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ENVIRONMENTAL PROTECTION – ISSUES AND CHALLENGES

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ABSTRACT

There is a proverb "God made village, manmade town", According to that sentence God has given us abundance of Nature which is encircled us and around us. But mankind, today frightened by natural tendencies occurring changes we cannot estimate and calculate when the earth, sky, oceans, air, living beings were created or formed. Environmental Protection is a practice of protecting the natural environment on individual Each and every one of us can do something to protect our environment but of course; global actions are the ones that would help our environment. The general opinion is that our environment is in the constant state of degradation due to so many different environmental problems the scientist have been issuing warnings about the negative state of our environment for quite some time but unfortunately world leaders do not listen to science and global action to protect our environment from further degradation still looks like missions impossible. Human population is constantly growing, and world still fails to find the right balance between the increase in human population and environmental needs more people on this planet means more environmental problems. Since the 1960's activity of environmental movements has created awareness of the various environmental issues. There is no agreement on the extent of the environmental impact of human activity and even scientific dishonestly occurs. In Industrial countries voluntary environmental agreements often provide a platform for companies to be recognized for moving beyond the minimum regulatory standards and thus support the development of best environmental practice. In India, Environment Improvement Trust (EIT) working for environment & forest protection since 1998.

Key words: Global Change and Environmental Pollution, Water Pollution, – Air Pollution Soil Pollution – Health Effects – Emission Factors

INTRODUCTION

Environment Protection is relied upon our lives. Mankind should protect the Environments on individual organization controlled or governmental levels for the purpose of species and human beings are living safely. Environmental Protection requires activity on many levels. From Preventing global arming to safe guarding living beings from the effects of poor air Quality or toxic chemicals and supporting basic necessities for man to survive. More and more governmental bodies are actively monitoring the air for pollutants, inspecting emission sources providing compliance assistance to industry. Balanced use of water sources and maintaining safely, Quality and availability of drinking water by preventing contamination of drinking water and ground water to protect public health. Preventing and regulating water pollution from industries, municipal sewage treatment facilities, Construction sites farms and urban areas. Global warming is the result of negligence years of deforestation and pollution have slowly but steadily damaged the atmosphere and depleted the ozone layer Refrigerators and air conditioners emit the harmful chlorofluorocarbons which cause the depletion of the ozone layer and result is global warming.

The Green house effect is the rise in the temperature of the earth's atmosphere due to certain gases like, methane, water vapour nitrous oxide and carbon dioxide, which trap the energy and heat from the sun. We use more organic fertilizers. Compost and reduce waste which would otherwise get buried and produces green house gases as materials decompose.

According to the scientists, the climate of the earth has increased rapidly over the past years, due to global warming and will continue doing so unless we do not control the emission of the "Heat trapping gases"

What is water pollution

Water pollution can be defined in many ways. Usually, it means one or more substances have built up in water to such an extent that they cause problems for animals or people. Oceans, lakes, rivers, and other inland waters can naturally clean up a certain amount of pollution by dispersing it harmlessly. If you poured a cup of black ink into a river, the ink would quickly disappear into the river's much larger volume of clean water. The ink would still be there in the river, but in such a low concentration that you would not be able to see it. At such low levels, the chemicals in the ink probably would not present any real problem. However, if you poured gallons of ink into a river every few seconds through a pipe, the river would quickly turn black. The chemicals in the ink could very quickly have an effect on the quality of the water. This, in turn, could affect the health of all the plants, animals, and humans whose lives depend on the river. Thus, water pollution is all about quantities: how much of a polluting substance is released and how big a volume of water it is released into. A small quantity of a toxic chemical may have little impact if it is spilled into the ocean from a ship. But the same amount of the same chemical can have a much bigger impact pumped into a lake or river, where there is less clean water to disperse it.

What are the main types of water pollution?

Surface waters and groundwater are the two types of water resources that pollution affects. There are also two different ways in which pollution can occur. If pollution comes from a single location, such as a discharge pipe attached to a factory, it is known as point-source pollution. Other examples of point source pollution include an oil spill from a tanker, a discharge from a smoke stack (factory chimney), or someone pouring oil from their car down a drain. A great deal of water pollution happens not from one single source but from many different scattered sources. This is called nonpoint-source pollution. Sometimes pollution that enters the environment in one place has an effect hundreds or even thousands of miles away. This is known as transboundary pollution. One example is the way radioactive waste travels through the oceans from nuclear reprocessing plants in England and France to nearby countries such as Ireland and Norway.

There are two main ways of measuring the quality of water. One is to take samples of the water and measure the concentrations of different chemicals that it contains. If the chemicals are dangerous or the concentrations are too great, we can regard the water as polluted. Measurements like this are known as chemical indicators of water quality. Another way to measure water quality involves examining the fish, insects, and other invertebrates that the water will support. If many different types of creatures can live in a river, the quality is likely to be very good; if the river supports no fish life at all, the quality is obviously much poorer. Measurements like this are called biological indicators of water quality.

What are the causes of water pollution?

