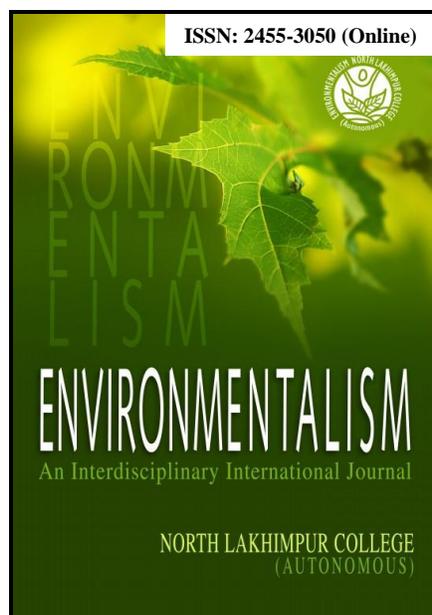


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INDUSTRIALIZATION AND ITS IMPACT UPON THE GLOBE

Bornali Borah^{a*} and Shyamali Hazarika^b

^aNorth Lakhimpur College (Autonomous), Khelmati, Lakhimpur-787031, Assam

^bMurkong Selek College, Jonai, Dhemaji-787060, Assam

Abstract

Environmental degradation is one of the most serious problems which the world community is facing today. It is commonly agreed that environmental degradation is the result of urban industries and technological revolution. It has rightly been said that man is nature's best promise and worst enemy. Human mismanagement of natural resources, industrialization and agricultural development has given rise to numerous environmental problems such as pollution of water, air, noise, land etc. The traditional approach to control environmental pollution has been legal regulation and under such situation, it is necessary to have a functional solution to control pollution particularly in developing countries. Some of the effective measures to free environment from pollution caused by industrialization are making environmental awareness, plantation, practice of value based education etc. Instead of considering human being as supreme, people have to think of the welfare of the earth. To eradicate this view of "worst enemy", people have to be sensible and conscious about nature and environment. Human being should take the responsibility in a right direction to make the environment free from pollution which will make our world green.

Keywords: Industrialization, environment, degradation, pollution

1 Introduction

Man and nature are always in close interaction since time immemorial. Man has always been conscious of environmental impact and influences all the time. But in the quest for rapid industrial development over the years, the environmental quality has come to be subordinate to developmental goods. The term environment could be defined as the complex aggregate of all external conditions which affect life, development and survival of an organism. It includes the complex physical, chemical and biological factors surrounding an organism or an ecological community. Such factors act and interact with various species or organism to affect their form, growth and survival. Thus, environment comprises our air, water and land resources. Any unfavourable alteration of this environment is called environmental pollution. Environmental pollution is a term that refers to all the ways by which people pollute their surroundings. People pollute their water with chemical and other substances, poison the air with gases and smoke and damage the soil with too much fertilizers and pesticides. Thus environmental pollution means

Correspondence to: Bornali Borah, North Lakhimpur College (Autonomous), Khelmati, Lakhimpur-787031, Assam (India).E-mail: bborah27@gmail.com

^b*Murkong Selek College, Jonai, Dhemaji-787060, Assam*

lowering of environmental quality at local scale caused exclusively by human activities. On the other hand, environmental degradation means lowering of environmental quality at local, regional and global levels by both natural process and human activities.

2 Industrialization as a factor of Environmental Degradation

Environmental degradation is one of the most serious problems which the world community is facing today. It is commonly agreed that environmental degradation is the result of urban industries and technological revolution. Modern industries produce industrial wastes and toxic gases which are dangerous to human health and health of other animals also. It has rightly been said that man is nature's best promise and worst enemy. Human mismanagement of natural resources, industrialization and agricultural development has given rise to numerous environmental problems such as pollution of water, air, noise, land etc. If this problem left unsolved the problem may arise in near future that life from the planet would totally be extinct.

