# Environmental Concerns/ Problems in Bangladesh

Bangladesh saw around 234,000 deaths, including 80,000 in urban areas, due to environmental pollution and related health risks in 2015, making it one of the worst affected countries in the world, reveals a World Bank report. Some 18,000 lives and 578,000 years of potential life were lost in Dhaka city in 2015 –**the second least livable city** in the world, showing the urgency to immediately address the city's environmental issues.

Some of the major environmental concerns currently faced by Bangladesh have been mentioned in the following points:

1. **Jeopardized public health due to particulate air pollution:**

Particulates – also known as atmospheric aerosol particles/ suspended particulate matter are microscopic particles of solid or liquid matter suspended in the air. Particulate Matter (PM) is the principal component of air pollution whose predominant sources are vehicular and industrial emissions. PM induces inflammation, oxidative stress and aggravates respiratory symptoms in patients with chronic airway diseases. Inhalation of airborne PM produces a range of adverse respiratory health outcomes like asthma, lung cancer, chronic obstructive pulmonary diseases etc. In a steadily urbanizing country like Bangladesh where there is inadequate technology and economy to manage particulate wastes compared to the growing number of industries, public health is at serious risk.

1. **Loss of significant amount of water resources due to unrestrained discharge of wastes into the water bodies:**

Dhaka and its adjacent districts like Gazipur, Narayanganj are the worst victims of unplanned industrialization. Massive amount of effluent water is being discharged in the nearby water bodies such as Mokosh Beel, Turag river and Ratanpur Khal. Textile dyeing industries situated surrounding D.N.D. embankment discharge huge amount of effluents and solid wastes which eventually enter the Shitalakshya river. A vast amount of untreated effluents from industries such as spinning mills, dyeing, cotton, textile, steel mills, oil refineries, and others industries is discharged regularly into the Karnaphuli river, Chittagong. This is endangering the marine biodiversity and causing a lot of fish species to go extinct.

1. **Groundwater contamination by trace elements:**

In Bangladesh, trace elements in ground and surface water often exceed the guideline values recommended by WHO. Trace metals are elements like Chromium, Zinc, Manganese, Arsenic etc. Presence of these metals in drinking water above a certain amount can be detrimental to human health. In Bangladesh the most common trace contamination is Arsenic contamination. Overexposure of arsenic not only increases the probability of diseases like lung cancer, renal cancer, skin cancer but also it may create a generation like “arsenic orphans”.

1. **Biodiversity depletion (in Chalan Beel, Sunderban, Modhupur forest and Chokoria mangrove forest):**

Industrial, domestic, agro-chemical and other pollution an irrational use of chemical fertilizers and pesticides, rapid, unplanned and uncontrolled industrialization, imbalanced competition between the local varieties consequent to the introduction, adoption, and promotion of the exotic and High Yield Varieties (HYV) are causing biodiversity depletion in Bangladesh.

1. **Reduction of fertility and cultivable lands due to heavy metalloid contamination in soil:**

Major sources of soil heavy metal and metalloid pollution include municipal wastes, industrial effluents, chemical fertilizers, and pesticides. Irrigation with contaminated groundwater and river water are also responsible for soil contamination. Heavy metal and metalloid pollution of farmland and crops can substantially impact food safety as well as human health. In Bangladesh, cultivation in the dry season mostly depends on irrigation by deep shallow tube wells (STWs). Bangladesh has the highest percentage of As-contaminated STWs, and yearly increases In Bangladesh, cultivation in the dry season mostly depends on irrigation by deep shallow tube wells (STWs). Bangladesh has the highest percentage of As-contaminated STWs, and yearly increases. Soil from Chittagong and Bogra city were found to be polluted by Cd mainly due to rapid industrialization and urbanization in recent decades. Excessive use of phosphate fertilizers and pesticides are responsible for increasing heavy metals and metalloids in the soils of commercial and residential vegetable plots in Pabna.

1. **Increase in natural disasters due to climate change:**

Bangladesh is highly susceptible to varying climate changes. It is a country where three major rivers converge, a country largely made up of low lying flood plains and that is the statistical focus of the cyclone generating Bay of Bengal. The past has demonstrated how devastating major climatic events can be. Storms, such as Cyclone Gorky (1991) - which killed more than 130,000 people and left 10 million people homeless - demonstrate the extreme severity of these events. Many of the impacts of climate change will reinforce the environmental, socio-economic and demographic stresses already faced by Bangladesh. Climate change is likely to result in:

1. **Increased Flooding:** Coastal flooding is a major impact of sea level rise. This is higher in Bangladesh because of the effects of tectonic subsidence. Sea level rise is also associated with increased riverside flooding, because it causes more backwater effect of the Ganges-Brahmaputra-Meghna Rivers along the delta. This will result in increased drainage congestion due to higher water levels, which will be exacerbated by other factors associated with climate change such as siltation of estuary branches in line with increased surface runoff, and higher riverbed levels.
2. **Increased Droughts:** Climate change will exacerbate drought in Bangladesh both in terms of intensity and frequency. The Southwest and Northwest regions are particularly susceptible to drought. Greater precipitation extremes associated with climate change also mean less rainfall in the dry season, which will increase water stress on those areas that already experience water shortages, particularly in the winter months. This will be worse for those areas that depend on glacial melt water for their main dry-season water supply, as glaciers recede with rising temperatures.
3. **Increased vulnerability to cyclones and storm surges:** 5-10 percent increase in intensity (wind speed) that would contribute to enhanced storm urges and coastal flooding, and also project a 20 per cent increase in intensity of associated precipitation that would contribute to flooding. Cyclonic winds are likely to increase in intensity because of the positive correlation with temperature rise in sea surface. In November 2007, for example, the tropical cyclone SIDR, with a 100 mile long front covering the breadth of the country and with winds up to 240 km per hour, hit Bangladesh. This was noted to be an unusual occurrence given the intensity and timing of the storm, particularly the fact that it occurred in the same year as two recurrent floods.
4. **Decreased availability of fresh water:** The availability of freshwater will be reduced by increased intrusion of salinity into fresh water sources during the low flow conditions. In the coastal regions this is brought about by sea level rise resulting in saline water intrusion in the estuaries and into the groundwater. The effects are intensified by greater evaporation of freshwater as temperatures increase, coupled with a greater demand for fresh water in times of water stress.
5. **Greater temperature extremes:** Climate change is associated with warmer summers and colder winters. Temperatures in Bangladesh have increased about 1°C in May and 0.5 °C in November between 1985 and 1998, and further temperature increases are expected. However, although the overall climate is warming, temperature extremes are increasing, and winter temperatures as low as 5°C have been recorded in January 2007, reportedly the lowest in 38 years.

These are the current leading environmental concerns of Bangladesh.

# List of global effects causing environmental problems locally:

**1. Ozone Depletion, Greenhouse Effect and Global Warming:** All the three physical phenomena are related to one another to a great extent.Ozone is a form of oxygen, which is away from the earth’s surface at a height of about 20 to 30 km in the atmosphere. It is scattered in the strato­sphere in the form of a layer about three millimeters thick. This layer works as a shield to protect the earth against the ultraviolet radiation that comes from the sun.

Near the earth’s surface, ozone is an increasingly troublesome pollutant but it is also as important to life as oxygen itself. If this layer disappears or thins, all terrestrial life will be annihilated. The thinning and depletion of the ozone layer has generated global concern during the last few years.

This is due to several chemical pollutants discharged by industries and produced through other chemical reactions. The main cause of the ozone depletion is generally attributed to the chlorofluorocarbons (CFCs) which are mostly produced by highly industrialized developed countries. CFC is a source of energy which is needed most in the modern life.

It is found in many household implements and products. When it is released into the air, it accumulates in the upper atmosphere which destroys the ozone layer. The depletion of ozone layer is linked to both ‘greenhouse effect’ and the phenomenon of ‘global warming’.

The phenomenon commonly known as ‘greenhouse effect’ occurs due to the emission of certain gaseous pollutants (methane, CFCs, water vapor and carbon dioxide are known as greenhouse gases) in the air which after the heating of the atmosphere causes the average global temperature to rise. This is known as ‘global warming’.

In fact, the buildup of carbon dioxide in the earth’s atmosphere functions like the glass of a greenhouse. It allows the sun’s rays to pass through, but acts as a barrier to prevent them from passing back. The effect is to heat up the earth. Global warming is sometimes termed the ‘greenhouse effect’ for this reason. Carbon dioxide emissions which cause global warming are mostly from automobiles.

The gases used in the aerosols and refrigerators produce particles that react with the ozone layer in such a way as to weaken it. It is thought that these chemicals have produced detectable holes in the ozone layer at both poles and thinning it elsewhere. These holes have become a serious cause of concern for the environmental scientists of the whole world.

The increase in ozone layer depletion will invite the lethal ultraviolet rays from the sun which will increase cancer (especially skin cancer), eye damage (increase in cataracts of the eyes) injure plants and animals and marine life. It will also help in the re-emergence of diseases such as cholera and viral fevers. (Recently spread bird flu and swine flu may be transformed form of the old viral fevers).

Not only this, it may even reduce our immunity to many diseases. Where population concentration is more, such as in big cities, the effects of ozone depletion will be more disastrous on human health, crops and ecosystem. It has its effect on the earth’s climate by adding to the greenhouse effect which ultimately results in global warming.