Sewage

With billions of people on the planet, disposing of sewage waste is a major problem. According to 2013 figures from the World Health Organization, some 780 million people (11 percent of the world's population) don't have access to safe drinking water, while 2.5 billion (40 percent of the world's population) don't have proper sanitation (hygienic toilet facilities); although there have been great improvements in securing access to clean water, relatively little progress has been made on improving global sanitation in the last decade. Sewage disposal affects people's immediate environments and leads to water-related illnesses

such as diarrhea that kills 760,000 children under five each year. [3] (Back in 2002, the World Health Organization estimated that water-related diseases could kill as many as 135 million people by 2020.) In developed countries, most people have flush toilets that take sewage waste quickly and hygienically away from their homes.

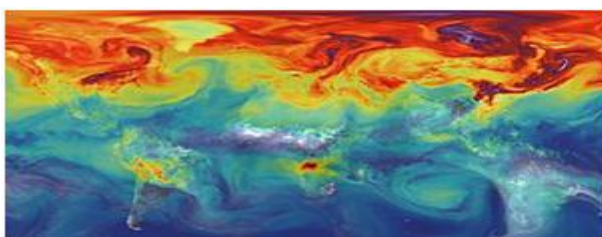
Nutrients

Suitably treated and used in moderate quantities, sewage can be a fertilizer: it returns important nutrients to the environment, such as nitrogen and phosphorus, which plants and animals need for growth. The trouble is, sewage is often released in much greater quantities than the natural environment can cope with. Chemical fertilizers used by farmers also add nutrients to the soil, which drain into rivers and seas and add to the fertilizing effect of the sewage. Together, sewage and fertilizers can cause a massive increase in the growth of algae or plankton that overwhelms huge areas of oceans, lakes, or rivers. This is known as a harmful algal bloom (also known as an HAB or red tide, because it can turn the water red). It is harmful because it removes oxygen from the water that kills other forms of life, leading to what is known as a dead zone. The Gulf of Mexico has one of the world's most spectacular dead zones. Each summer, according to studies by the NOAA, it grows to an area of around 5500 square miles (14,000 square kilometers), which is about the same size as the state of Connecticut.

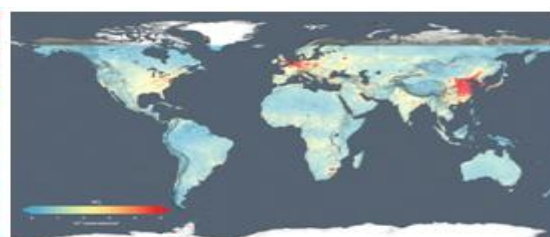
Waste water A few statistics illustrate the scale of the problem that waste water (chemicals washed down drains and discharged from factories) can cause. Around half of all ocean pollution is caused by sewage and waste water. Each year, the world generates perhaps 5–10 billion tons of industrial waste, much of which is pumped untreated into rivers, oceans, and other waterways. In the United States alone, around 400,000 factories take clean water from rivers, and many pump polluted waters back in their place. However, there have been major improvements in waste water treatment recently. Since 1970, in the United States, the Environmental Protection Agency (EPA) has invested about \$70 billion in improving water treatment plants that, as of 2015, serve around 88 percent of the US population (compared to just 69 percent in 1972). However, another \$271 billion is still needed to update and upgrade the system. As a result of this, many attempts are made by countries to develop agreements that are signed by multiple governments to prevent damage or manage the impacts of human activity on natural resources thus all the mankind should protect their living places from the pollution of air water, and sound the Government should take an action against the those who are ruined and destroyed the lands forests, tasks, canals, rivers, today man is caused to himself for his short span of life. Air pollution

Air pollution is the introduction of particulates, biological molecules, or other harmful materials into Earth's atmosphere, causing diseases, allergies, death to humans, damage to other living organisms such as animals and food crops, or the natural or built environment. Air pollution may come from anthropogenic or natural sources.

Pollutants



Carbon dioxide in Earth's atmosphere if *half* of global-warming emissions are *not* absorbed. (NASA simulation; 9 November 2015)



Nitrogen dioxide 2014 - global air quality levels (released 14 December 2015)

An air pollutant is a substance in the air that can have adverse effects on humans and the ecosystem. The substance can be solid particles, liquid droplets, or gases. A pollutant can be of natural origin or man-made. Pollutants are classified as primary or secondary. Primary pollutants are usually produced from a process, such as ash from a volcanic eruption. Other examples include carbon monoxide gas from motor vehicle exhaust, or the sulfur dioxide released from factories. Secondary pollutants are not emitted directly. Rather, they form in the air when primary pollutants react or interact. Ground level ozone is a prominent example of a secondary pollutant. Some pollutants may be both primary and secondary: they are both emitted directly and formed from other primary pollutants.

Emission factors

Air pollutant emission factors are reported representative values that attempt to relate the quantity of a pollutant released to the ambient air with an activity associated with the release of that pollutant. These factors are usually expressed as the weight of pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant (e.g., kilograms of particulate emitted per tonne of coal burned). Such factors facilitate estimation of emissions from various sources of air pollution. In most cases, these factors are simply averages of all available data of acceptable quality, and are generally assumed to be representative of long-term averages.

