

5. Challenges on Environmental Degradation and Mitigation Measures

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5.1 Introduction:

The word “environment” can be defined as the physical surrounding on which his or her activities like physiological functioning, production, and consumption depends. It is deteriorating for the last two centuries and almost every part of the planet has been touched by destruction in one way or the other. The major cause of environmental degradation is human disturbance led by urbanization and industrialization. The industrial revolution has begun in the 19th century which increased the production and manufacturing of goods. It also introduced the use of machines and other heavy equipment - which in turn, used fuels as a source of energy and releases waste materials to the environment that causes pollution of air, water, and land [1].

The deterioration of the environment has led to numerous adverse impacts. First, living organisms like humans are at risk of suffering from dangerous health conditions like asthma and pneumonia due to pollution.

Another adverse effect is the loss of biodiversity and natural resources. To overcome this critical situation, we need to make calculative use and management of resources and sustainable development. The path of mitigation will not be that smooth rather be full of challenges as degradation of the environment is not a problem to be tackled in a day or two. Environmental education and policy-making regarding environmental conservation and protection will be useful for the natural environment. The world is making impressive steps to minimize the damage to the environment.

5.2 Overview:

Environmental degradation is a serious problem which is being faced mostly nowadays. It means the deterioration of the surroundings or the environment. Several factors contribute to environmental degradation like deforestation, natural disasters, global warming, climate change, mining, waste discharge, etc. The main contributors are urbanization, industrialization, and pollution which are mostly interlinked in either direct ways or indirect ways. The beginning of the 19th century was also the beginning of which means the setup of new industries that employ many people [1]. Urbanization meant the conversation of small villages into towns or can also be defined as the migration of people from small towns to cities in search of livelihood. Industrialization and urbanization meant the availability of various facilities such as hospitals, schools, primary healthcare centres, colleges, etc.

At this time technology also came to play and led to the invention of various tools and machines that ultimately is the workload of the individual in different sectors such as agriculture, industries, communication, and transport.

With the beginning of this new era of urbanization, industrialization and technology have also increased the level of pollution due to the use of various machines and tools. As the establishment of new cities led to different types of environmental pollution in several sectors such as air, water, land, noise, etc. Industrial pollution is the main cause of the pollution occurring today. The untreated waste materials from the industries are directly dumped into the water bodies which as a result cause water pollution as the chemicals get accumulated. The waste from those industries can be classified into two types as Process wastes (produced during processing and manufacturing) and Chemical wastes (produced as untreated effluent and by-product after the products formed).

There are several factors on which environmental degradation depends such as overpopulation and overexploitation of natural resources, Intensification of agriculture, Climate change, Illegal dumping, Mining, etc. Environmental degradation has several different effects on both living and non-living environments such as acid rain, natural calamities, loss of livelihood, etc. The solution of this degradation that is needed to be imposed to decrease the rate of awareness, education, fines, and taxes, avoiding the use of plastics, conserve and use, etc. There are some initiative measures such as 5R's (REFUSE, REDUCE, REUSE, REPURPOSE, RECYCLE) and 3M's (MAN, MATERIAL, MACHINERY) [19].

Some of the challenges that are faced due to environmental degradation are loss of biodiversity and natural resources, climate change, polluted water bodies, loss of capital, degrading the quality of air, water, and soil [3]. Sustainable development is a process method of meeting the human developmental goals and also simultaneously conserving the natural resources and ecosystem on which our society and economy depend. They have also set up some goals according to which every nation works. Mitigation is the method or process through which we can decrease the adverse and harmful effects of environmental degradation.[1] Some measures that lead to mitigation are controlling at the point of source, selecting the proper industrial site, treatment of industrial wastewater, afforestation, strict application of government actions and rules. Government and non-governmental organizations play important role in spreading the awareness and measures of environmental degradation by conducting several programs in several communication sectors such as radio television and the internet. Some of the government initiatives to safeguard the environment are Swachh Bharat Mission, Green Skill Development Programme, and National Mission for Green India, Conservation of Natural Resources and Ecosystems and some of the rules are The Environmental Protection Act, The Wildlife Protection Act, The Forest Conservation Act, etc. [6]

5.3 Environment and Its Degradation:

Environment means our surroundings. It can be defined as a collection of all the elements, processes, and conditions around an organism, that influence the lifestyle. There are 2 components of the environment such as living (Biotic- humans, plants, animals, etc) and non-living (Abiotic-sunlight, soil, air, water, land, etc.)