The consequences of global warming are likely to be very devastating and disturbing. Among other things, sea levels will rise as a result of melting of glaciers at the poles and the oceans will warm and expand. Cities that lie near the coasts or in low-lying areas will be flooded and become inhabitable. Large tracts of fertile land will become desert.

Looking at the above cited consequences of depletion of ozone layer and global warming, it has been increasingly realized that human existence is in peril unless something is done to check the depletion of ozone layer and global warming. It has become a major concern of the world today.

It is not a local, regional or national problem but a global problem and requires solution at the global level itself. It is only through the combined efforts of the people of this planet that we can, if not fully solve, at least, minimize these environmental problems.

**2. Desertification:** There is no environmental problem in the world that affects people, especially poor people, as extensively as land degradation or desertification. UNCOD defines desertification as ‘the diminution or destructing of the biological potential of land, which can ultimately led to the desert-like conditions. The causes of desertification are numerous.

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**3. Deforestation:** Deforestation is one of the important issues of environmental change and degradation of soil. About 30 per cent of earth’s surface is covered by forests. South America, especially Brazil, West Central Africa and South-East Asia, are home to regions of dense forests.

The human pressure on forests has signifi­cantly increased in recent decades. The need for agricultural land, increased demand for fuel and commercial wood, more and more dam construction, large-scale ranching and mining along with growing industrialization and urbanization have ruthlessly exploited the forests and have in turn created chaotic conditions and severe environmental imbalances.

The main cause of deforestation is commercial exploitation of forests. Besides this, as a part of developmental drive, large dams are constructed across many rivers thereby destroying forests. The forests play a pivotal role in balancing the ecosystem or, in other words, in maintaining the oxygen and carbon balance of the earth. Forests have a multiple ecological role to play which affects all types of life in a variety of ways.

They thwart the dangers of cloud drifting, soil erosion, floods, wind erosion and groundwater evaporation. They also protect a wide variety of flora and fauna, provide recreation and can effectively control air pollution. Defor­estation destroys symbiotic relationship between ecological infrastructure and animal and human species also.

There has been a growing concern among professional foresters along with social workers about the rate of deforestation everywhere. FAO, UNDP, World Bank and other government and non-governmental organizations (NGOs) have expressed their opinion about deforestation and suggested plans to protect and renewal of forests.

**4. Loss of biodiversity:** Today, the extinction of several species or loss of biodiversity is a much debated issue among the environmentalists at international level. Many species are disappearing rapidly. According to an estimate, 20 to 75 species are becoming extinct each day because of deforestation. This loss of biodiversity is mainly due to the degeneration of life support system. It provides the basis for life on earth. Biodiversity means the variety of life on earth.

The diversity is a condition for long-term sustainability of the environment. The maintenance of its integrity is, therefore, recognized as being indispensable to sustain human life. Biological diversity encompasses all species of plants, animals and micro-organisms and the ecosystem and ecological processes of which they are a part.

The increasing interest in biodiversity is a result of concern regarding species extinction, depletion of genetic diversity and disruption to the atmosphere, water supplies, fisheries and forests. Some bird species such as vultures and kites became almost extinct.

Many species of animals and plants are disappearing rapidly because of their high consumption or destruction. All the species are the integral part of ecosystem and extinctions of some species threatens the balance of ecosystem, and also diminishes the well-being of the remaining species, including human beings. Our earth’s biodiversity provides varied sources of food and medicinal plants.

The main causes identified for the loss of biological diversity are:

(i) Habitat loss, fragmentation and modification;

(ii) Overexploitation of resources; and

(iii) Chemical fertilizers, pesticides and oil pollution.

**5. Disposal of wastes:** The high energy consumption and high population densities of the urban societies give rise to large quantities of waste water and sewage as well as household rubbish. Industrialization and urbanization are the main causes of domestic, industrial and nuclear wastes.

The contaminated water supplies cause many diseases of epidemic nature. The industrial waste consists of chemicals, detergents, metals and synthetic compounds besides the solid waste and garbage. Thousands of tons of mercury, nitrogen, phosphorus, cadmium, lead, zinc and other waste is dumped every day in the river and sea waters.

The increased nuclear fuel is becoming as one of the sources of non-conventional energy. The nuclear waste contains radioactive isotopes which generate large quantities of heat. The domestic, industrial and nuclear wastes are serious health hazards and may endanger the biosphere as well.

Industrial waste, pesticides and herbicides enter the waterways through dumping as well as runoff from farms and homes. Many rivers of India including the long seashore are the victims of this disposal of waste. Because of dumping of heavy waste, it is now very difficult to get a cup of totally uncontaminated water from the so-called sacred rivers like Ganga and Yamuna. Inadequate system of solid waste disposal causes adverse impact on health, infant mortality and the birth rate.

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