like flood and drought, crop failure, spread of disease, and water contamination. Agricultural land too suffers from the destruction of the surrounding landscape.

Do you know? If the current rate of deforestation continues, there will only be 10% of the world's tropical forests left by 2030, and another 10% in a degraded state

1.9 Environmental Issues in India:

In India, factors like rapid growth of population, urbanization, industrialization, and poverty, among others are responsible for harming the environment. Some of the severe environmental issues prevalent in India are

1. Degrading Air Quality Index
2. Rampant Environmental Degradation
3. Loss of Biodiversity
4. Urbanization in the Himalayas
5. Loss of Resilience in Ecosystems
6. Lack of Waste Management
7. Depletion of Resources (land, air, water)
8. Growing Water Scarcity

Governmental Initiatives to Tackle Environmental Degradation

While the cooperation of every citizen of the country is essential for safeguarding the environment, governments have a huge role to play in helping find solutions to the problems. The government of India has taken various steps to safeguard the environment. Some of them are listed below:

1. Swatch Bharat Mission
2. Green Skill Development Programme
3. Namami Gange Programme
4. Compensatory Afforestation Fund Act (CAMPA)
5. National Mission for Green India
6. National River Conservation Programme
7. Conservation of Natural Resources & Eco-systems

Conclusion and Recommendation

In the 21st century, the temperature is expected to rise between 1.4 and 5.8º C (35º F and 42º F). IPCC estimates that rural and fishing communities in developing countries will face extreme risk of droughts and floods, If temperatures rise between 1.5 and 2.5ºC (35º F and 37º F), 20% to 30% of species of plants and animals existing on the planet might be extinct – a direct threat to the 450 million poor people who depend directly on the sustainable use of natural resources. Sustainable development is largely about people, their well-being, and equity in their relationships with each other, in a context where nature-society imbalances can threaten economic and social stability. Because climate change, its drivers, its impacts and its policy responses will interact with economic production and services, human settlements and human societies, climate change is likely to be a significant factor in the sustainable development of many areas (e.g., Downing, 2002). Simply stated, climate change has the potential to affect many aspects of human development, positively or negatively, depending on the geographic location, the economic sector, and the level

of economic and social development already attained (e.g., regarding particular vulnerabilities of the poor, see Dow and Wilbanks, 2003). Because settlements and industry are often focal points for both mitigation and adaptation policy-making and action, these interactions are likely to be at the heart of many kinds of development-oriented responses to concerns about climate change. Impacts of climate change on development paths also include impacts of climate-change response policies, which can affect a wide range of development-related choices, from energy sources and costs to industrial competitiveness to patterns of tourism. Areas and sectors most heavily dependent on fossil fuels are especially likely to be affected economically, often calling for adaptation strategies that may in some cases require assistance with capacity building, technological development and transition financing.

References

1. Batta, R.N. and Bhatti, J.P (2001): "Environment Policy in Development Countries," *Man and Development* 23(4): 7-21.
2. Fernandez, B.G. (1996): *Planning in India- Challenges and Opportunities*; Anmol Publications Pvt. Ltd. New Delhi.
3. Ministry of Information and Broadcasting (2005): *India 2005; a Reference Annual,* Ministry of Information and Broadcasting Govt. of India.
4. Planning Commission, Govt. of India: Ten Five Year Plans Reports (First to Tenth Plan), from 1951 to 2002; Planning Commission, Government of India.
5. Singh, P.P and Sandhir Sharma (2004): *Environment & Pollution Education*; Deep & Deep Publication, New Delhi.
6. Acaravci A, Ozturk I (2010) on the relationship between energy consumption, CO2 emissions and economic growth in Europe. Energy 35(12):5412–5420. https://doi.org/10.1016/j.energy.2010.07.009 - DOI
7. Al-Mulali U, Tang CF, Ozturk I (2015) Does financial development reduce environmental degradation? Evidence from a panel study of 129 countries. Environ Sic Pollute Res 22(19):14891–14900. https://doi.org/10.1007/s11356-015-4726-x - DOI
8. Alvarado R, Toledo E (2017) Environmental degradation and economic growth: evidence for a developing country. Environ Dev Sustain 19(4):1205–1218. https://doi.org/10.1007/s10668-016-9790-y - DOI
9. Arellano M, Bond S (1991) some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. Rev Econ Stud 58(2):277–297. https://doi.org/10.2307/2297968 - DOI
10. Arellano M, Bover O (1995) another looks at the instrumental variable estimation of error-components models. Journal of Econometrics 68(1):29–51. https://doi.org/10.1016/0304-4076(94)01642-D - DOI
11. TERI (2003): *Teri Energy Data Directory and Year Book (TEDDY);* Tata Energy Research Institute, New Delhi.