Shepherding nature: The environmental degradation

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Abstract: People frequently see nature as their own property, a resource from which riches can be derived, and a good whose sole purpose is to meet human wants. Nature ought to be protected by law, should not be considered private property, and no one should contest who owns it. The primary duty of humans, who are the crown of all things, is to protect and preserve Mother Nature. Despite its overwhelming breadth, which has been evident over the past few years, the issue of environmental degradation can be resolved with the support of the next generation. In order for them to live and profit from nature, today's youth and the next generation should promote preserving it. People today, children, and the upcoming generations should stand on the shoulders of their forefathers and work together. The environmental degradation that their ancestors faced and endured in the past may be experienced by future generations in a similar way if they continue to think like monkeys: greedily, fearfully, and in a domineering manner. To advance human civilization and

successfully restore nature, people should work extremely hard. They have to change the animal mindset into an ethical one.

Keywords: environmental degradation, global warming, land ethics, nature conservation

Introduction

The industrial revolution's impact on the environment has been at the forefront of many socioeconomic and political discussions since the beginning of the twentieth century. Human beings drastically altered the earth's natural temperature and terrain, according to later studies, which could lead to more severe environmental disasters (Pitelka & Plant Migration Workshop Group, 1997). Fossil fuel combustion, unlawful mining, the disposal of toxic waste on land and in water, and illegal logging and mining are some examples of these practices. Among other things, these actions had a detrimental effect on biodiversity, droughts, flooding, landslides, extreme weather patterns, and powerful storms.

Today, environmental deterioration is a significant problem. The reality of modernization is being faced by the environment in the modern world. The environment and natural resources have suffered greatly as a result of the development of science and technology and rapid industrialization. Without the environment, life on Earth would cease to exist. It is essential to the balance of the Earth's system.

Government and various corporate sectors, including the Department of Environment and Natural Resources pollution prevention and greening projects and the United Nations conservation programs, are actively working to conserve and maintain the environment. His Holiness Pope Francis released his encyclical letter Laudato Si which urges the people to care for our common home, which "includes a concern to bring the whole human family together to seek a sustainable and integral development."

Being an advocate for environmental ethics, Aldo Leopold had already adopted the land ethics stance. The land ethic talks about how a man should extend his morality to include protecting the ecosystem he lives in and not treating it like a commodity (Leopold, 2017). It does not also discuss the land in terms of itself, but also inasmuch as man is a part of the ecological system or community and is required to contribute to its welfare.

Aldo Leopold's theory of land ethics can be analyzed and applied to find ways to limit human activity that endangers the world and the environment. The goal of this research is to support the cause of protecting the planet and its inhabitants.

Theoretical background

According to Joseph Rickaby (1910) in his book Moral Philosophy, "to identify what moral responsibility is," together with the rightness and wrongness of actions, as well as their motives and objectives, are the most important and essential ethical concepts. Its key component is human behavior, which is at its center.

According to Aristotle, as cited by Kraut (2001), the goal of ethics is to "find the meaning of existence and enjoyment is the ultimate end good," since these qualities are unique to humans. Thus, the fundamental topic of ethics is how to establish a standard of humanity and determine one's moral obligations to other people.

In the writings of a rationalist philosopher named Baruch Spinoza, one may see the adherence to ideas that in some way connect man with nature. He argued that God is the immaterial cause and the world is the material outcome in his book Ethics (De Spinoza, 1994). In other words, he understood that the universe is a manifestation of God's qualities. Since everything in nature is an attribute of God, he claimed that "all things that man has encountered are nothing else but modifications of the qualities of God (Spinoza & de Spinoza, 1985)." there is an intimate connection between everything.

The publication of Man and Nature by ecologist George Perkins March in 1864, followed by the publication of land ethics in 1949, significantly reshaped the traditional approach to ethics. The ecological conscience in land ethics "represents a shift from a view of nature as having only instrumental value to one that recognizes an intrinsic worth in natural systems," according to Joseph Desjardins (2016) in his book Environmental Ethics. This is the recognition that there exists in the environment a value that is intrinsic to it.

