Dr. Rishu Raj

Assistant professor

Dept. of Political science

Magadh Mahila College

Patna University

Rishuraj869@gmail.com

ENVIRONMENTAL DEGRADATION

Environmental degradation is the deterioration of the environment through depletion of resources such as air, water and soil; the destruction of ecosystems; habitat destruction; the extinction of wildlife; and pollution. It is defined as any change or disturbance to the environment perceived to be deleterious or undesirable. Environmental degradation is one of the ten threats officially cautioned by the High-level Panel on Threats, Challenges and Change of the United Nations. The United Nations International Strategy for Disaster Reduction defines environmental degradation as "the reduction of the capacity of the environment to meet social and ecological objectives, and needs". Environmental

degradation comes in many types. When natural habitats are destroyed or natural resources are depleted, the environment is degraded. Efforts to counteract this problem include environmental protection and environmental resources management.

There are many examples of environmental degradation throughout the world. A recent example is the 2019 Amazon rainforest wildfires. The Amazon makes up 60% of all rainforests. It is the earth's lungs and with it getting destroyed is posing a huge threat to the environment and the whole world. The effects of the deforestation will pose major impacts on the world around us. The constant cutting down of trees is getting rid of our oxygen supply as well as the absorption of co2. With the continuation of deforestation we will have less available oxygen in the world which could have detrimental effects on human health. An alternate issue that results from this is the overconsumption and waste of the paper products that come from those trees. The waste it typically produces does not get recycled, therefore, immense amount of waste is created. An additional harmful result from this is the degradation of the soil. The constant deforestation causes the soil to become less nutrient which will make it harder to be used again.

Scientists assert that human activity has pushed the earth into a sixth mass extinction event.The loss of biodiversity has been attributed in particular to

human overpopulation, continued human population growth and overconsumption of natural resources by the world's wealthy.

The implications of these losses for human livelihoods and wellbeing have raised serious concerns. With regard to the agriculture sector for example, The State of the World's Biodiversity for Food and Agriculture, published by the Food and Agriculture Organization of the United Nations in 2019, states that "countries report that many species that contribute to vital ecosystem services, including pollinators, the natural enemies of pests, soil organisms and wild food species, are in decline as a consequence of the destruction and degradation of habitats, overexploitation, pollution and other threats" and that "key ecosystems that deliver numerous services essential to food and agriculture, including supply of freshwater, protection against hazards and provision of habitat for species such as fish and pollinators, are declining."

Water degradation

One major component of environmental degradation is the depletion of the resource of fresh water on Earth.Approximately only 2.5% of all of the water on Earth is fresh water, with the rest being salt water. 69% of fresh water is frozen in ice caps located on Antarctica and Greenland, so only 30% of the 2.5% of fresh

water is available for consumption. Fresh water is an exceptionally important resource, since life on Earth is ultimately dependent on it. Water transports nutrients, minerals and chemicals within the biosphere to all forms of life, sustains both plants and animals, and moulds the surface of the Earth with transportation and deposition of materials.

The current top three uses of fresh water account for 95% of its consumption; approximately 85% is used for irrigation of farmland, golf courses, and parks, 6% is used for domestic purposes such as indoor bathing uses and outdoor garden and lawn use, and 4% is used for industrial purposes such as processing, washing, and cooling in manufacturing centres. It is estimated that one in three people over the entire globe are already facing water shortages, almost one-fifth of the world population live in areas of physical water scarcity, and almost one quarter of the world's population live in a developing country that lacks the necessary infrastructure to use water from available rivers and aquifers. Water scarcity is an increasing problem due to many foreseen issues in the future including population growth, increased urbanization, higher standards of living, and climate change.

Climate change and temperature

Climate change affects the Earth's water supply in a large number of ways. It is predicted that the mean global temperature will rise in the coming years due to a number of forces affecting the climate. The amount of atmospheric carbon dioxide (CO_2) will rise, and both of these will influence water resources; evaporation depends strongly on temperature and moisture availability which can ultimately affect the amount of water available to replenish groundwater supplies.

