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# UNIT 4 GLOBAL ENVIRONMENTAL ISSUES

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## 4.0 INTRODUCTION

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Environment is all that surrounds us. It consists of biotic as well as abiotic components. You have studied about these components in the previous units. Man has been utilizing the services and products of environment for his own good self. In the process, the nature and its components have been altered and their character has been changed. In view of this, the healthy survival of human beings and other organisms has become very difficult on this planet. Environmental problems do not believe in boundaries and an issue at one place also travels to the nearby place and manifests in some form or another. There are local as well as global issues which are demanding immediate attention. In this unit, you will learn about the issues which are equally affecting the world in some form or the other. The extent of impact may vary but counties across the world are pondering over the solutions to these issues.

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## 4.0 OBJECTIVES

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After reading this unit, you will be able to:

- describe the factors causing environmental degradation;
- explain the effects of climate change;

explain the meaning of green house effect;  
 define acid rain and mention the forms of acid rain; and  
 explain the effects of ozone depletion.

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## 4.2 ENVIRONMENTAL DEGRADATION

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Environmental degradation is the deterioration in the quality of the environment. It is apparent in more than a few forms such as depletion of natural resources, destruction of ecosystems, habitat damage, the extinction of wildlife and environmental pollution. Despite the fact that the state of the environment has always been changing since life evolved on this planet, the magnitude of change and severity of impact is today like never before. The degree and the level of environmental degradation depend upon the rate, the resilience of living organisms and the intervening factors. The present condition reveals that the damage has been to such an extent that it is believed that some environments may never recover. We have lost our pristine environment and we will never be able to recover it.

There are a number of causes of environmental degradation. You must have read at various places that humans are mainly responsible for this damage. Therefore, humans must recognize the degree to which they depend on earth's resources and what are limits of the usage of these resources. It is necessary to devise means for the sustainable utilization of precious natural resources. In this sense, environmental responsibility and stewardship constitute an integral part of effective resource management practices. In order to avoid more harm, researchers and scientists must consider the long-standing impact of development on the environment and must come out with suitable measures to minimise future environmental degradation.

### 4.2.1 Causes of Environmental Degradation

Let us now understand the causes behind environmental degradation. Various natural as well as anthropogenic factors are responsible for altering the character of the surroundings. Let us learn more about them.

#### Natural Causes

Along with anthropogenic activities, natural causes also create instability in environment. Events such as earthquakes, floods, wildfires and landslides cause damage to life and property along with disrupting the landscape of that region. Alteration of the habitat makes survival of the plants animal communities difficult. It is because of the fact that the climate of Earth has also been changing over time.

#### Man –made causes

As compared to the natural causes, man-made causes are known to cause environmental degradation at a much wider scale. Some of the important man made causes of environmental degradation are deforestation, environmental pollution, improper land use planning and development, overexploitation of natural resources, improper agricultural practices, poor quality of water resources, wetlands and aquatic life and enormous waste generation. During 1960 to 1999, the world population increased manifold because at this time we had improved medical facilities, vaccinations, better nourishment and the deadly diseases were controlled. The death

rate drastically declined during this period. During the same period, the environmental problems also grew and the world's attention shifted to the concerns of the environment. The landmark environmental events took place in the same period. Since then the environmental problems have become more intense and more complicated. Human beings have disturbed the ecology and natural processes in the name of development. Unless some stringent measures are taken, it will be very difficult to restore the nature of forests and oceans and other ecosystems.

#### **4.2.2 Effects of Environmental Degradation**

Environmental degradation hinders with the renewal capacity of the renewable natural resources and thus checks their availability. It also contributes to the decrease in quality of the land, water, genetic resources, medicinal plants and food crops. Below are some of the chief effects of environmental degradation. You will learn more about the effects of environmental degradation in detail in subsequent units of this course.

##### **Atmospheric Changes**

Environmental degradation disturbs the natural biogeochemical cycles and other processes of nature. Reckless deforestation and mining activities destroy the natural land cover and alter the chemical composition of the atmosphere. It causes the manifestation of the already existing problems of global warming and release of green house gases. Along with this, the intensity and frequency of natural disasters also increases. The overall result is the shift in the precipitation patterns and likewise changes in the atmosphere.

##### **Environmental Pollution**

Environmental degradation is responsible for the addition of harmful and unwanted chemicals into the environment. Rapid industrialisation and unplanned development activities have done more harm than good. Agriculture is slowly poisoning our fields and the fruits and the vegetables are contaminated with pesticides. Air is also getting polluted and our water bodies are full of filth of waste and harmful chemicals. There are heaps of solid and municipal wastes in secluded places which is responsible for land pollution. In a nut shell, environmental pollution has crossed all limits and it is one of the most visible forms of environmental degradation.