In her 1962 book Silent Spring, Rachel Carson expressed similar ideas to those that the land ethics movement advocates. A constant contact between the living and non-living objects is what makes life on Earth possible, and this connection is always entwined in nature, according to Carson (2015), who stated that "the history of life on Earth has been a history of interaction between living things and their surroundings." Leopold emphasizes the interdependence of all living things in his work on land ethics.

What Are They Saying About Environmental Ethics? Pamela Smith (2016), asserts that a comprehensive perspective on land ethics is necessary. In this way, the emphasis is shifted from the individual organism to the ecological system. In this sense, land ethics acknowledges the connection between people and their surroundings, or the ecological community.

Moreover, eccentric philosopher Lawrence Johnson describes land ethics as being environmental holism in nature. His book *A Morally Deep World* argues that environmental thinking must be communitarian, and non-human entities such as

species, ecosystems, and others are given a moral value that they have “interest” and moral significance (Johnson, 1993).

Furthermore, Holmes Rolston III, being a follower of Leopold’s land ethics, in his article entitled *Environmental Ethics*, postulates that humans have primacy over the place. He states that Lawrence Johnson, an eccentric philosopher, further claims that environmental holism is at the core of land ethics (Rolston, 1988). According to his book A Morally Deep World, environmental thinking needs to be communal, and non-human phenomena like species, ecosystems, and others are given moral value by being deemed to be of "interest" and moral import. In addition, Holmes Rolston III, a proponent of Leopold's land ethics, asserts in his article on environmental ethics that humans have a superior sense of place. According to him, humans are the only self-reflective, deliberate moral agents, and they co-inhabit the earth... Nature has equipped *Homo sapiens*, the wise species, with a conscience (cited by, Rolston, 1981).

This acknowledges that, while being a part of the biotic society, the man in the land ethically has a responsibility to his constituents. In The Environmental Ethics and Policy Book, Donald Vandever (2017) writes that "a moral agent is a being capable of reflecting reasons, weighing them, and deliberately choosing." Human beings, as moral agents, have the capacity to respect and make decisions that are in the best interests of the natural environment.

Arne Naess (2009), a philosopher, also emphasizes in his book The Ecology of Wisdom that biodiversity and cultural diversity are values in and of themselves, in addition to the fact that all beings have value in themselves. He is aware that the interconnection, interdependence, and life network of an ecosystem must be taken into consideration. He continues, "human nature is such that, we cannot help but identify ourselves with all living beings, whether they are beautiful or ugly, big or small, sentient or not," implying that the existence of humans is always intertwined with all other life. He claimed: One of the great challenges of today is to save the planet from further ecological devastation, which violates both the enlightened self-interest of humans and the self-interests of non-humans and decreases the potential of the joyful existence of all. When Leopold believes that conservation is necessary to maintain the balance of nature and to advance the sustainability of the land, his remark places focus on the value of nature that is related to land ethics.

Similarly, James Lovelock (2000) argued that life should be investigated as a universal phenomenon and that the presence of enough living things on a planet is necessary for the regulation of the environment in his book Gaia: A New Look at Life on Earth. He also takes in life in its entirety as a whole. This takes a holistic approach to land ethics.

Albert Schweitzer (1923) also said as much in his essay, "Principle of Reverence for Life." He claimed that "ethics is an obligation without bounds towards all that lives," by which he meant that all living things are deserving of respect. His sense of responsibility is a great analogy for sentimentality. The biotic community is should be respected, according to land ethics. Schweitzer's respect for life is thus somehow connected to the ethics of the land.

Curt Maine is one of the people that explains Leopold's land ethics in Correction Lines, his book. According to him, in Leopold's view, ethics were a topic that should be decided upon by the individual rather than by a higher authority. Leopold, a staunch individualist, was struggling with the intricate realities of the environmental issues of the 20th century, where the quality of life for both people and the land was at stake.

