



ENVIRONMENTAL POLLUTION CAUSES AND CONSEQUENCES

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www.doi.org/10.59436/https://jsiane.com/archives3/12/98

Abstract

Human activity harms the ecosystem, air, water, and land. Pollution and environmental damage caused by people scare us all. Looking at the big picture reveals several patterns. Our atmosphere is polluted globally and locally. The most populous northern hemisphere is losing the protective ozone layer twice as fast as scientists projected. As greenhouse gases pile up in the atmosphere, weather patterns will change dramatically, causing global warming. The destruction of the ozone layer and further warming of the earth's surface threaten cancerous and tropical diseases, ocean food chain disruption, rising sea levels, island submersion, melting of small land-based glaciers, flooding in low-lying coastal areas, loss of harvest, etc.

Keywords: Environment, Pollution, Causes, global warming

Received 20.12.2022

Revised 15.02.2023

Accepted 25.03.2023

Introduction

Environmental awareness is as ancient as the study of nature itself. A composite term, it describes the conditions in which creatures made up of air, water, food, sunlight, etc., flourish and become sources of life for all living and nonliving things. Air pressure, humidity, and wind speed are also included in this word. Before understanding what "Environmental Pollution" is it is equally necessary to-know what "pollution"

Definition of Pollution

The UK's Royal Commission on Environmental Pollution defined "Pollution" in its third report: "Introduce substances or energy into the environment that may harm human health, living resources, ecological systems, structure, amenity, or authorised environmental usage." The release of substances into any environmental medium that can harm humans or other environmental creatures due to any process. When harm is possible, pollution occurs. Pollution can include scents and sounds that do not directly injure people, as harm to man encompasses senses or property. Injuries to living creatures can be physical or disturb ecological systems.

Different types of pollution

Nature and human-caused pollution are the main categories.

- 1. Natural Pollution:** Earthquakes, floods, droughts, cyclones, and other disasters pollute the environment.
- 2. Human-caused pollution:-** Human Activities

Environmental pollution includes air, water, land, food, noise, radioactive contamination, and others. Environmental problem factors the 'environmental problem' is caused by 'commercial and technical man's' 21st-century advancement. While the current century has had gains in economics, science, and technology, it has also had serious environmental challenges. The environmental crisis is caused by pollution, the rapid depletion of natural resources and an increase in reliance on energy-intensive and ecologically

damaging technologies, the destruction of habitats due to industrial, urban, and agricultural expansion, and the decline and extinction of ecological populations. The detrimental effects of these developments on people's daily lives have drawn attention to the environment, ecosystem disturbance, and resource depletion over the past decade. The biggest cause of environmental degradation and the global environmental crisis is the rapid exploitation of natural resources, technological innovation, and industrial expansion. Human activities have degraded the environment at an unparalleled rate. Human economic activity affects several biotic and abiotic environmental components, making its impact diverse and complex. Pollution and habitat loss are direct environmental repercussions, while deforestation and climate change are indirect. Because humans know the pros and cons of each endeavour to change the natural environment for economic development, every influence, direct or indirect, is planned and premeditated. The ecology reacts swiftly and visibly to human alterations, which can be reversed. However, human initiatives to accelerate economic growth and industrial development have unexpected environmental effects. Long months may pass before indirect effects are felt. Human economic activity can affect the natural environmental system, causing chain reactions that threaten human survival. The 'environmental problem' is caused by 'commercial and technical man's' 21st-century advancement. While the current century has had gains in economics, science, and technology, it has also had serious environmental challenges. The environmental crisis is caused by pollution, the rapid depletion of natural resources and an increase in reliance on energy-intensive and ecologically damaging technologies, the destruction of habitats due to industrial, urban, and agricultural expansion, and the decline and extinction of ecological populations. The detrimental effects of these developments on people's daily lives have

drawn attention to the environment, ecosystem disturbance, and resource depletion over the past decade. The biggest cause of environmental degradation and the global environmental crisis is the rapid exploitation of natural resources, technological innovation, and industrial expansion. Human activities have degraded the environment at an unparalleled rate. Human economic activity affects several biotic and abiotic environmental components, making its impact diverse and complex. Pollution and habitat loss are direct environmental repercussions, while deforestation and climate change are indirect. Because humans know the pros and cons of each endeavour to change the natural environment for economic development, every influence, direct or indirect, is planned and premeditated. The ecology reacts swiftly and visibly to human alterations, which can be reversed. However, human initiatives to accelerate economic growth and industrial development have unexpected environmental effects. Long months may pass before indirect effects are felt. Human economic activity can affect the natural environmental system, causing chain reactions that threaten human survival.