##### **Decline in Biodiversity**

Degradation of the environment has lead to the destruction of forests and natural ecosystems. The number of threatened species continues to increase worldwide and many have also become extinct. It is because of the acidification of the water bodies, deforestation, and the deliberate destruction of natural habitat of living organisms.

##### **Impact on Human Health**

Human beings do not remain impervious from what is happening in the surroundings. Human health depends on environmental factors to a large extent apart from genetic and behavioural factors. Urbanization and modernisation have changed the lifestyle of people in rural as well as urban areas. We are breathing impure air, drinking contaminated water and eating stuff that is laden with pesticides. To make matter worse, electronic gadgets and radiations have become part and parcel of our lives.

In this way, human beings are paying the cost of development in the form of deteriorating health and quality life. Degradation in water quality causes water borne diseases to the children and the poor across the globe. Similarly toxic gases and harmful chemicals are released from factories and automobiles leading to poor air quality. Due to this, respiratory and cardiovascular diseases are affecting a large population in developed as well as developing countries. Growing number of cancer patients, increasing risks of obesity and lifestyle related diseases and poor immunity among children are all the consequence of environmental degradation in one form or the other.

**Poverty**

In the developing countries, poverty is linked to lack of natural resources and basic needs that are needed to survive. Poverty is the result of number of factors like unemployment, lack of adequate food and improper means of living. Most vulnerable situations arise because of water shortages, climate change, and poor crop yields in developing countries. All this is linked to environmental degradation in some form or the other.

Apart from the effects mentioned above, it can be asserted that environmental degradation also indirectly leads to a number of socio economic consequences.

**Check Your Progress 1**

- Notes:** (a) Write your answers in about 50 words.
- (b) Check your progress with possible answers given at the end of the unit.

1. Explain the causes of environmental degradation.  
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2. How human health is affected by environmental degradation?  
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**4.3 CLIMATE CHANGE**

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Climate is usually defined as the “average weather” at any place. It includes patterns of temperature, precipitation, humidity and wind. These patterns play a fundamental role in shaping natural ecosystems, and the human economies and populations that depend on them.

The Earth’s climate has changed throughout history. Most of these climate changes are attributed to very small variations in Earth’s orbit that change the amount of solar energy our planet receives. However, the current warming trend is of particular significance because most of it is very likely human-

induced and proceeding at a rate that is unprecedented in the past 1,300 years.

With the changing climate like never before, the past is no longer the reliable predictor of the future. The change in climate is progressing faster than any seen in the last 2,000 years and this forms a reason to study climate and the changing climate. Rising global temperatures are expected to raise sea levels, and change precipitation and other local climate conditions. Changing regional climate could alter forests, crop yields, and water supplies. It can also affect human health, animals, and many types of ecosystems.

### 4.3.1 Causes of Climate Change

It is very difficult to say what actually causes climate to change at an accelerated rate. Broadly speaking, the causes of climate change fall in two categories: Natural and Man-made causes.

#### Natural causes

There are a number of natural factors responsible for climate change. Some of the more prominent ones are continental drift, volcanoes, ocean currents, the earth's tilt, and comets and meteorites.

#### Continental drift

Continental drift also had an impact on the climate because it changed the physical features of the landmass, their position and the position of water bodies. The separation of the landmasses changed the flow of ocean currents and winds, which affected the climate. This drift of the continents continues even today. The Himalayan range is rising by about 1 mm every year because the Indian land mass is moving towards the Asian land mass.

#### Volcanoes:

When a volcano erupts it throws out large volumes of sulphur dioxide ( $\text{SO}_2$ ), water vapour, dust, and ash into the atmosphere. Although the volcanic activity may last only a few days, yet the large volumes of gases and ash can influence climatic patterns for years.

#### The earth's tilt

The earth makes one full orbit around the sun each year. It is tilted at an angle of  $23.5^\circ$  to the perpendicular plane of its orbital path. If there was no tilt we would not have experienced seasons. Changes in the tilt of the earth can affect the severity of the seasons - more tilt means warmer summers and colder winters; less tilt means cooler summers and milder winters.

#### Ocean currents

Ocean currents have been known to change direction or slow down. Much of the heat that escapes from the oceans is in the form of water vapour, the most abundant greenhouse gas on Earth. Yet, water vapour also contributes to the formation of clouds, which shade the surface and have a net cooling effect.