There are different pollutions caused by industrialization-

2.1 Water Pollution

Water is an important factor in the life of organism. It is an essential element of human living but it is useful when it is unpolluted. Water pollution may be defined as alteration in chemical, physical and biological characteristics of water which may cause harmful effects on human and aquatic life. Water is colourless, odourless and transparent substance. But when it is polluted it loses its qualities and become unfit for use. Water pollution creates severe damage to both plants and animals including human being. The most sufferers are human being and micro-organisms. Polluted water is the major cause of the epidemics and several dangerous diseases such as cholera, tuberculosis, jaundice, dysentery, diarrhea etc.

In the age of industrialization, industrial waste is one of the most important pollutants of water. Most of the rivers are polluted by the direct discharge of industrial effluents into them. The industrial waste water contains raw materials, chemicals, final products, impurities of the industries etc. The industrial wastes of the various industries are highly toxic. It brings about death of liver, kidney, reproductive systems in both invertebrate and vertebrate aquatic animals.

In India all the major rivers have been polluted. The river Ganga which was once treated as the purifier of all is perhaps one of the most heavily polluted river. Because of the establishment of a large number of industrial cities on the bank of river Ganga like Kanpur, Allahabad, Varanasi and Patna, countless tanneries, chemical plants, textile mills, distilleries, slaughterhouses, and hospitals prosper and grow along this and contribute to the pollution of the Ganga by dumping untreated waste into it. Industrial effluents are about 12% of the total volume of effluent reaching the Ganga. Although a relatively low proportion, they are a cause for major concern because they are often toxic and non-biodegradable. A number of initiatives have been undertaken to clean the river but failed to deliver desired results ([http://www.en.Wikipedia.org/wiki/pollution of the Ganges](http://www.en.Wikipedia.org/wiki/pollution_of_the_Ganges)). The rivers Damodar, Kaberi, Mini-Mahi, Yamuna and even the mighty Brahmaputra are also in the same condition. The river Mini-Mahi in Baroda has been treated as one of the most polluted river which is having a variety of industrial and petrochemical wastes. Similarly, Yamuna has been affected by the dumping of toxic effluents by various industries of Delhi. The water of Yamuna is of "reasonably good quality" through its length from Yamunotri in the Himalayas to Wazirabad in

Delhi, about 375 kilometres (233 mi), where the discharge of waste water through 15 drains between Wazirabad barrage and Okhla barrage renders the river severely polluted after Wazirabad. One official describes the river as a "sewage drain" with biochemical oxygen demand (BOD) values ranging from 14 to 28 mg/l and high coliform content. There are three main sources of pollution in the river, namely households and municipal disposal sites, soil erosion resulting from deforestation occurring to make way for agriculture along with resulting chemical wash-off from fertilizers, herbicides, and pesticides and run-off from commercial activity and industrial sites (<https://www.en.Wikipedia.org/wiki/Yamuna>). The river Ganga from Haridwar is regarded as one unending sewer which is fit only to carry urban liquid waste, half burnt dead bodies, carrion etc. The Ganga which is flowing through the city of Kanpur of Uttar Pradesh is heavily polluted due to leather industries and the tanneries. The waste water of such industries contain organic and toxic inorganic materials which when discharged as such will deplete dissolved oxygen content of the receiving water courses resulting in the death of all aquatic life and emanating foul odour. In Kanpur the waste water and the trade effluents of such industries are directly discharged into the river without taking any proper treatment. The water quality monitoring results carried out by CPCB (Central Pollution Control Board) particularly with respect to the indicator of oxygen consuming substances (biochemical oxygen demand, BOD) and the indicator of pathogenic bacteria show that there is gradual degradation in water quality (CPCB 2009). The water quality monitoring results obtained by CPCB during 1995 to 2009 indicate that organic and bacterial contamination was critical in the water bodies. The main cause for such contamination is discharge of domestic and industrial wastewater in water bodies mostly in an untreated form from urban centers (Murty and Surender, 2011).