Transpiration from plants can be affected by a rise in atmospheric CO_2, which can decrease their use of water, but can also raise their use of water from possible increases of leaf area. Temperature rise can reduce the snow season in the winter and increase the intensity of the melting snow leading to peak runoff of this, affecting soil moisture, flood and drought risks, and storage capacities depending on the area.

Warmer winter temperatures cause a decrease in snowpack, which can result in diminished water resources during summer. This is especially important at mid-latitudes and in mountain regions that depend on glacial runoff to replenish their river systems and groundwater supplies, making these areas increasingly

vulnerable to water shortages over time; an increase in temperature will initially result in a rapid rise in water melting from glaciers in the summer, followed by a retreat in glaciers and a decrease in the melt and consequently the water supply every year as the size of these glaciers get smaller and smaller.

Thermal expansion of water and increased melting of oceanic glaciers from an increase in temperature gives way to a rise in sea level. This can affect the fresh water supply to coastal areas as well. As river mouths and deltas with higher salinity get pushed further inland, an intrusion of saltwater results in an increase of salinity in reservoirs and aquifers. Sea-level rise may also consequently be caused by a depletion of groundwater, as climate change can affect the hydrologic cycle in a number of ways. Uneven distributions of increased temperatures and increased precipitation around the globe results in water surpluses and deficits, but a global decrease in groundwater suggests a rise in sea level, even after meltwater and thermal expansion were accounted for, which can provide a positive feedback to the problems sea-level rise causes to fresh-water supply.

A rise in air temprature results in a rise in water temperature, which is also very significant in water degradation as the water would become more susceptible to

bacterial growth. An increase in water temperature can also affect ecosystems greatly because of a species' sensitivity to temperature, and also by inducing changes in a body of water's self-purification system from decreased amounts of dissolved oxygen in the water due to rises in temperature.

Climate change and precipitation

A rise in global temperatures is also predicted to correlate with an increase in global precipitation but because of increased runoff, floods, increased rates of soil erosion, and mass movement of land, a decline in water quality is probable, because while water will carry more nutrients it will also carry more contaminants. While most of the attention about climate change is directed towards global warming and greenhouse effect, some of the most severe effects of climate change are likely to be from changes in precipitation, evapotranspiration, runoff, and soil moisture. It is generally expected that, on average, global precipitation will increase, with some areas receiving increases and some decreases.

Climate models show that while some regions should expect an increase in precipitation, such as in the tropics and higher latitudes, other areas are expected to see a decrease, such as in the subtropics. This will ultimately cause a latitudinal variation in water distribution. The areas receiving more precipitation are also expected to receive this increase during their winter and actually become drier during their summer, creating even more of a variation of precipitation distribution. Naturally, the distribution of precipitation across the planet is very uneven, causing constant variations in water availability in respective locations.

Changes in precipitation affect the timing and magnitude of floods and droughts, shift runoff processes, and alter groundwater recharge rates. Vegetation patterns and growth rates will be directly affected by shifts in precipitation amount and distribution, which will in turn affect agriculture as well as natural ecosystems. Decreased precipitation will deprive areas of water causing water tables to fall and reservoirs of wetlands, rivers, and lakes to empty. In addition, a possible increase in evaporation and evapotranspiration will result, depending on the accompanied rise in temperature. Groundwater reserves will be depleted, and the remaining water has a greater chance of being of poor quality from saline or contaminants on the land surface.

Population growth

The human population on Earth is expanding exponentially which goes hand in hand with the degradation of the environment at large measures. Humanity's appetite for needs is disarranging the environment's natural equilibrium. Production industries are venting smoke and discharging chemicals that are polluting water resources. The smoke that is emitted into the atmosphere holds detrimental gases such as carbon monoxide and sulphur dioxide. The high levels of pollution in the atmosphere form layers that are eventually absorbed into the atmosphere. Organic compounds such as chlorofluorocarbons (CFC's) have generated an unwanted opening in the ozone layer, which emits higher levels of ultraviolet radiation putting the globe at large threat.

The available fresh water being affected by the climate is also being stretched across an ever-increasing global population. It is estimated that almost a quarter of the global population is living in an area that is using more than 20% of their renewable water supply; water use will rise with population while the water supply is also being aggravated by decreases in streamflow and groundwater caused by climate change. Even though some areas may see an increase in

freshwater supply from an uneven distribution of precipitation increase, an increased use of water supply is expected.