#### Man Made Causes

Excess burning of fossil fuel, change in land use patterns are some of the leading causes of climate change.. Since Industrial Revolution, human activities have significantly altered the climate at given place. It is because of the influence of human activities on climate change we use the term 'anthropogenic' or 'human induced' climate change.

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## 4.4 GREEN HOUSE EFFECT AND GLOBAL WARMING

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The *greenhouse effect* is the phenomenon in which the atmosphere of a planet traps radiation emitted by sun. Green house effect is caused by gases such as carbon dioxide, water vapour, and methane that allow incoming sunlight to pass through but does not allow heat to radiate back from the Earth's surface. In the absence of green house effect, the global average temperature would have been  $-18^{\circ}\text{C}$  ( $0^{\circ}\text{F}$ ) instead of  $15^{\circ}\text{C}$  ( $59^{\circ}\text{F}$ ) which is today. Since the industrial revolution got into full swing in the 19th century we have been burning ever increasing amounts of fossil fuels (coal, oil, gasoline, natural gas) in electric generating plants, manufacturing plants, trains, automobiles, airplanes, etc. The overall result is the warming of the earth's surface which is termed as Global Warming.

Global warming is causing intense consequences on the climate of the earth and life and livelihood of people. Rising temperature leads to melting of glaciers and rising sea level through addition of melt water to the oceans. It also causes thermal expansion of water in oceans which in turn is also responsible for sea level rise. Sea level rise leads to increasing coastal erosion, flooding, and property damage during coastal storms. It is predicted that warmer sea surface temperatures will result in more and stronger tropical storms like hurricanes and typhoons increasing the loss of life and damage to infrastructure. While higher temperatures will produce more rainfall across the globe, the regional rainfall patterns will likely change. Some areas will get more, some areas will get less. The timing of wet and dry periods may change. Centuries old farming practices will have to change. Some areas may go from being marginal to becoming a breadbasket region, while other regions may go from major agricultural production to marginal. Natural ecosystems will be hard pressed to keep up with the changing climate because the rate of change will be faster than typical long-term natural climate change. Many species, especially plant species, will not be able to migrate to cooler areas fast enough to keep up with the warming of their habitats. Arctic species will have no place to go and may not be able to adapt to the new conditions. Harsh summers will cause death and miseries to a large population. Higher heat and expansion of tropical areas may lead to increased prevalence of tropical diseases such as malaria.

### Check Your Progress 2

- Notes:** (a) Write your answers in about 50 words.  
(b) Check your progress with possible answers given at the end of the unit.

- 1) How *global warming* will lead to ecosystem imbalance and species loss in the long run?

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2) What is the greenhouse effect?

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## 4.5 ACID RAIN

Acid rain refers to the wet or dry deposition of the excess amount of nitric and sulphuric acid. In simple words, it means rain that is acidic in nature because of the presence of certain pollutants emitted through vehicular and industrial pollution. The term was introduced by a Scottish chemist, Robert Angus Smith, in 1852. Volcanic eruptions, burning of fossil fuels, emissions from factories and automobiles are few other causes of acid rain. Normal rain water is also slightly acidic having a pH range of 5.3-6.0. When the pH level of rain water falls below this range, it becomes acid rain.

At present, large amount of acid deposition is observed in Canada, United States and most of Europe.

### Forms of Acid Rain

Acid deposition may occur in two forms: wet and dry.

**Wet Deposition:** When the acids fall to the ground in the form of rain, sleet, fog, snow or mist it is called wet deposition of acid rain.

**Dry Deposition:** When the acidic pollutants enter into dust or smoke and fall to the earth as dry particles it is called dry deposition. These pollutants also deposit houses, trees and buildings.

### 4.5.1 Effects of Acid Rain

Acid rain has significant effects on forests, soil, aquatic life, human beings and materials.

#### Effect on Forests

Acid rain is known to cause severe damage to the forests in Germany, Poland and Switzerland. It makes trees susceptible to diseases, destroys their leaves and causes stunted growth of the plants.

#### Effect on Aquatic Environment

Acid rain flows into streams, rivers and lakes and over a period of time, acids get accumulated in the water. In such situations, the conditions become unsuitable for the survival of aquatic flora and fauna. It leads to reduced aquatic biodiversity.

#### Effect on Soil

The physico chemical and biological properties of the soil are damaged due to excess acids in rain water. An optimum pH level is required for the activity of microbes in the soil.