Maine recommends Leopold shift from science to philosophy. And throughout this procedure, ethics demonstrated humanity's appropriate relationship with the environment. Additionally, he said that: Scientists started paying closer attention to the full extent of nature's diversity, the connection between diversity and the composition and operation of ecosystems, and the numerous ways in which the diverse life forms of the earth contribute to human well-being.

This indicates that land ethics has acknowledged the diversity and structure that connects all living and non-living phenomena through its ecological promotion of education. And each of these entities is doing its part to improve the environment.

Leopold's intellectual development also "mirrors the history of ecological and evolutionary thought, (Flader, 1994)" according to Susan Flader (1994) in her book Thinking like a Mountain. This is because Leopold incorporated human sentiment toward the natural ecosystem and admiration for ecological research into his land ethics. The manner that land ethics suggests a new sort of ethical responsibility for the ecological is evolutionary.

Not only has western thought evolved a respect for the environment, but so has eastern tradition. In his book What Makes Man Truly Human, Michael Moga (1995) said that "human life is lived in a natural environment," wherein man coexists with nature and engages in a variety of ongoing interactions with it. He claimed that the Taoist perspective on nature highlights how interconnected man and nature are. And nature is the unchanging foundation upon which all else rests. Man does not exist in a vacuum apart from nature. This implies that man should be considerate of nature and act appropriately in response.

The idea that humans must think like mountains, sense nature's flow, and recognize its interconnectivity is prevalent in land ethics as well as in eastern teachings about being one with nature and being sensitive enough.

Furthermore, Douglas Soccio (2015) discusses how eastern sages like Confucius, Buddha, and others saw man as an integral part of nature and the cosmos rather than as something separate from them in his book Archetypes of Wisdom. These sages did not separate human beings from the divine or ordinary life in a sacred Way. The Buddha would say:

Let man develop love without limits for the entirety of the world - above, below, and all around - untinted and unmixed with any sense of diametrically opposed or conflicting interests. Whether he is standing, sitting, or lying down, let man remain unwavering in his mental state. The world's best mental state is this one. Buddha emphasizes the need to give love, not self-interest, to all creation.

Environmental degradation

People in prehistoric times obtained their sustenance through hunting, fishing, and fruit picking (Roosevelt, 1999). Their whole survival was reliant on the natural world. Indigenous peoples are a prevalent example nowadays. They too were reliant on their surroundings for their food, clothing, shelter, and medical care. They have studied the behaviors of wild animals and have noted which plants are beneficial and poisonous. They consider it important to appreciate and comprehend nature.

As man's manner of life developed over time, he stopped hunting and gathering food in favor of domesticating animals, cultivating crops, and starting to live in communities or towns. Being at one with nature was no longer an idea. Instead, he believed that nature served a function. This way of thought led man to attempt to dominate nature. Man has conquered the world by planting flowers in deserts, using water to generate energy, using coal as fuel, and many other things. The impacts of man's strength that have changed the surface of the globe, however, have been disregarded in this very conquest.

The issue of environmental deterioration currently faces man because man has been depleting the environment's natural resources faster than they can be replaced, and the ecosystem has deteriorated as a result. Both causes and effects of environmental degradation are present. The direct causes of this degradation are human-made actions.

2.1 Causes of Environmental Degradation

The most frequent causes of environmental degradation that result directly from human activities towards the natural environment are the following subjects.

2.1.1 Mining

Mining is defined in such a term that it creates minimum damage, but what is happening in the environment where mining firms are present is completely the opposite (Davis, 1995). Modernized mining is a kind of human industry that "involves the exploration for and removal of minerals from the earth, economically and with minimum damage to the environment."