The process of creating the environment has been classified into two categories such as;

- a. **Natural environment:** It includes all the living and non-living things that occur naturally. The creation of these components has been done by nature and not through humans. It includes the chemical constituents, living space, climate, etc.
- b. **Human-made environment:** this is the type of environment that is made by human beings according to their need and comfort.

The process of degradation of natural resources present in the environment is known as environmental degradation. The main concern is to ensure the amount of stress and pressure we are imposing on the limited surrounding and due to its over-exploitation, the capacity of replenishing decreases. It has been cautioned as one of the 10 threats by the High-level Panel on Threats, Challenges, and Change of the United Nations. [1] For the past two centuries, almost every sphere is deteriorating. We are being cautioned about the deterioration in the environment and its consequences which is directly or indirectly linked with our lifestyle. There is an urgent need to take all possible steps to check environmental degradation along with the degree of degradation with its cause.

5.3.1 Causes of Environmental Degradation:

Major causes of environmental Degradation are:

- a. **Urbanization:** is referred to as the increase in the population living in urban areas. It can also be defined as the process of forming towns and trading centres because people are preferring to move from rural areas in search of work [13]. Factors that contribute to urbanization are mainly: industrialization, modernization, and rationalization that results from sociological processes. It majorly involves the replacement of old cultural ways to a dominating urban culture [26].
- b. **Industrialization:** is referred to the change in social and economic activities of people involving a shift in manufacturing, innovating and replacing minor activities such as farming [8]. Around 1760 in Britain, the beginning of industrialization occurred. This period marked the growth in population and employment. It can be said that urbanization led to industrialization. Industrial Revolution played the major cause behind the positive change for the industrial world. Natural resource depletion, carbon emission and pollution occurred directly due to the industrial revolution.

Table No.5.1: Gives a brief idea about the advantages of industrialization and urbanization

Advantages of Industrialization	Advantages of Urbanization
1. Created jobs for poor peasants	1. Dependable job sand increased earnings
2. Short, effective & reliable production	2. Efficient & reliable healthcare
3. More industries developed	3. More cities developed

Advantages of Industrialization	Advantages of Urbanization
4. Products were cheaper	4. Quality education
5. GDP of the industrialized nations grew	5. Improved lifestyle

- Pollution and its Types:** Pollution is the process of an undesirable change in the various characteristics of air, water, and land which adversely affects the lifestyle. There is a wide range of pollutants that occur either naturally or through human activities and further can classify into degradable (domestic wastes, sewage, etc.) and non-degradable (heavy metals, plastics, etc.).

Different natural disasters such as volcanic eruptions, landslides, runoff water, etc causing natural pollutants which are less effective and persistent than man-made pollutants which are more drastic and long-lasting. The major problem arises with the increasing population as it leads to deforestation, rapid and unplanned industrialization which results in environmental pollution. Environmental pollution causes several health problems. [23].

Water Pollution: is caused by organic and inorganic industrial wastes and effluents that are directly discharged into water bodies without any treatment. There are several industrial contributors such as paper, pulp, chemical, textile and dyeing, petroleum refineries, tanneries, and electroplating release many harmful chemicals such as lead, mercury, synthetic chemicals, organic and inorganic compounds into the water bodies [4].

Land Pollution: Increasing population in the urban areas due to urbanization, the industrialization that results in the disposal of different types of wastes into vast open land areas. The land gets polluted by solids and liquid waste from the industries. The use of fertilizers, pesticides, herbicides, and insecticides for enhancing agricultural productivity contributes to land pollution and decreases its fertility. Concrete used in the building process creates land pollution [24].

Air Pollution: is the type of pollution that is caused by the presence of undesirable substances such as nitrogen oxides, carbon oxides, etc. these undesirable substances are present in different forms such as solid, liquid, vapour, gas.