It is needless to say that in the tropical developing countries a large amount of misery, sickness and death due to infectious diseases arises out of water supplies. The National Environmental Engineering Institute, Nagpur records that seventy percent of the available water in India is polluted and only two percent of the total water is fresh water which is very much essential for our lives. Humanity is left with only one tea-spoonful of sweet water for every five liters of total water. Thus pollution of water on account of discharge of industrial and domestic wastes into river and other sources of water, today, has assumed such alarming proportions that it is not only adversely affecting the flora and fauna and natural environment but also posing a very serious threat to the world community.

2.2 Soil Pollution

Soil is a complex biological system comprising of organic and inorganic material including water and gases in variable proportion. It is an important part of biosphere and is a dynamic entity on which the entire mankind depends for its food, shelter etc. Soil pollution differs from water pollution or air pollution, because the pollutants remain in direct contact with the soil for relatively longer periods and hence alters the chemical and biological properties of the soil. Among the different causes industrialization can be labeled as one of the most important. Indiscriminate dumping of industries wastes pollutes the soil to a large extent.

The scientists of modern period opine that the toxic effluents in sewage and industrial waste harm soil and thus cause wasteland. The inadequate treated or untreated sewage sludge not only cause serious health hazard but also pollute soil and decrease its fertility. Some solid waste may cause clogging of ground water filters. Suspended matter present in swage can act as a blanket on the soil and interfere with its productivity. Mining also creates

wastelands because in mining the earth is scoured digging into it for valuables. Here both the dug-up area and the area where the material is dumped are so destroyed that they can no longer support any life and thus create wasteland. The development projects like irrigation and power project have been caused lots of damage to the land resulting in excessive salinity and alkalinity in the agricultural lands.

2.3 Air Pollution

Air Pollution at present is considered as one of the most potent threat to the existence of all human being. It is primarily caused through the rapid existing of human race on earth and other living being. The destructive side of modern technology can be seen from the Bhopal Gas Tragedy-which was happened due to the release of highly noxious and dangerous gas from the plant of the union carbide company on December 2&3, 1984. It was considered as the world's worst industrial disaster. A government affidavit in 2006 stated that the leak caused 558,125 injuries, including 38,478 temporary partial injuries and approximately 3,900 severely and permanently disabling injuries (Dubey, 2010). Others estimate that 5,20,000 persons were exposed to the gases, and up to 8,000 died during the first weeks, and another 100,000 persons or more have got permanent injuries (Eckerman, 2005).

The industries, different factories, automobiles all these are responsible for air pollution. Mainly the contribution of industries to the air pollution is in the form of dark smog which shows that combustion is incomplete and indicates the presence of pollutants. The presence of pollutants in air means presence of carbon monoxide, carbon dioxide, nitrogen oxides, sulphur dioxide, suspended particulars like dust etc. The major source of carbon monoxide is incomplete burning fossils fuels like coal, petroleum and wood charcoal. Excessive amount of carbon monoxide causes respiratory problem and suffocation, when inhaled in the human bodies.

The large scale burning of fossil fuels in modern industry and transport system increases the concentrations of greenhouse gases such as carbon monoxide, methane, nitrous oxide, chlorofluorocarbons in the atmosphere. These greenhouse gases allow sun's ray to penetrate the earth's surface but retard the return flow (the infra-red radiation). Thus the sun's heat would be trapped near the earth's surface, raising the earth's surface temperature over a period of time. Among all these gases carbon dioxide (CO₂) alone plays the major role in creating greenhouse effect. The heat would raise the sea level by expanding sea water and by melting glaciers and polar ice-caps. This will result into flooding of coastal areas. The winter might be shorter, wetter and warmer, summer's longer, hotter and drier, particularly mid continental areas. Moreover, between 15 to 55 kilometers about the earth, the ozone provides a shield for living creatures by filtering out dangerous ultra violet rays from sunlight. Ultra violet causes sun burn skin cancer, cataracts and can suppress the immune system. But gradually it has been noticed that the ozone umbrella is being rippled by industrial activities of man and it has become a dangerous activity of human being.