Even Nevertheless, there are variations in mining methods, and each method has a different impact on the environment. What happens frequently is that it permanently alters the terrain and harms wildlife. Coal mining, strip mining, and underground mining are the most prevalent mining businesses (Siskind, 1980). Deforestation and the release of hazardous chemicals into the soil and water are both caused by mining. Due to the increase of the area to be used by the developing mine, coal mining has the potential to uproot entire populations. Coal fires can burn for many years and release coal dust, which can lead to lung cancer, in coal mines. Open pit mining commonly referred to as strip mining or surface mining is particularly prevalent in the Philippines. 40% of all mines in the world are the result of strip mining (Murray, et al., 2022). Since it scrapes away earth and rocks in the mining area, it devastates landscapes, forests, and wildlife habitats. As a result of the soil being swept away, this causes soil erosion and the ruin of agricultural fields. Additionally, it raises the possibility of groundwater or other water supplies becoming chemically contaminated. As a result, the land becomes "barren land," which has already suffered damage even though the mine has stopped operating.

Even if there are plans for repairing the environmental harm that mine caused, the process of restoration in such a region is challenging because mining has already severely affected the soil and only a limited percentage of plant survival remains. Massive quantities of waste soil and rock that are brought to the surface pose another risk due to the fact that they frequently turn hazardous when they come into contact with air and water. Underground mining can alter the flow of streams and groundwater by lowering the water table and creating a sort of funnel that drains water (Dontala, et al., 2015). Methane from underground coal mining has a twenty-fold more greenhouse gas potential than natural gas (Durango-Cordero et al., 2019). It is quite uncommon for it to be completely consumed, even when it is trapped and utilized as fuel.

2.1.2 Environmental Pollution

The discharge of any material that is hazardous to the environment or to human health constitutes environmental pollution. Although natural events like volcanic eruptions and forest fires can also create environmental pollution, the term is frequently used to suggest an artificial source. Because it no longer just impacts one country's boundaries but the entire world, pollution has become a major issue on the international agenda in the modern period. Instead of being a local issue, it is a national and global one. As a result, it contributed to the development of environmental regulations throughout the world.

2.1.2.1 Air or Atmospheric Pollution

The term "atmosphere" refers to the layer of gases that envelops the planet (Adams, et al., 2008). The atmosphere is relatively thin, with a thickness of only 480

km (Mace, et al., 2009). It is among the factors that make life on Earth possible. Since air makes up a large portion of the atmosphere, it is extremely fragile. This air is prone to harm and alterations. The air that all living things breathe, use for photosynthesis, and other functions is likewise a product of the atmosphere. The weather and climate of the entire planet are also its cause.

However, since man discovered fire, toxic substances have been introduced to the atmosphere as a result of bad human actions. During the industrial revolution's expansion in the late eighteenth and early nineteenth centuries, it experienced a phenomenal increase. The sophistication of technology and machinery has increased since the Industrial Revolution. As an illustration, the use of coal as a fuel source has increased the amount of methane that coal produces and releases into the atmosphere.

Additionally, new compounds are believed to have entered the scene in the latter part of the 20th century. These include hydrocarbons, which are utilized in air conditioners and freezers, and chlorofluorocarbons (CFC), which are present in aerosol products.

For the time being, one of the main causes of air pollution is human industrial activity. Recent increases in nitrogen oxide levels have been attributed to Beijing, China, where over ten million people live in the megacity and over a million cars. This gas can cause smog and cause respiratory diseases.

2.1.2.2 Water Pollution

Water makes up about 70% of the surface of the Earth. About 68% of all freshwater is contained in ice caps and glaciers, 30% is located in groundwater, and 0.3% is found in surface water, which includes lakes, rivers, streams, and other bodies of water (Gleick, 1993). The remainder is seawater. Almost all human activities involve the use of water, from eating to cleaning to industrial uses.

Despite being one of humanity's most valuable resources, there are many ways that water is being mistreated and taken for granted. These days, human garbage, including plastic and chemical poisons, are contaminating lakes, rivers, and oceans. Water pollution is the term used to describe this contamination of water bodies. Since water is a universal solvent and pollutants can easily dissolve it, pollution occurs quickly.