Main Causes of Environmental Pollution

Interconnected causes and effects cause today's environmental pollution catastrophe. Multiple ideas concerning the environmental disaster's causation have been proposed. No single thing is responsible for the environment today. However, the following factors may all be involved at once and their relative weight may fluctuate throughout time and space.

1. Increasing human numbers

Modern thought blames population growth for many social concerns. This observation also covers environmental degradation. Population growth multiplies food and housing needs. Meeting the needs of an expanding population requires excessive natural resource use. Population shifts and city growth challenge public health, environmental sustainability, and food security.

2. Economic Growth and Rising Prosperity

Prosperity is important in the man-resource-environment triangle. The wealthy's rising per capita demand is stifling economic development in developed and emerging nations, causing resource overuse and pollution. This is because the affluent spend more than they need and are not motivated by basic human needs. Despite its evident impact on nature, wealth is rarely discussed. The poor and poverty are often blamed for environmental deterioration. It's not true that poor people damage nature the most.

3. Modern Technologies

The environment has impacted productive technology development in recent years. Commoner claims that large-scale developments in productive technology since World War II have displaced less destructive technologies with increasing environmental impacts. This issue has led to plastics, chemical nitrogen fertilisers, synthetic detergents, synthetic fabrics, huge cars, petrochemical and other environmentally destructive businesses, and a "disposable culture". Thus, unsustainable economic development leads to an ecological crisis. Eco-friendly technologies exist and are employed now, however using them would conflict with private profit maximisation.

4. Deforestation

Forests are valuable to any nation because they provide raw materials for modern enterprises, timber for construction, and habitats for many animals and microorganisms. High-organic matter soils may endure precipitation because their root systems link together and are less likely to be swept away. They maximise precipitation infiltration and groundwater replenishment to reduce flood frequency, intensity, and width. Photosynthesis uses carbon dioxide, making them a natural sink and increasing precipitation. They give food, shelter, and firewood to millions of people and animals worldwide. Since a country's prosperity and well-being depend on its trees, they're its "life line". Regional forests are crucial to environmental stability and ecological balance. Forests are important biotic components of the natural environment. Deforestation produces a chain of environmental damage.

5. Agriculture Growth

Increasing arable acreage, productivity, and net production is agricultural development. The use of chemical fertilisers, high-yielding crop varieties, irrigation systems, and other modern scientific methods and technology contribute. This has helped meet the food needs of a fast populous planet, but it has also caused or may cause environmental problems. This makes modern economic and technical man vulnerable from all sides. Agricultural progress harms the environment through increasing the use of chemical fertilisers, herbicides, and insecticides, expanding irrigation infrastructure, and changing biological ecosystems. Clearing forests for agriculture on unstable terrain accelerates soil erosion. Expansion of farmland at the expense of forested areas and soil erosion; use of modern scientific methods and machinery; liberal use of chemical fertilisers, pesticides, insecticides and herbicides; intensive crop cultivation; increased field watering frequency and area; etc. These procedures and initiatives to increase agricultural production raise several environmental concerns. The worrisome rise in human population appears to be behind all these environmental challenges caused by agricultural advancement. First and foremost, we must stop population growth, which requires ongoing agricultural improvement.

6. Manufacturing Growth

"Rapid Industrial Development has brought economic prosperity to human society, new dimensions to socio-economic structure, and material comfort to the people of industrially developed countries, but it has also created many environmental problems." Industrialization's two primary components—exploiting natural resources to meet demand and manufacturing goods—have caused serious environmental challenges. These global, regional, and local challenges have devastated ecosystems and threatened human health. Industrial production produces several environmentally damaging byproducts. Industrial wastes, polluted water, poisonous gases, chemical precipitates, aerosol ashes and smokes, etc. Industrialised nations have serious air, water, and land pollution. Most of industrialization's effects include pollution and environmental deterioration. Chemical fertilisers, pesticides, and insecticides released by chemical industries impact food chains and food webs and the physical and chemical aspects