### Effect on Architecture and Buildings

Acid rain affects the infrastructure and buildings at any given place. . It causes weathering of buildings, corrosion of metals, and peeling of paints on surfaces. Buildings made of marble and limestone is severely affected due to the reactivity calcium compounds and acids. The effects are clearly visible on statues, historic monuments, and buildings. Acid rain also corrodes metals like copper, and iron.

### Effect on Human Health

Human health is not directly affected by acid rain. However, gaseous particulates in the air like nitrogen oxides and sulphur dioxide cause respiratory disorders and heart problems.

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## 4.6 OZONE LAYER AND ITS DEPLETION

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Ozone is an allotrope of oxygen. When present in troposphere, it acts as a pollutant but when present in stratosphere ozone layer protects life on earth by absorbing harmful ultra violet radiations. Due to the release of chlorofluoro carbons (CFCs), the ozone is getting depleted and this thinning of the ozone layer is commonly termed as Ozone depletion. The primary source of CFCs is refrigerators, by product of industrial processes, aerosols, fire extinguishers, etc. CFCs interfere with the ozone formation process in the stratosphere and ozone depletion occurs when the natural balance between the production and destruction of ozone in the stratosphere is tipped in favour of destruction. You will learn more about the mechanism of ozone layer depletion in Unit ....of Block.

The ozone layer is important because it absorbs ultraviolet (UV) radiation from the sun, preventing most of it from reaching the earth's surface. The depletion of ozone layer allows entering of UV rays from sun into the earth's atmosphere which is associated with a number of health related problems in human beings. Following are some of the effects of ozone layer depletion:

**Skin Cancer:** Exposure to UV rays leads to increased risk for developing of several types of skin cancers.

**Eye Damage:** UV rays are harmful to our eyes. Direct exposure to UV rays can lead to cataract, or snow blindness.

**Damage to Immune system:** Increased exposure to UV rays can lead to weakening of the immune system.

**Aging of skin:** Exposure to UV rays accelerates the ageing process of the skin.

Along with these, difficulty in breathing, chest pain, and throat irritation, etc. are some of the common ailments caused due to ozone layer depletion.

Increased concentration of UV rays affects other forms of life as well. It adversely affects the fauna which plays a vital role in the food chain and carbon cycle in aquatic ecosystems. It also impairs the flowering in some plant species and alters the physiological and developmental processes of the plants.



It is necessary for the countries world over to take some stringent measures to protect the ozone layer from getting depleted. More and more International agreements such as Montreal protocol between countries are necessary to bring down the release of chloro fluoro carbons. At individual level everyone can contribute towards reducing ozone layer depletion. The most important thing that we can do is spreading awareness regarding these issues. Our individual efforts will go a long way in protecting the earth and keeping it liveable for future generations.

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## 4.7 OTHER ISSUES

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Apart from those mentioned above, the world is confronting quite a lot of other issues of global concern. Let us get a brief idea about some other environmental issues of global importance.

### Environmental Pollution

Environmental pollution has become a serious problem the world over which is threatening the existence of not only man-kind but of other living organisms as well. It is one of the greatest problems that we are facing today. Environmental pollution consists of four basic types of pollution, namely, air, water, soil, and noise. Harmful gases in air, contaminants in water, plastics and toxic chemicals in soil, etc are the clear indicators that the environmental pollution has reached the tipping point. Industries, vehicular pollution, fossil fuel burning are responsible for the addition of sulphur dioxide, carbon di oxide and green house gases (as you have studied in the previous sections) into the atmosphere. Similarly agricultural runoff and industrial effluents are polluting the rivers and lakes. Ganga, Yamuna and all, the main rivers of India are polluted and the water is unfit for use. It can also be said that an array of environmental problems like biodiversity decline and water shortages are occurring because of environmental pollution. We have sacrificed the pure water and air for the development process. Human beings particularly the poor, elderly and children have become susceptible to various diseases like asthma, cancer, infections and the like. It is necessary on the part of the government to take measures on urgent basis to stop the addition of contaminants in nature. Along with this, at an individual level, every citizen must contribute to save planet from getting polluted.