Smoke is emitted by different industries and fuels that are burnt in factories as raw materials and toxic gas leaks can be very hazardous with long-term effects [5]. Air pollution adversely affects human health, animals, plants, buildings and the atmosphere as a whole.

Industrial Pollution: it is the type of pollution that is generally occurred by the waste produced by the industries [15]. This release of waste leads to contamination of water, land, and air pollution.

The nature of industrial waste depends upon the industrial process in which these originate and the raw materials they use. Broadly the industrial wastes may be divided into two groups:

A. Process Waste: The industrial waste generated during the washing and processing of raw materials is known as process waste. It may be organic or inorganic depending upon the raw materials used and the nature of the industry [15].

B. Chemical Wastes: The chemical substance generated as a by-product during the preparation of a product is known as a chemical waste. It includes heavy metal ions, detergents, acids, alkalies, and various other toxic substances [15].

Table No.5.2: Shows the type of industrial waste is released from the industries along with the pollution caused.

Sr. No.	Industry	Waste Produced	Types of Pollution
1.	Caustic Soda	Mercury, Chlorine Gas	Air, Water and Land
2.	Cement Dust, Smoke	Particular matter	
3.	Distillery	Organic waste	Land and Water
4.	Fertilizer	Ammonia, Cyanide, Oxides of Nitrogen, Oxides of Sulfur	Air and Water
5.	Dye	Inorganic Waste Pigment	Land and Water
6.	Iron and Steel	Smoke, Gases, Coal, Dust, Fly ash, Fluorine	Air, Water and Land
7.	Pesticides	Organic and inorganic Waste	Water and Land
8.	Oil Refineries	Smoke, Toxic Gases, Organic Waste	Air and Water
9.	Paper and Pulp	Smoke, Organic Waste	Air and Water
10.	Sugar	Organic, Waste, Molasses	Land and Water
11.	Textiles	Smoke, Particulate Matter	Land and Water
12.	Tanneries	Organic Waste	Water
13.	Thermal Power	Fly ash, SO ₂ Gas	Air and Water
14.	Nuclear Power Station	Radioactive Wastes	Water and Land
15.	Food Processing	Alkalis, Phenols Chromates, Organic Waste	Water and Land

Prevention and Control of Pollution:

The main approach of pollution control is to erase or eliminate the release of different pollutants to the surrounding.

Various governmental and non-governmental agencies regulate policies to limit the discharge of a pollutant into the atmosphere. Production of pollutants can be prevented by following:

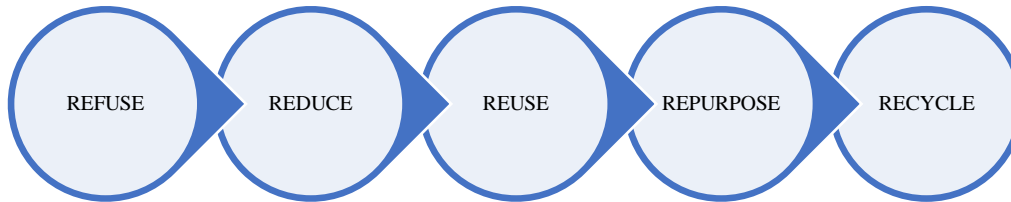


Figure 5.1: These are the 5R's which needs to be implemented so that production of waste materials can be minimized so that environmental degradation can be controlled [19].

5.3.2 Factors of Environmental Degradation:

There are several different factors on which degradation of the environment depends and most of them are interlinked [4]

