

# 6

## ENVIRONMENT AND NATURAL RESOURCES

In this chapter, you will learn about

- Earth's atmosphere, its composition and layers
- Depletion of ozone layer and its effects on earth.
- Absorption and reflection of energy on earth and green house effect.
- Climatic changes due to human activities.
- Types of pollution and their impact on human life.
- Use and conservation of minerals and fossil fuels.
- Crops of Pakistan, mechanized farming and modern trends in agriculture.
- Development of dairy and poultry farming.
- Wildlife, national parks and conservation of wildlife.
- Effects of over population on environment, poverty and quality of life.

### 6.1 Earth's Atmosphere

Atmosphere is an envelope of gases that covers the earth from all sides. It is about 200 km thick. The air we breathe in is part of the atmosphere. Photosynthesis and burning also occur in presence of air. Atmosphere maintains the temperature of the earth and protects from the harmful radiation coming from the sun.



Fig. 6.1: Atmosphere

## Composition of Atmosphere

The atmosphere is made up of about 78 percent nitrogen and 21 percent oxygen. The remaining one percent consists of water vapour and trace gases (carbon dioxide, hydrogen, argon, helium, ozone, etc).

Our earth is the only planet of the solar system where free state oxygen and water vapour are present. Living organisms use oxygen in respiration. Although the proportion of carbon dioxide in air is only 0.04% but this gas is also very important for life on earth. Plants utilize carbon dioxide for preparation of food during photosynthesis. All other organisms, which cannot prepare their own food, also depend on this food. Carbon dioxide also helps in maintaining the earth's temperature. Carbon dioxide is produced during respiration and burning. The proportion of carbon dioxide is increasing in the air as a result of human activities. This may raise earth's temperature and lead to climatic change.

## Different Layers of Atmosphere

Atmosphere is divided into four parts or layers. Each layer has its own characteristic features. The four layers and their important characteristics are given below:

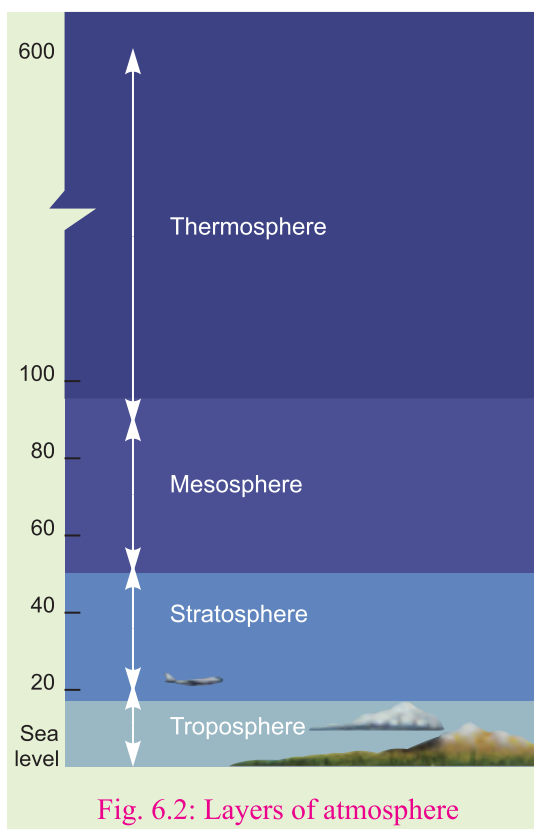
### 1. The Troposphere

The troposphere extends to a height of about 18 km above earth's surface. Most of the gas molecules and water vapour are in the troposphere. This is the layer where most of the weather occurs.

### 2. The Stratosphere

This layer is above the troposphere. It reaches the height of 50 km from sea level. Most jet airplanes travel in lower stratosphere.

The upper stratosphere contains a layer of a gas called ozone. The ozone layer is very important to living things because it filters out most of the ultra violet (UV) radiations given off by the sun.



### The Mesosphere

Beyond the stratosphere is the mesosphere, which extends about 85 km above earth's surface. This is the coldest layer of the atmosphere. The temperature in the mesosphere can be as low as  $-100^{\circ}\text{C}$ .