of the environment. Industrial expansion releases massive amounts of pollutants (e.g., chlorine, sulphate, bicarbonate, nitrate, salt, magnesium, phosphate) into rivers and lakes through sewage effluents, poisoning the water. Factory chimneys release gases, smokes, ashes, and other aerosols that harm the environment. Burning hydrocarbon fuels (coal and petroleum) has increased atmospheric CO₂ and modified its natural gaseous composition. Increased CO₂ content in the atmosphere may change global radiation and heat balance by increasing sensible heat in the atmosphere because CO₂ intensifies the greenhouse effects of the atmosphere by allowing solar radiation to pass through the atmosphere and reach the earth's surface but preventing long-wave terrestrial radiation from escaping to space. Depletion of the ozone layer reduces ultraviolet sun ray absorption, raising Earth's surface temperature. Thus, increased carbon dioxide in the atmosphere and ozone layer depletion may cause changes in global and regional weather and climatic conditions, which may harm plant and animal life and cause ecological imbalance. Skin cancer and other illnesses may result. Acid showers, urban smog, nuclear holocaust, and the Bhopal Gas Tragedy (December 3-4, 1984, India) are all catastrophic consequences of contemporary industrialization.

7. Citylife

Urbanisation in developed nations has peaked. Wealth and economic opportunities have caused an exodus of people from rural areas to urban centres and the creation and expansion of new urban centres, which has led to rapid resource exploitation and environmental degradation and pollution. More people in cities means more buildings, streets, sewage and storm drains, vehicles (cars, trucks, buses, motorcycles, etc.), factories, urban wastes, aerosols, smokes, dusts, and sewage waters, which cause environmental problems. Urban hubs with industrial sectors increase pollution and environmental hazards. Factory and vehicle chimneys generate massive amounts of aerosols and gases, forming "Dust Domes" over cities. Dust Domes create 'Pollution Domes' over cities. Due to petrol and aerosol pollution from vehicles, factories, and household appliances, urban and industrial expansion has rapidly degraded air quality. Vehicles generate 60% of Delhi's air pollution, and Calcutta and Bombay have high air pollution. The National Environmental Research Institute, Nagpur (India) found that air pollution in Delhi, Calcutta, Bombay, Madras, Ahmedabad, Cochin, Hyderabad, Kanpur, Nagpur, etc. has increased. Massive urban solid wastes and industrial wastes from industrial cities also harm the ecosystem. With urban expansion and population growth, urban solid waste is growing rapidly.

Sudden City Growth

Squatter settlements, poor sanitation and water supply, overpopulation, traffic congestion, and pollution plague Indian cities. Lack of cleanliness, traffic congestion, and poor home and industrial waste disposal affect urban areas. Thermal coal power stations Power plants, public or commercial, use coal to generate energy. Our country generates 65% of its electricity from 62% of its coal. This procedure produces bottom ash, boiler slag, and fly ash. Fly ash accounts for almost 70% of the total. The disposal of this massive volume of fly ash is delicate. Despite its usage in cement, brick, and soil conditioner production, this material has not become widespread due to economic and societal

concerns. Even using fly ash for the following activities will only use 30% to 40% of the ash produced. Thus, ash must be stored to minimise air, water, and soil damage. A super thermal power plant on 800 acres needs 1200 acres for ash disposal. Based on ash output patterns, 40000 hectares are needed for ash dumping. Power plants are usually located on waste land and away from human settlements, but some cultivable ground is eventually covered by ash mount sites. Residents near the plant site worry about ash, especially in the air. This is worse in summer due to heavy winds. The finer fly ash fractions can damage the lungs and respiratory track when inhaled. Low Income As Mrs. Indira Gandhi noted at the Stockholm Conference, the poor are the worst polluters since they use more of the country's natural resources to meet their fundamental requirements. Thus, the underprivileged should be lifted out of poverty.

Conclusion

The causes of environmental issues are diverse. The multitude of reasons makes it hard to link environmental degradation's origins and effects. Complex social, technological, environmental, and political elements typically link causes and effects. However, population increase, economic growth associated with prosperity, and technological advancement are common causes of environmental degradation. Population is vital to development, but when it exceeds support system limits, it degrades the environment. The main effects of demographic pressure are on our resources and ecosystems. Along with it, poverty and underdevelopment lead people to live in squalor and destroy their environment. Unmanaged growth also harms the environment. With rapid economic growth, lavish prosperity consumes more resources and strains natural resources. Technology change promotes deliberate obsolescence, which generates additional waste that harms the environment. Short-term profit maximisation hinders the replacement of outmoded technologies with environmentally friendly ones.

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Cite this article-

Kalpana Soni, 2023, "Environmental Pollution Causes and Consequences" *Journal of Science Innovations and Nature of Earth*, Vol. 3(1), page- 68-71

www.doi.org/10.59436/https://jsiane.com/archives3/12/98