- **Population Growth and Exploitation of Resources:** As the population is increasing the basic needs are also increasing which means more land for settlement and farming which results in deforestation ultimately leading to environmental degradation. As a result a lot of pressure is applied on the utilization of natural resources leading to over-exploitation of the natural resources, and leads to environmental erosion. Decreasing forest cover increases the level of carbon in the atmosphere and causes global warming.
- **Intensification of Agriculture:** it decreases the quality of the land as natural environment for example forest and grasslands are being converted into agricultural land. Severe agricultural practices decrease the fertility due to the accumulation of toxic substances like organic compounds. Runoffs of agricultural wastes and chemical fertilizers and pesticides into water bodies also deteriorate the quality of wild life habitats, natural water resources, wetlands and aquatic life.
- **Atmospheric Changes:** Many natural activities release of a lot of ash and smoke to atmosphere that harm our environment and also lead to acid rain and skin diseases among living organisms. Ozone depletion alone is responsible for 300,000 additional cases of skin cancer a year and 1.7 million cases of cataracts. Global warming increases the risk of climatic natural disasters.
- **Littering and illegal Dumping:** Illegal dumping can lead to several kinds of pollution. By dumping those wastes into water bodies leads to severe pollution which in turns become unsuitable for many aquatic dwellers. Littering is a practice that occurs mostly. Additionally, the unburnt cigarette buds are one of the main causes for wildfires which also leads to significant ecological degradation. The waste littered in an open area rather than proper disposal gets washed off and mix in the water bodies that directly or indirectly reaches the water table and affect the groundwater.
- **Mining:** Mining can lead to serious degradation of the environment as large areas of land is used. The method mining is done by cleaning the area due to which there is a loss of natural habitat.

5.3.3 Effects of Environmental Degradation:

There are a lot of adverse effects which takes place due to environmental degradation. These effects cannot be visible in a day or two, rather it takes years [5, 6].

- **Acid Rain:** significant amounts of air pollution from the industrial processes & components that gets accumulated in the environment cause acid rain [21].
- **Biodiversity Loss:** Land and soil degradation can harm many plants. Since plants and animals are usually quite sensitive to their natural living conditions and their contamination with harmful substances leads to their death. Loss of biodiversity leads to endangerment or extinction of species [22].
- **Natural Disasters:** it can happen more frequently due to human interventions with nature. Due to global warming, air and sea temperature increases which lead to a higher probability of severe storms and floods. Industrial production processes, electricity generation and the daily use of our cars contribute to climate change since most of these processes involve the combustion of fossil fuels which leads to the emission of enormous amounts of greenhouse gases such as oxides of nitrogen, sulphur, carbon, etc into the atmosphere. Several kinds of natural disaster occur such as Global warming, Famine, Flood, landslides, etc.
- **Public Health Problems:** In many countries, due to deforestation, mining or other practices caused by human interactions with nature, the probability of floods or other natural disasters increases with due course of time. The effects of those natural disasters are unpredictable. Many people lose their homes and suffer from quite poor hygienic conditions due to the destruction of important infrastructure.
- **Loss in Tourism:** Many poor countries rely on tourism as their most important source of income. If the degradation continues then their income will be zero as the number of visitor's decreases.
- **Economic Effects:** Apart from the detrimental effects there are severe adverse economic effects related to the issue.
- **Bad Effects of Technology on Environment:** Nowadays we are fascinated by using new and improved technologies which ultimately decrease our effort of doing the work. In recent years, the improvement of technology led to the production of more machines, weapons, and automobiles. Mismanagement of technology and lack of control measures results in environmental degradation [7]. The increased rate of consumption of improved facilities triggers the demand of supply of required technology that are major effectors of industrialization led by urbanization. The adverse effect of pollution of the environment due to increased production in the manufacturing and processing industries, weapons testing, and high usage of automobiles such as cars, bikes, buses, etc. Air, water, and noise pollution are the key components of the environment that has been continually being polluted. The emission of a large number of gases such as CO₂ in the air by large manufacturing industries has degraded the environment immensely. Disposal of waste materials into the water systems by industries and other institutions is an environmental hazard through water pollution. A lot of noise pollution occurs while the weapons testing and usage, industries in their routine production processes, and automobiles are causative of environmental destruction. Environmental degradation is a growing concern as continued industrialization is being witnessed mostly in developed countries.

Environmental degradation is a growing concern as continued industrialization is being witnessed mostly in developed countries. An increase in the use of technology leads to climate change in various ways such as global warming, use of electronic devices.

