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## GLOBAL CHANGE AND ENVIRONMENTAL POLLUTION

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### ABSTRACT

World population growth, industrialization, energy demand, and environmental goals are presently rapid global change in emissions with complex consequences for climate, air quality, and ecosystems. Human activities directly or indirectly affect the environment adversely. Pollution is the introduction of contaminants into an environment that causes instability, disorder, harm or discomfort to the ecosystem i.e. physical systems or living organisms. Pollution occurs in the environment by different ways. Therefore they can be classified into different types such as air, noise, water, soil, thermal and radiation pollutions. The objective of this paper is to examine the global change and environmental pollution. The important proximate human causes of global change are those with enough impact to significantly alter properties of the global environment of potential concern to humanity. The global environmental properties now of greatest concern include the radiative balance of the earth, the number of living species, and the influx of ultraviolet radiation to the earth's surface. Five types of social variables known to affect the environmental systems implicated in global change: 1. Population Change, 2. Economic growth, 3. Technological change, 4. Political-economic institutions, and 5. Attitudes and beliefs.

**Key words:** Pollution, Environment, Eco-system, Global change, Social variables and Living species.

### INTRODUCTION

**Global Change:** Humans have dramatically changed planet Earth and are altering some of Earth's main cycles, the water, carbon, nitrogen and phosphorus cycles. Global change refers to planetary-scale changes in the Earth system. The system consists of the land, oceans, atmosphere, polar region, life, the planet's natural cycles and deep Earth processes. The Earth system now includes human society, so global change also refers to large-scale changes in society. More completely, the term "global change" encompasses: population, climate, the economy, resource use, energy development, transport, communication land use and land cover, urbanization, globalization, atmospheric circulation, ocean circulation, the carbon cycle, the nitrogen cycle, the water cycle and other cycles.

Many nations now have their own global change programmes and institutes, for example the US Global Change Research Program and the UK's Quantifying and Understanding the Earth System (QUEST) programme. Global change scientists are interested in understanding several potential impacts of climate warming on human societies, including human health, natural disturbances, and food security.

**Objectives of the study:** The main objective of the paper is to examine the global change and environmental pollution. The other objectives are as below:

- To study the causes of global change.

- To analyse the drivers of global change.
- To examine the impacts of global change.

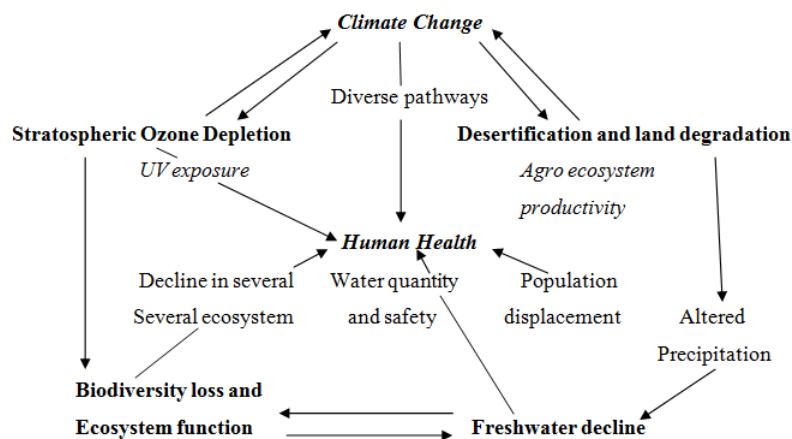
**Causes of Global Change:** In the past, the main drivers of global change have been solar variation, plate tectonics, volcanism, proliferation and abatement of life, meteorite impact, resource depletion, changes in Earth's orbit around the sun and changes in the tilt of Earth on its axis. The main cause of global change is the increasing human population's demand for energy, food, goods, services and information, and its disposal of its waste products. Global change has caused climate change, widespread species extinctions, fish-stock collapse, desertification, ocean acidification, ozone depletion, pollution and other large-scale shifts.

**Drivers of Global Change**

**Human Population and Consumption:** Almost 7 billion people now live on Earth. Rapid growth of the human population, especially over the last 300 years, is one of the most remarkable trends in population change ever observed. World population will rise to 9 billion by 2050 and level off somewhere between 9-12 billion people by the end of the century. Many people require more resources, such as crops, seafood, forest products, energy, and minerals and increasingly larger economies to support economic development and rising standards of living. Population growth and the increased demand for natural resources is therefore a major factor driving global environmental change.

**Energy Use/Climate Change:** fossil fuels dominate our energy consumption, accounting for 85% of all energy used. The rapid rise of fossil fuels is a relatively recent phenomenon, developing in the nineteenth century with the discovery of oil and the industrialization of economies, and expanding rapidly in the twentieth century with increased economic development and rising populations and affluence.

**Land Use Changes:** Landscapes are changing worldwide, as natural covers like forests, grasslands, and deserts are being converted to human-dominated ecosystems, including cities, agriculture, and forestry. Between 2000-2010, approximately 13 million hectares of land were converted each year to other land cover types. Land use changes affect the biosphere in several ways. They often reduce native habitat, making it increasingly difficult for species to survive. Some land use changes, such as deforestation and agriculture, remove native vegetation.



**Environmental Pollution**

One of the greatest problems that the world is facing today is that of environmental pollution, increasing with every passing year and causing grave and irreparable damage to the earth. Environmental pollution consists of five basic types of pollution, namely air, water, soil, noise and light.

**Air Pollution:** Air pollution is by far the most harmful form of pollution in our environment. Air pollution is caused by the injurious smoke emitted by cars, buses, trucks, trains, and factories, namely sulphur dioxide, carbon monoxide, and nitrogen oxides. Even smoke from burning leaves and cigarettes are harmful to the

environment causing a lot of damage to man and the atmosphere. Evidence of increasing air pollution is seen in lung cancer, asthma, allergies, and various breathing problems along the severe and irreparable damage to flora and fauna. Chlorofluorocarbons (CFC), released from refrigerators, air-conditioners, deodorants and insect repellents cause severe damage to the Earth's environment.

*Water Pollution:* Water Pollution involves any contaminated water, whether from chemical, particulate, or bacterial matter that degrades the water's quality and purity. Water pollution can occur in oceans, rivers, lakes, and underground reservoirs, and as different water sources flow together the pollution can spread.

*Soil Pollution:* Soil contamination or soil pollution as part of land degradation is caused by the presence of xenobiotic chemicals or other alteration in the natural soil environment. It is typically caused by industrial activity, agricultural chemicals, or improper disposal of waste.

*Noise Pollution:* Noise pollution refers to undesirable levels of noises caused by human activity that disrupt the standard of living in the affected area. Noise pollution can come from traffic, airports, railroads, manufacturing plants, concerts and construction or demolition.

*Light Pollution:* Light pollution is the over illumination of an area that is considered obtrusive. Sources include large cities, billboards and advertising and nighttime sporting events and other nighttime entertainment.

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