Waste products from industry are the most frequent water contaminants. Industries that manufacture plastic, chemicals, household goods, and many others produce vast quantities of water waste and harmful substances that harm the environment. This hazardous waste is discharged into rivers, canals, and other freshwater bodies of water, where it eventually ends up in the sea. It contains lead, mercury, sulfur, and other dangerous minerals (Gavis & Ferguson, 1972). These chemicals present in the water can alter the water's characteristics, such as its

chemical composition, which could lead to a change in the temperature of the water and endanger aquatic life.

Marine dumping is an additional cause of water contamination. The domestic waste that is produced in some nations is collected and dumped into the ocean. These waste materials can disintegrate at sea in two weeks to 200 years, which might become problematic since it could generate a chemical reaction with the saline water and severe harm to the habitat and marine life.

Radioactive waste is another source of water contamination. Nuclear power plants are a typical source of electricity today. Since nuclear fusion or fission is the process used to create energy, cooling the reactors requires a significant amount of water from sources like lakes and streams. Heat is absorbed by the water, which is then returned to streams and lakes. Thermal pollution refers to this dumped heated water.

Microalgae development is accelerated by this type of water pollution, and when the algae die, more oxygen is removed from the water. Fish, on the other hand, cannot survive as temperatures rise and oxygen levels drop. Water contamination would cause the great rivers to die and the habitats for aquatic life to disappear. Both people and animals might run short of resources.

2.1.2.3 Soil or Land Pollution

The Earth's surface is made up of around 70% water and only 30% land. Given that most plant and animal life is found on land; thus, it is essential to every facet of daily life for humans.

One of the most prevalent issues that humanity faces today is land or soil degradation. It is the deterioration of the surface of the Earth brought on by human-induced activities. A direct or indirect threat to public health might result from some activities, such as the "disposition of solid-liquid waste materials in a manner that potentially contaminates the soil and groundwater." These waste products are classified as hazardous waste, building and demolition waste, and municipal waste or garbage (Misra & Pandey, 2005).

The quality and productivity of the land as a location for agriculture, forestry, wildlife habitat, and other uses have been significantly altered by land pollution. In addition to this, the rise in waste has caused landfills to be expanded more frequently.

In nature, waste is typically produced by dead plants and animals, rotten fruit, and dried leaves, but this merely increases the soil's fertility. However, contamination on land happens as a result of man-made trash that is combined with substances that are not naturally present in the environment, which causes pollution.

Not only can faulty agricultural practices be blamed for land or soil pollution, but also landfills and other sources of trash. Farmers now utilize harmful pesticides for weed and pest management, chemical fertilizers, and pest control due to the

increased need for food. However, repeated use of such chemicals over time would contaminate the soil, rendering the land unusable for farming. This may lead to plots or areas being abandoned, which would later turn into deserted areas.

2.1.3 Deforestation

In 2005, 30% of the Earth's surface was covered in forests. In the same year, the amount of wooded land in Africa and South America decreased by roughly 80%. According to the 2013 Forest Management Bureau Report, the Philippines' forests still cover about 23.89% of the country, but human activity has already resulted in the loss of about 10 million hectares of forest, and that number is continually growing (Miah, et al., 2010).

A major part of the ecological system is played by forests. They stabilize soils, stop erosion, and act as airborne carbon dioxide absorbers. Additionally, forests act as storage areas for water reservoirs and as habitats for a variety of flora and fauna in the biosphere.

However, due to human-induced activities, forests are being permanently destroyed to make land usable for other purposes and for the harvesting of trees for timber and other wood and paper products. The United Nations Food and Agriculture Organization estimates that 7.2 million hectares of forest, or an area about the size of Panama, are lost to deforestation every year. Each year, this type of forest loss results in between 6% and 12% more carbon dioxide emissions (Romijn, et al., 2015).