5.3.4 Solutions for Environmental Degradation:

The loss that the environment faces while environmental degradation can be regained by obtaining the following solutions on daily basis [5, 6]:

- **Stop Deforestation:** in order to restore the fertile land, we need to stop deforestation as the trees produce oxygen and store greenhouse gases.
- **High Fines for illegal Dumping:** high fines must be charged from the people who dump their domestic wastes in an illegal way rather than of dumping in specific sites or trash bins, also the industries must be fined for not dumping their waste properly.
- **Stricter Government Regulations:** when it comes to environmental degradation the government must set some rules and regulations which every person or industry must follow.
- **Reduce Consumption Levels and Waste Production:** these are few points which we can incorporate in our lifestyle so that we can check our need of consuming that will ultimately control the amount of waste production. We must reuse the old stuff rather than dumping it.
- **Refrain from Plastic Packaging and Disposable Cups:** disposal of plastic bags is becoming a threat for our planet as it leads to soil pollution, water pollution, etc. when an animal swallows, it causes severe health issues and sometimes leads to their death.
- **Education:** it can be used as a strong weapon on people for protecting our mother earth. Several NGO's have started many campaigns in joint hands with the government to educate people about the importance of our environment and its sustainability.

Sometimes it becomes a tough task to make people understand the harm that we are doing to the environment by our day-to-day activities and how we can conserve it for our future generations to use.

5.4 Challenges in Environmental Degradation:

The challenges that are faced due to environmental degradation by different sectors of living and non-living units. [3, 12]

- Deep decarbonization and climate neutrality.
- Dynamics of the economic ecological system.
- Risk, uncertainty, and resilience.
- Disruptive development and path dependencies.
- Behavioural environmental economics.
- Institutional analysis of environmental policy.
- Equitable use of the environment.
- Loss of biodiversity and natural capital.
- Valuing and paying for ecosystem services.

5.4.1 Challenges in Attaining SDGs for India:

The four major challenges for attaining SDGs in India are discussed below [3]:

- a. **Defining the Key Indicators:** to devise the suitable indicators for effective assessment of their progress. The key definitions are different for different areas, such as poverty, hunger, safe drinking water, education need to be revised in order to implement the SDGs.
- b. **Financing Sustainable Development Goals:** India has the highest number of people living below the poverty line even after so many efforts. At today's level of investment, there is a huge funding shortfall that hinders the progress of attaining SDGs.
- c. **Monitoring & Ownership of Implementation Process:** Although NITI (National Institution for Transforming India) Aayog plays an important role in taking ownership for the implementation process and the members of the Aayog have expressed their concerns on time and limited manpower they have to handle such a task.
- d. **Measuring the Progress:** Incomplete coverage of administrative data is one of the factors that has hampered the measurement of progress for even the Millennium Development Goals (MDGs) that were the precursor to SDGs.

5.4.2 Challenges Faced in the 21st Century:

- a. **Public Health:** This is one area that faces most of the challenges all over the world which is led by many other concerns such as pollution, overpopulation and water scarcity. According to WHO, one death out of every four is due to an unhealthy environment? This problem is occurring in both developed and developing countries [20].
- b. **Water-Related Challenges:** According to the UNICEF 2017 report 2.1 billion people lack to have the access to safe drinking water. In many countries, people lack to have water for daily activities. And on the other side people are wasting the water without thinking. Nowadays the water bodies are getting polluted due to the mixing of untreated wastes from different sectors such as industries, household wastes, hospital wastes, agricultural runoffs. This leads to water pollution which adversely affects the living organisms.
- c. **Overpopulation:** Increase in population is putting strain on the natural resources that are limited and results in the degradation of the environment. Birth rate and Death rate are the two factors that define the population. Recently the death rate has gone down due to the availability of better medical services and hospitality. More population means more food, more shelter and more resources and this ultimately leads to deforestation, loss of natural resources, etc.
- d. **Ecosystems & Endangered Species:** As the list of different types of environmental degradation happening in this world is increasing, both the ecosystem and the species are in danger of vanishing. Habitat loss is the main concern for living organisms due to a shortage of food and shelter. As the ecosystems are decreasing day by day many animals, birds and aquatic animals are preferring to migrate and some others are preferring to adapt themselves to survive in harsh condition with the help of evolution.
- e. **Climate Change:** The rising temperature gives rise to many harmful problems such as melting of glaciers, forest fires, drought, etc.

The melting of ice and glaciers present in the Himalayas, Arctic and Antarctica region causes a problem for the wild animals to survive and increases the water level which leads to flooding in some areas. Forest fires that took place in some parts of the country for example Australian bush fire, Amazon rainforest fire, Similipal forest fire, etc cause huge loss to the wild animals and plants. Climate change leads to water scarcity, loss of agricultural practices, rain cycle changes and many more [25].