An increased population means increased withdrawals from the water supply for domestic, agricultural, and industrial uses, the largest of these being agriculture,believed to be the major non-climate driver of environmental change and water deterioration. The next 50 years will likely be the last period of rapid agricultural expansion, but the larger and wealthier population over this time will demand more agriculture.

Population increase over the last two decades, at least in the United States, has also been accompanied by a shift to an increase in urban areas from rural areas, which concentrates the demand for water into certain areas, and puts stress on the fresh water supply from industrial and human contaminants. Urbanization causes overcrowding and increasingly unsanitary living conditions, especially in developing countries, which in turn exposes an increasingly number of people to disease. About 79% of the world's population is in developing countries, which lack access to sanitary water and sewer systems, giving rises to disease and deaths from contaminated water and increased numbers of disease-carrying insects.

Agriculture

Agriculture is dependent on available soil moisture, which is directly affected by climate dynamics, with precipitation being the input in this system and various processes being the output, such as evapotranspiration, surface runoff, drainage, and percolation into groundwater. Changes in climate, especially the changes in precipitation

Causes of Environmental Degradation

Some environmental life species require substantial areas to help provide food, living space, and other different assets. These creatures are called area specific.

At the point when the biome is divided, the vast patches of living space don't exist anymore. It becomes more troublesome for the wildlife to get the assets they need in order to survive. The environment goes on, even though the animals and plant life are not there to help sustain it properly.

1.Land disturbance

A more basic cause of environmental degradation is land damage. Numerous weedy plant species, for example, garlic & mustard, are both foreign and obtrusive.

A rupture in the environmental surroundings provides for them a chance to start growing and spreading. These plants can assume control over nature, eliminating the local greenery.

The result is a territory with a solitary predominant plant which doesn't give satisfactory food assets to all the environmental life. Thus the whole environment can be destroyed because of these invasive species.

2. Pollution

Pollution, in whatever form, whether it is air, water, land or noise is harmful to the environment. Air pollution pollutes the air that we breathe, which causes health issues.

Water pollution degrades the quality of water that we use for drinking purposes. Land pollution results in the degradation of the earth's surface as a result of human activities.

Noise pollution can cause irreparable damage to our ears when exposed to continuous large sounds like honking of vehicles on a busy road or machines producing large noise in a factory or a mill.

3. Overpopulation

Rapid population growth puts strain on natural resources, which results in the degradation of our environment. Mortality rate has gone down due to better medical facilities, which has resulted in an increased lifespan.

More population simply means more demand for food, clothes and shelter. You need more space to grow food and provide homes to millions of people. This results in deforestation, which is another factor in environmental degradation.

4. Landfills

Landfills pollute the environment and destroy the beauty of the city. Landfills come within the city due to the large amount of waste that gets generated by households, industries, factories and hospitals.

Landfills pose a great risk to the health of the environment and the people who live there. Landfills produce a foul smell when burned and cause substantial environmental degradation.

5. Deforestation

Deforestation is the cutting down of trees to make way for more homes and industries. Rapid growth in population and urban sprawl are two of the major causes of deforestation.

Apart from that, the use of forest land for agriculture, animal grazing, harvest for fuel wood and logging are some of the other causes of deforestation. Deforestation contributes to global warming as decreased forest size puts carbon back into the environment.

6. Natural Causes

Things like avalanches, quakes, tidal waves, storms, and wildfires can totally crush nearby animal and plant groups to the point where they can no longer survive in those areas.

This can either come to fruition through physical demolition as the result of a specific disaster or by the long term degradation of assets by the presentation of an obtrusive foreign species to the environment. The latter frequently happens after tidal waves, when reptiles and bugs are washed ashore.

Of course, humans aren't totally to blame for this whole thing. Earth itself causes ecological issues, as well. While environmental degradation is most normally connected with the things that people do, the truth of the matter is that the environment is always changing. With or without the effect of human exercises, a few biological systems degrade to the point where they can't help the life that is supposed to live there.