Looking back to the nineteenth century, the strain on forests has increased due to a constant rise in population in South America, Africa, and Asia, where more than a thousand square miles of forest have been removed to make room for agricultural land. Additionally, it is used for commercially produced goods like paper, furniture, and wood for building houses. Additionally, it makes land available for urbanization and houses. This suggests that the forest's animals and plant life are in danger.

Deforestation is currently regarded as the second main anthropogenic source of greenhouse gases to the environment due to illegal logging, burning, and other harmful practices (Boekhout van Solinge, 2014). In the 1990s, it released about 1.5 metric tons of carbon dioxide per year, contributing between 6% and 17% of the world's carbon dioxide (Tucker, 1995). Deforestation prevents the absorption of carbon dioxide and alters the movement of water vapor from the atmosphere and the land surface.

Trees are crucial to the water cycle because they capture rainwater and generate the oxygen that is then released into the atmosphere. Additionally, a study from North Carolina State University found that trees reduce water pollution by preventing polluted runoff and their roots anchor the soil. Without the help of trees, soil can be easily washed away by rain and blown away by the wind, which may cause issues with plant development.

Deforestation may cause a disruption in the water cycle and worsen the effects of climate change if it continues to destroy tropical forests in the Amazon basin, Asia, Africa, and other regions of the world.

2.1.4 Overpopulation

In the past, it took 1,000 years for the population to reach 1 billion, which it did in 1804. In 2011, there were 7 billion people on the planet, and as of 2015, there are 7.3 billion people (Rehfuess & World Health Organization, 2006). Asia is home to 60% of the world's population, followed by Africa with 16%, Europe with 10%, Latin America and the Caribbean with 9%, and North America and Oceania with 5%. With populations of over 1 billion, China and India continue to be the two largest nations in Asia, accounting for roughly 19% and 18% of the global population, respectively (Leeson, 2018).

When there is a decline in the mortality rate of adults and an increase in the birth rate of newborn children, overpopulation results. Because it is determined by the equilibrium between what the ecosystem can sustainably produce and consumer demand, it is known as overpopulation. The advancement of medical science and public health are the causes of this. Many people used to die from diseases for which there was no known cure, and newborns were particularly susceptible to illnesses for which they didn't live for more than a few years. Death rates are now declining, which enhances man's quality of life. This is due to improvements in healthcare, medical facilities, and vaccines and antibiotics.

The availability of food resources and the threat that population growth poses to the planet's natural resources. Furthermore, because more resources are consumed when there are more people, overpopulation increases the rate of environmental degradation.

Water and food can only be produced by the Earth to a certain extent. In other ways, natural resources are similarly limited. As a result of this issue, large agricultural lands are being created in order to feed the people while also suffering tremendous deforestation in order to produce wood for houses and other purposes. With such a large population, additional environmental issues are emerging, such as ecosystem depletion and water, land, and air pollution. Urbanization would endanger agricultural lands and put public health at risk.

2.2 Effects of Environmental Degradation

Although there are several repercussions of environmental degradation, the subjects below are the most prevalent ones that are both obvious and pertinent to this research.

2.2.1 Impacts on Human Health

Environmental deterioration poses new issues and difficulties for public health as well as having an impact on the world in which humans live. Today's scientists and medical professionals generally agree that environmental issues brought on by environmental degradation contribute to the spread of diseases that pose a threat to human health.

The World Health Organization (WHO) predicts that environmental diseases will cause one out of every five children in the world's poorest areas to die before turning five. According to this estimate, almost 11 million children worldwide die each year from diseases like acute respiratory infections, diarrhea, and other similar conditions (Black, et al., 2003).

Scientists have thoroughly investigated how human health and the environment interact, and they have come to the important conclusion that environmental risks have an impact on people's health, either directly through exposure to harmful substances or indirectly through the disruption of life-supporting ecosystems.

Furthermore, due to variations in exposure to environmental dangers and access to healthcare, environmental degradation accounts for between 19% and 15% of the global burden of disease (Feigin, et al., 2016). Exposure to pollutants in the air, water, soil, and chemicals discharged into the environment can result in poisoning and neuropsychiatric disorders as well as cancer, respiratory, cardiovascular, and other types of communicable diseases.