Health effects

Air pollution is a significant risk factor for a number of pollution-related diseases and health conditions including respiratory infections, heart disease, COPD, stroke and lung cancer.^[2] The health effects caused by air pollution may include difficulty in breathing, wheezing, coughing, asthma and worsening of existing respiratory and cardiac conditions. These effects can result in increased medication use, increased doctor or emergency room visits, more hospital admissions and premature death. The human health effects of poor air quality are far reaching, but principally affect the body's respiratory system and the cardiovascular system. Individual reactions to air pollutants depend on the type of pollutant a person is exposed to, the degree of exposure, and the individual's health status and genetics. The most common sources of air pollution include particulates, ozone, nitrogen dioxide, and sulphur dioxide. Children aged less than five years that live in developing countries are the most vulnerable population in terms of total deaths attributable to indoor and outdoor air pollution

Cardiovascular disease

A 2007 review of evidence found ambient air pollution exposure is a risk factor correlating with increased total mortality from cardiovascular events (range: 12% to 14% per 10 microg/m³ increase).

Air pollution is also emerging as a risk factor for stroke, particularly in developing countries where pollutant levels are highest. A 2007 study found that in women, air pollution is not associated with hemorrhagic but with ischemic stroke.^[42] Air pollution was also found to be associated with increased incidence and mortality from coronary stroke in a cohort study in 2011. Associations are believed to be causal and effects may be mediated by vasoconstriction, low-grade inflammation and atherosclerosis^[44] Other mechanisms such as autonomic nervous system imbalance have also been suggested

Lung disease

Chronic obstructive pulmonary disease (COPD) includes diseases such as chronic bronchitis and emphysema.

Research has demonstrated increased risk of developing asthma and COPD from increased exposure to traffic-related air pollution. Additionally, air pollution has been associated with increased hospitalization and mortality from asthma and COPD.

A study conducted in 1960-1961 in the wake of the Great Smog of 1952 compared 293 London residents with 477 residents of Gloucester, Peterborough, and Norwich, three towns with low reported death

rates from chronic bronchitis. All subjects were male postal truck drivers aged 40 to 59. Compared to the subjects from the outlying towns, the London subjects exhibited more severe respiratory symptoms (including cough, phlegm, and dyspnea), reduced lung function (FEV₁ and peak flow rate), and increased sputum production and purulence. The differences were more pronounced for subjects aged 50 to 59. The study controlled for age and smoking habits, so concluded that air pollution was the most likely cause of the observed differences.

It is believed that much like cystic fibrosis, by living in a more urban environment serious health hazards become more apparent. Studies have shown that in urban areas patients suffer mucus hypersecretion, lower levels of lung function, and more self-diagnosis of chronic bronchitis and emphysema.

Children

In the United States, despite the passage of the Clean Air Act in 1970, in 2002 at least 146 million Americans were living in non-attainment areas—regions in which the concentration of certain air pollutants exceeded federal standards. These dangerous pollutants are known as the criteria pollutants, and include ozone, particulate matter, sulfur dioxide, nitrogen dioxide, carbon monoxide, and lead. Protective measures to ensure children's health are being taken in cities such as New Delhi, India where buses now use compressed natural gas to help eliminate the "pea-soup" smog. A recent study in Europe has found that exposure to ultrafine particles can increase blood pressure in children

Sources

There are various locations, activities or factors which are responsible for releasing pollutants into the atmosphere. These sources can be classified into two major categories.

Anthropogenic (man-made) sources:

These are mostly related to the burning of multiple types of fuel.

- **Stationary sources** include smoke stacks of power plants, manufacturing facilities (factories) and waste incinerators, as well as furnaces and other types of fuel-burning heating devices. In developing and poor countries, traditional biomass burning is the major source of air pollutants; traditional biomass includes wood, crop waste and dung.
- **Mobile sources** include motor vehicles, marine vessels, and aircraft.

Natural sources:

Dust from natural sources, usually large areas of land with little or no vegetation

Methane, emitted by the digestion of food by animals, for example cattle

Radon gas from radioactive decay within the Earth's crust. Radon is a colorless, odorless, naturally occurring, radioactive noble gas that is formed from the decay of radium. It is considered to be a health hazard. Radon gas from natural sources can accumulate in buildings, especially in confined areas such as the basement and it is the second most frequent cause of lung cancer, after cigarette smoking.

CONCLUSION :

The general opinion is that our environment is in the constant state of degradation due to so many different environmental problems (climate change, all forms of pollution, deforestation, biodiversity loss, etc). The scientists have been issuing warnings about the negative state of our environment for quite some time but unfortunately world leaders do not listen to science and global action to protect our environment from further degradation still looks like mission impossible. This was best demonstrated in talks about the new climate change deal where world leaders once again failed to find the mutual language being divided by different individual interests. Human population is constantly growing, and world still fails to find the right balance between the increase in human population and environmental needs. More people on this planet means more environmental problems quite simply because our society doesn't have the ecological conscience. In the world

where everything is about the money it is impossible to develop global ecological conscience, and install it into our society.

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