Effects of Environmental Degradation

1. Impact on Human Health

Human health might be at the receiving end as a result of environmental degradation. Areas exposed to toxic air pollutants can cause respiratory problems like pneumonia and asthma. Millions of people are known to have died due to the indirect effects of air pollution.

2. Loss of Biodiversity

Biodiversity is important for maintaining the balance of the ecosystem in the form of combating pollution, restoring nutrients, protecting water sources and stabilizing climate. Deforestation, global warming, overpopulation and pollution are a few of the major causes of loss of biodiversity. 3. Ozone Layer Depletion

The ozone layer is responsible for protecting the earth from harmful ultraviolet rays. The presence of chlorofluorocarbons, hydro chlorofluorocarbons in the atmosphere, is causing the ozone layer to deplete. As it will deplete, it will emit harmful radiation back to the earth.

4. Loss For the Tourism Industry

The deterioration of the environment can be a huge setback for the tourism industry that relies on tourists for their daily livelihood. Environmental damage in the form of loss of green cover, loss of biodiversity, huge landfills, increased air and water pollution can be a big turn off for most of the tourists.

5. Economic Impact

The huge cost that a country may have to borne due to environmental degradation can have a significant economic impact in terms of restoration of green cover, cleaning up of landfills and protection of endangered species. The economic impact can also be in terms of the loss of the tourism industry.

Solutions to Environmental Degradation

1. Stop Deforestation

In order to mitigate the adverse effects of environmental degradation, stopping deforestation is crucial for our environmental system. We cannot afford to cut or burn trees down as trees store greenhouse gases, produce oxygen and are the natural habitat for many animals and plants, which may become endangered if these forests are destroyed.

An extensive afforestation campaign should be launched in the interest of environmental protection. We can further make a positive impact through reforestation or afforestation.

2. Government Regulations

Governments require intervening and setting a framework whenever there are problems that lead to significant eco-degradation. Governments set high taxes for activities that harm our planet and support environmentally-friendly behavior with financial subsidies.

These will also force industries and private people to avoid activities that lead to environmental degradation.

3. Fines and Punishment For Illegal dumping

There should also be high fines for illegal dumping to reduce the adverse ecological consequences. People and industries will continue to dump their trash illegally as they know that even if they get caught, penalties are quite low.

Therefore, raising fines for illegal dumping would increase the incentive to dispose of trash at official waste disposal sites.

4. Reduce Consumption Levels

It has become essential to reduce our consumption levels. Our developed society always strives for the latest electronics, smartphones, and the trendiest clothes and so on.

However, this behavior leads to huge resource depletion and excessive production of waste. We have to lower our consumption levels significantly to avoid the adverse ecological consequences.

5. Reuse and Reduce Waste Generation

You can reduce waste production by using your items and food more efficiently. If you want to get rid of old but still working things, be creative to give it a new look or use it in another way.

By doing so, your material things will be used more effectively. If they cannot be put to use anymore, separate them and give them for recycling.

6. Avoid Plastic

Plastic waste is a big environmental problem that leads to significant plastic pollution and the degradation of our planet. In order to cut down plastic waste, avoid buying items with plastic wrapper or packaging, refrain from using

disposable plastic bags, cups, plates, containers, cutlery, etc. Instead, bring your own reusable stuff, which can be reused several times.

7. Education

It is highly essential that children should know about the adverse environmental consequences of our daily life behavior and the ways we can improve our ecological footprint.

This education should start early in school. Children are usually more eager to learn new things and change their behavior compared to adults.

These children are more likely to act in an environmentally-friendly manner when they grow up, and they might also convince their parents to behave in a more ecologically friendly way.

8. Convince Others

You can further enhance your positive impact by convincing other people regarding the importance of behaving in an environmentally way. Tell them what environmental degradation really means for future generations and how changing small things in our daily life can prevent these adverse effects.

As you can see, there are a lot of things that can have an effect on the environment. If we are not careful, we can contribute to the environmental degradation that is occurring all around the world.

We can, however, take action to stop it and take care of the world that we live in by providing environmental education to the people who will help them pick familiarity with their surroundings that will enable to take care of environmental concerns thus making it more useful and protected for our children and other future generations.