Air pollution is one of the main causes of sickness. It causes lung cancer, lung illness, asthma, and other conditions that might result in early mortality. Children are particularly vulnerable, which explains why newborn mortality is high in locations with high levels of pollution.

Water contamination is another important factor. Man's everyday needs always include water because of its many applications. A thousand deaths are attributed to contaminated drinking water each year, according to estimates. Due to the half-burned dead and shrouded babies that are dumped into the renowned Ganges River in India, skin infections, diarrhea, and other related health issues are becoming more and more prevalent. An estimation of about 1000 children dies each year due to water pollution and contamination.

In other regions of the world, particularly in Europe, America, other parts of Asia, and the Philippines, the issue is water contamination brought on by the dumping of toxic waste and garbage, which leaves the water unusable and unhealthy for any human activity.

Natural environments and human health are linked to one another. The environment is essential to human existence and survival. When degradation takes place, human health is put in danger.

Loss of biodiversity and extinction

An alarming pace of biodiversity loss is caused by environmental degradation. Species extinction is a key factor in it. Scientists are concerned that the present rate of species extinction or loss is higher than in the past. The natural process of evolution has always included the fall in species populations. Examining fossil records reveals that just one to three species are thought to disappear annually as a result of the natural extinction process, which has existed for millions of years in geological time.

However, given the current state of species loss, at least 1000 species are wiped out every year, which is 1000 times quicker than the rate at which species go extinct naturally (Wilson, 1988). This is caused by human-induced activities such as land development, agricultural conversion, deforestation, overhunting, pollution, and others.

According to the Red List of Threatened Species published in 2007 by the Species Survival Commission (SSC) of the IUCN-The World Conservation Union, out of the 41,415 species that have been assessed, 16,306 are in danger of going extinct and 65 species are either cultivated or kept in captive (Butchart, et al., 2007).

Additionally, according to the 2007 IUCN Red List, 30% of amphibians, 25% of mammals, 12.5% of birds, and 70% of all plants are in danger of going extinct (Abeli, et al., 2011). Such species are frequently classified together by habitat in order to guide research toward their estimation of them. This study demonstrates how seriously vulnerable freshwater ecosystem biodiversity is. This is a result of the pollution that has been impacted by human activity. Due to the size and depth of the world's oceans, marine species are also challenging for scientists to study and receive little attention on the list of endangered species.

Additionally, the pressure on species variety and loss are increased by the degradation of natural ecosystems due to climate change, rising temperatures, and insufficient conservation efforts. Fewer habitats result in smaller populations, and smaller populations are at an alarming rate of extinction and loss of other species that aid in the survival of others, putting species at risk.

2.2.3 Impacts on Agriculture

A vital component of human survival is agriculture. It is the source of food and nutrients essential to human existence and growth. Environmental deterioration nevertheless poses a threat to agriculture.

Land degradation is the term for environmental degradation in agriculture. The United Nations Environmental Programme (UNEP) defines land degradation as "a long-term loss of ecosystem function and services induced by disturbances from which the system cannot recover unassisted" (UNEP) (cited by Simula, 2009). However, given the rapidity of degradation in just a few years, today's disruptions are probably human.

Due to the replacement of locally adapted crop varieties with commercially produced hybrids, which posits increased production while accelerating dependence and insecurity, soil erosion, increased salinization, increased heat due to global warming, water shortages, urban sprawl, and a decrease in biodiversity are some of the ways that degradation affects agriculture. As a result of degradation, it is estimated that approximately 5–6 million hectares of arable land are lost year throughout the world (Jie, et al., 2002).

Additionally, the current degradation and its annual increase are reducing crop productivity in the future. In percentage terms, agricultural yield is predicted to decline rather than food demand. The global food supply is already under threat due to the rising human population.