- f. **Effects of Industrialization and Globalization:** These two words have both positive and negative effects, but more negative as it leads to the loss of natural resources through mining activities in need of raw materials, pollution of air due to release of harmful and poisonous gases, pollution of water as the industrial wastes are directly released to the water bodies without any prior treatment which makes the water unfit for the survival [26].

5.5 Mitigation:

Mitigation is defined as a method by which we can decrease the adverse or harmful effect of environmental degradation. The process of mitigation is not a task of a few days or months, rather it will take ages to replenish.

There are numerous ways that will decrease environmental degradation. Some of these include [1]:

- Purchase recycled products
- Conserve and energy
- Do not litter or throw waste into inappropriate places
- Join an awareness group
- Talk with others about the impacts of environmental degradation

The harm that we are causing today is negligible for us but those upcoming future generations will suffer. Now they don't come in the count for cost of socio-economic terms. This negligence is allowing us to overexploit the free natural resources and overproduction of cheap goods.

The cycle of production, buying and discarding go on and on affecting the environment adversely. We need to change this way of human interaction with the environment.

5.5.1 Some Important Control Measures:

The ultimate object behind the measures is to control pollution and maintain the safety of Man, Material and Machinery (Three Ms) [18]. There are some measures that are based on the principle of recovery or recycling of pollutants. Those measures are considered to be an integral part that leads to the mitigation of environmental degradation [15]. These are:

- **Control at Source Point:** Raw materials used need to be checked and controlled at the source point. This step will ensure the proper use of the raw materials.
- **Selection of Industry Site:** The site for industry must be examined properly so that the living organisms should not be affected along with their lifestyle.

- **Treatment of Waste Released:** The industrial wastes should be subjected to proper treatment before their discharge.
- **Afforestation:** Intensive plantation in the region will considerably reduce the dust, smoke and other pollutants.
- **Government Action:** Government should take immediate action against the industries which release a higher number of pollutants into the environment as per the guidelines prescribed by the Pollution Control Board.
- **Assessment of the Environmental Impacts:** Environmental impact assessment should be done at regular interval which intends to identify and evaluate the potential of harmful impacts of the industries on the natural eco-system.
- **Strict Implementation of Environmental Protection Act:** Environment Protection Act should be strictly followed and the destroyer of the environment should be strictly punished.

5.5.2 Genetically Engineered Bacteria:

As the environmental pollution is increasing so because of the pollutants. So, with the tactic of biotechnology, the trendy biotechnologists have come up with the answer of genetically engineered bacteria to degrade the pollutants [32].

The invention of an enormous number of the gene which was introduced within the bacteria with good adaptability resulted in the production of engineered bacteria.

This bacterium is capable to treat heavy metals and other refractory environmental pollutants. The event of recent industry results in the appearance of latest pollutants ultimately ends up in the invention of latest strains of bacteria.

5.6 Role of Government:

The cooperation of every citizen of the country is essential for safeguarding the environment.

Government and its rules and regulation play an important role in helping to find solutions to the problems.

The government has taken various steps for the protection of the environment [11, 30]. Some of them are listed below:

- a. Swachh Bharat Mission
- b. Compensatory Afforestation Fund Act (CAMPA)
- c. National River Conservation Programme
- d. Conservation of Natural Resources & Eco-systems
- e. The National Green Tribunal Act, 2010
- f. The Air (Prevention and Control of Pollution) Act, 1981
- g. The Environment Protection Act, 1986
- h. The Hazardous Waste Management Regulations, etc.

5.6.1 The ACTS:

There is a big set of acts which are made by the government that are implemented on the people, such as [30].