After carbon dioxide, sulphur dioxide is the second most important contributor of air pollutants. When the concentration of sulphur increases in the atmosphere it becomes injuries to both plants and animals including human being, because increased concentration of sulphur increases the acidity of water which result in acid rain. Going by the name of "Acid Rain", this is an odourless, tasteless pollutant. It is arising from coal fired power plants, automobiles exhausts, from different refineries, industries etc. whose precipitation may fall upon hundreds of miles away from the source. It affects not only the living being but also the non-living being. As for example, acid rain

destroys stained glass windows, corrodes metal and also ruins the paint colour. Acid rain reacts with calcium to form calcium bicarbonate, which can be easily washed away. One drastic effect of acid rain can be seen on one of the Seven Wonders of the World, Taj Mahal in India. The marble walls and pillars of this great man-made monument are found to be getting eroded by acid rains caused by the sulphur dioxide emitted from the refinery and industries situated in Mathura. Even St. Paul's Cathedral in London, and the Statue of Liberty in New York are few such examples (Mondal, 2015). Thus it has become clear that air pollution brings a serious threat to the globe.

2.4 Noise Pollution

Ecologically speaking, when unwanted sound is released in the atmosphere it is called as noise pollution. Due to the increasing mechanization, technological advancement and unregulated population growth of noise levels in all spheres have increased considerably. In the process of rapid industrialization in the developing countries more percentage of population is adversely affected by noise pollution. The ill effects of noise pollution are in no way less harmful than those of water, soil or air pollution. Noise pollution affects both health (mental and physical) and behavior. Unwanted sound (noise) can damage psychological health. Noise pollution can cause hypertension, high stress levels, hearing loss, sleep disturbances, and other harmful effects (Pal, 1999; Sharma, 2015).

3 Some measures to control Pollution caused by industrialization

Environmental degradation problem in India as well as in the globe is increased day by day which is caused by negative factors of Industrialization which are to be reduced and eliminated. There are some ways to solve the problems.

The traditional approach to control environmental pollution has been legal regulation. Many laws or acts are enacted for regulating factories and industries. But these laws or acts are not properly implemented. It is an established fact that laws or acts are violated or ignored if they involve heavy economic loss. So under such situation, it is necessary to have a functional solution to control pollution particularly in developing countries. The role of Supreme Court in this regard is more important. Because the judgment of the Supreme Court is treated as rule of law and can be taken as a weapon for protection of environment (Khan, 2002; Singh 2005).

The most effective measure to free environment from pollution caused by industrialization is to make environmental awareness among people. The government, different organizations must be hand in hand to implement environmental awareness among general public. Moreover, various innovative research projects should be implemented to adopt environmental strategies that minimize the production of industrial effluents. In the awareness programme, common people should be taught how to reduce air pollution (Mehta *et al.* 1994).

In this regard plantation is another way to protect environment. Because this world is not only for oneself but for other plants and animals; this world is for the future generation also. So, maximum plantation should be made to save environment and nature. Trees absorb carbon dioxide, a greenhouse gas.

Another proper way to save environment is the practice of value based education. The present education system is missing value based education. It should add value as an indispensable of all types of education. Value based education will promote the earth-citizenship thinking. Instead of considering human being as supreme, people have to think of the welfare of the earth.

4 Conclusion

Environmental degradation by industrialization has been increasing day by day and it is very dangerous for future generation and other plants and animals. Human being is very much responsible for it. Due to rapid development of science and technologies, human being try to use different modern weapons to conquer the nature and it creates the problem of environmental degradation. Though industrialization is necessary for the development of the nation yet it should be treated with a holistic approach so that it can assure a positive trend towards a better quality of life. It is a high time to search for a practical ethical outlook and a value based education system which can help man to lead a moral life. In this regard study of environmental ethics may be considered as an important thing which applies ethical thinking to the natural world and the relationship between humans and the earth. Nature is the best friend of human being but human being is considered as nature's best promise and worst enemy. To eradicate this view of "worst enemy", people have to be sensible and conscious about nature and environment. Human being should take the responsibility in a right direction to make the environment free from pollution which will make our world green.

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