Global warming has already been caused by environmental deterioration, which has already changed the climate patterns in various parts of the planet. Agriculture uses 70% of the world's freshwater supply, and because the portion of it depends on rainfall, there are currently chronic water shortages in roughly 30 nations as a result of climate change-related rainfall declines (Islam, 2019). Because other precipitation patterns have moved and caused flooding and crop failure, other countries are also experiencing too much rainfall.

Additionally, pollution directly affects agriculture in a number of different ways. Rivers and irrigation systems that are utilized for farming may allow pollutants to enter, which could lead to diseased crops. High concentrations of pesticides can also affect plant growth and production.

2.2.4 Global Warming and Climate Change

The atmosphere is the area of the planet that is most vulnerable to damage since it only provides a thin layer of protection for the planet and supports life. It is also in danger since human activity has the potential to alter its makeup.

There has been global warming for centuries. Recent research from the 1990s has shown that global warming is a reality and is impacting the entire world. Although the term "climate change" is commonly used interchangeably with "long-term increase in Earth's average temperature," scientists define global warming as the heating of the planet (McComas & Shanahan, 1999).

Human activities have been held responsible for global warming during the last few decades. Since the beginning of the Industrial Revolution, people have used equipment that is powered by coal and fossil fuels. A significant amount of carbon dioxide has been emitted into the atmosphere as a result of the dramatically increased combustion of these chemicals. The atmosphere's growing concentration of gases like carbon dioxide, methane, and nitrous oxide, as well as other synthetic substances like halocarbons, is making the Earth warmer.

Light waves from the sun penetrate the atmosphere, where they heat the Earth. The Earth's surface and the atmosphere both absorb part of the heat. The greenhouse effect is the mechanism that causes the Earth to warm. Although the greenhouse effect is a natural phenomenon, too much carbon dioxide, methane, and other gases are causing it to heat up and contribute to an increase in global temperature. The Earth's oceans would freeze and the surface temperature would be close to 0 degrees Fahrenheit or -18 degrees Celsius without a certain amount of greenhouse gases (Kasting, 1988). The Earth's surface has an average temperature of roughly 59 degrees Fahrenheit (15 degrees Celsius), which is warm enough to support life (Somero, 1992).

The amount of carbon dioxide and methane in the atmosphere has increased by 379 ppm (parts per million) as of 2005, which is a 36% increase over the previous 650 000 years (Kühne, 2019). This indicates that the average world temperature has been rising quickly in recent years, at a rate of around 0.23 degrees Fahrenheit every decade (Cheung, et al., 2013).

Climate change is one of several impacts that have been sparked by global warming, which also influences the Earth's temperature. Temperature, winds, rainfall, and seasons are all components of climate, which is defined as "the average weather of a place throughout time." Ocean currents, winds, forests, ice caps, mountain ranges, and other natural global machinery shape climates.

The climate on Earth is naturally changing, but in the last ten or so years, those changes have been more severe than any in more than a thousand years. The effects of an unintentional push that abruptly occurred to the Earth's delicately balanced climate machinery are now more clearly seen.

The threat of increasing sea levels, extreme weather conditions, the emergence of new diseases, and the loss of food production and growth have resulted in a large number of people being displaced today. In Asia and Africa, where agriculture is at risk from extreme flooding and drought, for example, Global climate change also affects the decline of fisheries through the deterioration of the coral reefs brought about by acidification because of high carbon dioxide that is dissolving in oceans.

2.3 Conclusion

As John Michael Sasan (2022) stressed that, man is always developing new ideas and technologies and from his innate creativity, it is undeniable and indispensable. However, as a result of immoral practices in science and technology, a variety of human activities have come to be the cause of environmental deterioration. These human activities include overcrowding, deforestation, mining, and environmental contamination. There are additional causes, but the ones that are discussed in this study are the most typical ones. The consequences of environmental degradation on both the ecology and people often last for a very long time. These

effects, which are widespread and obvious, had a greater negative impact on human health, agriculture, biodiversity loss and extinction, global warming, and climate change.

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