### Loss of Biodiversity

Biodiversity refers to the diversity in the various life forms present on the Earth. It is the link between all organisms on earth, binding each into an interdependent ecosystem, in which all species have their role. In other words it can also be called as the web of life. The varied flora and fauna helps to restore the ecological balance and provides various environmental services apart from providing direct benefits such as food, medicines and raw materials. The main cause of the *loss of biodiversity* can be attributed to the manipulation of world's ecosystems by human beings. They have transformed the environment, and have modified the territory, exploiting the species directly, for example by fishing and hunting, changing the biogeochemical cycles and transferring species from one place to another. Due to environmental pollution, habitat fragmentation and land degradation, the plant and the animal species are constantly under threat. We are losing a number of species every year

because they are not able to cope up with the changing climate and fragmented habitats. The loss of biodiversity leads to disruption of ecological balance and deprives us of the various direct and indirect benefits that they provide. Biodiversity conservation is taken up by several international bodies such as IUCN, WWF, etc. These conservation bodies have already sent warning signals for countries to take necessary action to protect the flora and fauna.

### **Desertification**

Desertification is a process of land-degradation by which a region becomes progressively drier and drier eventually becoming desert. Much of the desertification across the world is caused by human activities. Poor agricultural practices, unplanned deforestation, soil erosion, mining, urbanization, faulty irrigation practices, etc. are some of the underlying factors of the process. It is estimated that around 25 % of India's land is undergoing desertification. The situation will further heighten because of the impact of climate change, particularly in dry lands. Due to this, desertification is significantly emerging out as a global ecological and environmental problem. It has been found that in the past several civilizations such as Harappa have collapsed on account of desertification. Loss of productivity, famines, loss of natural vegetation is some of the other effects of desertification.

### **Depletion of Natural Resources**

With 7 billion people living on the planet and their increasing demands, the pressure on natural resources like water, land, forests, etc is bound to increase. Since earlier times, human beings have utilized the nature's resources and services for getting food, shelter and clothing and making life comfortable. However, when greed takes over need, the over exploitation of natural resources starts becoming an issue of concern. Today we are utilizing more resources than their capacity to replenish. Coal, minerals, oil, forests etc, are already dwindling and losing their quality. In view of this, conservation of natural resources is becoming a subject of paramount importance. Resource depletion is of more concern in farming, fishing, mining, water usage, and consumption of fossil fuels. Due to this, there is already scarcity of water and land. Most of the pollution problems are growing because of natural resource depletion. When resources are scarce people tend to use cheaper and low quality fuels for meeting their daily needs. Hence, natural resource management is essential for the sustainability of our development processes. Measures should be taken to conserve water, and energy. Extensive programmes for afforestation and protection of biodiversity must be undertaken to conserve the resources. Green technology and ecofriendly know-how must be utilized extensively to conserve the natural resources.

### **Waste Generation and Accumulation**

Millions of tons of waste products are generated every day in big cities owing to rapid industrialisation and urbanization. In India, 960 million tonnes of solid wastes are generated annually as by-products during industrial, mining, municipal, agricultural and other commercial and non commercial activities. The sources and kinds of these wastes may vary but one thing is common that they are a menace to the environment as well as society. You must have noticed heaps of wastes lying untreated at various places. There is a great accumulation of wastes which needs proper disposal method. Proper waste disposal is

necessary so that wastes may get converted into resources. Organic wastes must be treated to form manure which can be used in vegetable gardens. Similarly recyclable waste must be recycled. If suitable measures are not undertaken the earth will become a dustbin containing plastics, papers, chemicals, glass and so on. At present most of the Indian cities dump the entire quantum of their municipal solid waste into unscientific dump sites, whilst only partially separating waste recyclable and non recyclable waste. The need of the hour is to curtail our waste generation by recycling to full potential and scientifically managing the remaining waste stream.

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## 4.8 CASE STUDIES

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There are several cases across the world to support the evidence that environmental degradation is occurring at a faster rate than ever before. These cases will help you to understand the causes of environmental degradation in a precise way and you will be able to think independently and devise solutions for the current problems. Let us read some case studies below:

### **Minamata Disease**

*Minamata disease* is a neurological syndrome that results from industrial pollution and water pollution. Symptoms include ataxia, numbness in the hands and feet, general muscle weakness, narrowing of the field of vision and damage to hearing and speech. Minamata disease was first discovered in Minamata City in Kumamoto prefecture, Japan in 1956. It was caused by the release of methyl mercury in the industrial wastewater from the Chisso Corporation's chemical factory, which continued from 1932 to 1968. This highly toxic chemical bioaccumulated in shellfish and fish in Minamata Bay and the Shiranui Sea, which when eaten by the local populace resulted in mercury poisoning. While cat, dog, pig and human deaths continued over more than 30 years.