- **The Environmental Protection Act:** This Act was enacted in 1986, and it aims to establish a sufficient protection system. This act delivers powers to the Central Government to regulate all forms of waste. It is one of the primary sectors to protect the environment and regulation of waste produced.
- **The Wildlife Protection Act, 1972:** this act was enacted to effectively protect the wildlife and also control numerous activities such as poaching, smuggling and illegal trade in wildlife and its derivatives. The Act was passed in January 2003 and as a result, the punishment and penalty for offences under this Act have been made more stringent. The Ministry has proposed further amendments in this law by introducing more rigid measures to strengthen the Act. The major objective of this act is to protect the listed endangered flora and fauna and ecologically important protected areas.
- **The Forest Conservation Act, 1980:** was enacted to help conserve the country's forests. It particularly restricts and regulates the de-reservation of forests areas or use of forest land for non-forestral purposes without any prior approval of Central Government.
- **The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006:** recognizes the rights of forest-dweller Scheduled Tribes and other traditional forest dwellers over the forest areas inhabited by them and provides a framework for according an equivalent.
- **The Indian Forest Act, 1927:** consolidates the law relating to forests, the transit of forest produces and the duty livable on timber and other forest produce.
- **Public Liability Insurance Act, 1991:** was enacted to provide required liabilities to the victims of the incident that occurred due to the handling of hazardous substances. The Act applies to all or any owners related to the assembly or handling of any hazardous chemicals.)
- **The Biological Diversity Act, 2002:** The Act aims at the conservation of biological resources and associated knowledge also as sustainably facilitating access to them.

5.6.2 The Guidelines:

Rules by the government to check waste management system that mainly leads to degradation:

- **The Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008:** controlling the release of these hazardous waste is not easy. For the management, certain guidelines combine and form a set of regulations that are responsible for their conversion from hazardous waste to safe waste [3].
- **E-Waste (Management and Handling) Rules, 2011:** this rule was set up to check and control the use of hazardous substances released from the industries of electronic equipment and to channelize the e-waste. This rule is meant to be followed by producer, consumer, collection centre, dismantler, involved in manufacturing and processing of electrical equipment industries and domestic users.

- **Batteries (Management & Handling) Rules, 2001:** this rule deals with the waste materials released from batteries and their industries. The waste materials contain lead which is harmful and gets easily accumulated [11].
- **Biomedical Waste (Management and Handling) Rules, 1998,** were formulated for proper disposal, segregation, transport, etc, of infectious wastes that are disposed of mainly by hospitals and primary healthcare centres.
- **Municipal Solid Wastes (Management and Handling) Rules, 2000,** aims at the proper disposal of municipal solid waste and domestic wastes which are released from houses daily.

5.6.3 Suggestion to Overcome the Problem of Environmental Degradation:

- **Social Awareness:** this is much needed to spread awareness about the consequences of environmental degradation and also how each individual is responding and contributing to stopping it from increasing.
- **Population Control:** if environmental degradation is to be stopped then it is essential to check population growth.
- **Application of Environment Act:** Its objective was to check the deterioration in the quality of the environment and to check the conservation of flora and fauna.
- **Control over Industrial and Agricultural Pollution:** It is necessary to check the air and water pollution that are caused by industrial development should be controlled properly. The use of pesticides and chemical fertilizers should be minimized to protect restore the quality of land and water.
- **Afforestation Campaign:** Extensive afforestation campaign should be launched to build interest among the population to protect the planet earth.
- **Water Management:** different water bodies should be made clean. There must be a supply of clean drinking water to every corner of the rural and urban areas.
- **Management of Solid Waste:** Planned management of solid waste is very essential. The domestic solid wastes can be reused as compost.

5.7 Conclusion:

Environmental degradation is a serious problem for both living and non-living organisms. If we continue our consumption and daily life behaviour, as we did it for the last decades then our future generations will suffer from enormous adverse consequences. Industrial pollution is not the problem of any particular country or locality rather the entire world is responsible for causing its harmful effects. Hence, the world together needs to find out a solution to control pollution and degradation of the environment. Those governmental and non-governmental organizations are taking many necessary steps to treat it. Waste disposal and recycling are the two essential steps that will make a lot of difference in controlling. Advanced technologies are being developed for waste disposal and recycling so that industries can minimize waste creation as much as possible. Looking at the damage some of them cannot be replenished such as natural resources, water level, loss of flora and fauna, atmosphere, etc. To minimize the damage, proper planning must be made and executed. Every person dwelling on this planet must be educated with the pro and cons of technology, the harmful effects of environmental pollution and the laws and rules which were made by the government.

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