### **Sahel: The Expanding Desert**

In the Sahel Desert, desertification is becoming a huge problem. Around the 1950s, people settled into the Sahel region, in areas where there was water. This resulted in overgrazing, which is one of the greatest causes of desertification. Eventually, the perennial shrubs were destroyed because of grazing, and they were replaced by annuals. Then, the annuals were grazed out which left bare soil. A lot of the topsoil was washed away, and all that was left were rocks. Silt turned hard when it was hit by rain. Therefore, plants were not able to grow there because roots could not penetrate this hard layer. Now this region has turned to desert and it continues to expand. (Desertification, The Sahel, 2004) Records show that rainfall in Sahel has decreased and sands have shifted about sixty miles south into the area. Sahel is expanding due to lack of vegetation in the area. (Sahel, 2005) Another reason desertification is occurring in the Sahel region is because people are using the slashing and burning method to clear land. This degrades the quality of soil just like overgrazing. (Desertification-a Threat to the Sahel, 2000).

### **Pesticide Poisoning in Punjab**

The southern districts of Punjab- Mansa, Sangrur, Bhatinda, Faridkot, Moga, Muktsar, Ferozepur and Sangrur, which together make up the Malwa region, constitute the record number of cancer patients in the country. It is in this

Malwa region that scores of farmers and their families are coming to grips with cancer and numerous health problems due to the lush fields hiding a scary tale. Malwa, which is also Punjab’s cotton belt, requires the use of a startling amount of pesticides. Reportedly, farmers in this region use 15 different pesticide sprays and the unregulated and excessive use of chemical fertilizers and pesticides have resulted in farmers and their families living in a cesspool of toxicity. It is for this reason that excessive pesticide use has been cited as a reason for the high incidence of *cancer in Punjab*. The researchers have found that contaminated water from rapid industrialization and excessive use of chemical fertilizers and pesticides for high-yielding crops are contributing to increasing the number of cancer patients. These patients travel through the “cancer train” to Bikaner to get themselves treated. The 12-coach train train is named so because every day it carries not less than 100 patients who attribute the cause of cancer in Punjab to pesticide use and growing pollution.

**Check Your Progress 3**

- Notes:** (a) Write your answers in about 50 words.  
(b) Check your progress with possible answers given at the end of the unit.

1) What are the harmful effects of ultraviolet radiations?

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2) How does acid rain affect aquatic life?

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**4.9 LET US SUM UP**

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The environment all over the planet is witnessing drastic changes in its composition and processes. This change in the settings of the environment is commonly termed as environmental degradation. Environmental degradation is evident in the form of environmental pollution, decreasing the availability of natural resources, loss of biodiversity and generation of waste. The environmental problems are not region specific as they do not have boundaries. Pesticides sprayed in field cause air pollution in the nearby areas. Thus issues of environment have become global in nature. Climate change, global warming, ozone depletion and acid rain are the issues of global importance in terms of magnitude and extent of impact. It is necessary to take immediate steps to control emissions and release of chemicals in land, air and water to prevent environmental degradation.

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## 4.10 KEY WORDS

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- Global warming** : Increase in the average temperature of the Earth due to the release of greenhouse gases.
- Acid Rain** : *Acid rain* is any form of precipitation that is highly *acidic*
- Stratosphere** : The stratosphere is a layer of Earth's atmosphere. It is the second layer of the atmosphere as you go upward. The troposphere, the lowest layer, is right below the stratosphere.
- Ozone Layer** : The *ozone layer* is a region in stratosphere that absorbs most of the UV radiation coming from the Sun.

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## 4.11 REFERENCES AND SUGGESTED FURTHER READINGS

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## ANSWERS TO CHECK YOUR PROGRESS

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### Check Your Progress 1

- 1) Your answers must include the following points:
  - Deforestation
  - Industrialisation and release of harmful chemicals
  - Environmental pollution
- 2) Your answers must include the following points:
  - Chemicals and pollutants in air and water
  - Changing lifestyle
  - Poor immunity

### Check Your Progress Exercise 2

- 1) Your answers must include the following points:
  - One aspect of climate change
  - Increase in average global temperature
  - Flora and fauna not able to adapt.

- 2) Your answers must include the following points:

Trapping of the sun's radiations

Essential for survival of life on this planet.

**Check Your Progress Exercise 3**

- 1) Your answers must include the following points:

Increase in temperature

Effect on agriculture

Diseases in human beings

- 2) Your answers must include the following points:

Decrease in oxygen

Fish mortality

Disruption in aquatic food chain and food web

Loss of aquatic biodiversity



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