### 4. The Thermosphere

The thermosphere is the outermost layer of the atmosphere. It is the hottest layer, where temperature may be as high as  $2000^{\circ}\text{C}$ .

### Depletion of Ozone Layer

Ozone is a gas present in the upper stratosphere. It forms a protective covering around the earth, which prevents UV-radiations from reaching the earth.

Certain chemicals are released from refrigerator, air conditioners, spray cans and factories manufacturing packing foams. These chemicals are called chlorofluorocarbons (CFCs). CFCs react with ozone causing its depletion and thinning of ozone layer. Consequently greater number of UV-radiations reach the earth. These radiations may cause cancer and eye diseases.

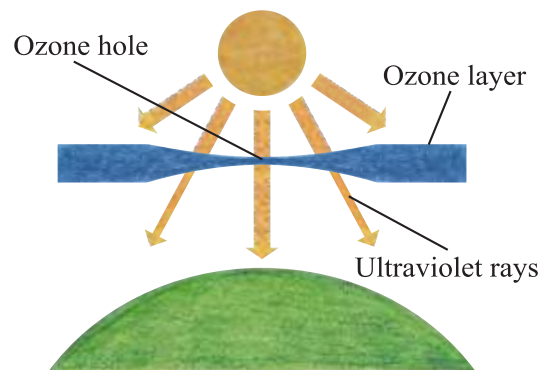


Fig. 6.3: Ozone layer

### The Energy Radiations and their Absorption in the Atmosphere

Sun is the biggest source of energy (light, heat). Radiations from the sun in the form of light come uninterrupted to the earth. These radiations have short wave length. On striking the earth they are absorbed and raise its temperature.

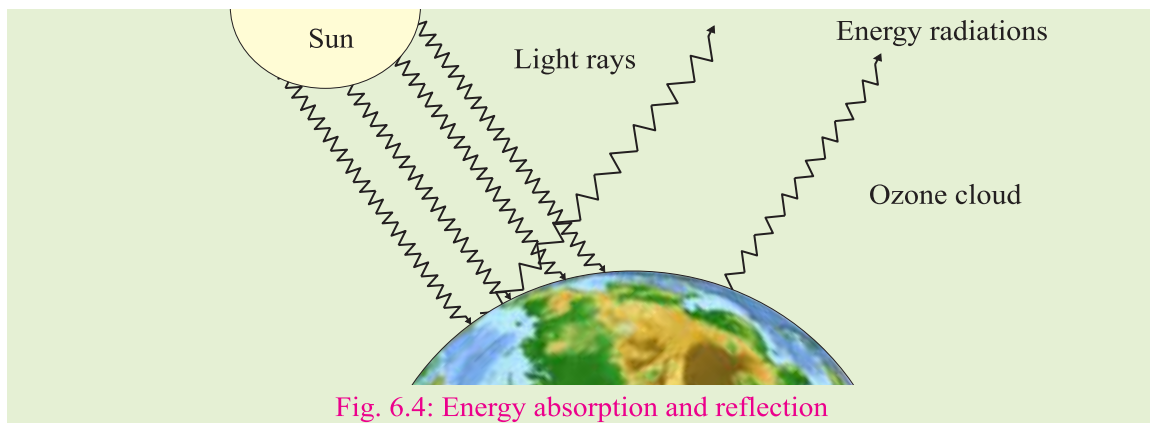


Fig. 6.4: Energy absorption and reflection

The hot earth reflects the absorbed radiations in the form of long wave length heat radiations. Carbon dioxide and water vapour allow radiations coming from the sun to pass through. However, they prevent the reflected heat radiations from going back into the space. Thus the atmospheric temperature is maintained.

## Greenhouse Effect

Greenhouse is a room made up of glass. It is used to grow plants. Solar radiations (short wave length) can enter through the glass into the greenhouse but heat waves (long wave length) cannot go out of the greenhouse. This results in higher temperature inside the greenhouse. This phenomenon is called **greenhouse effect**.

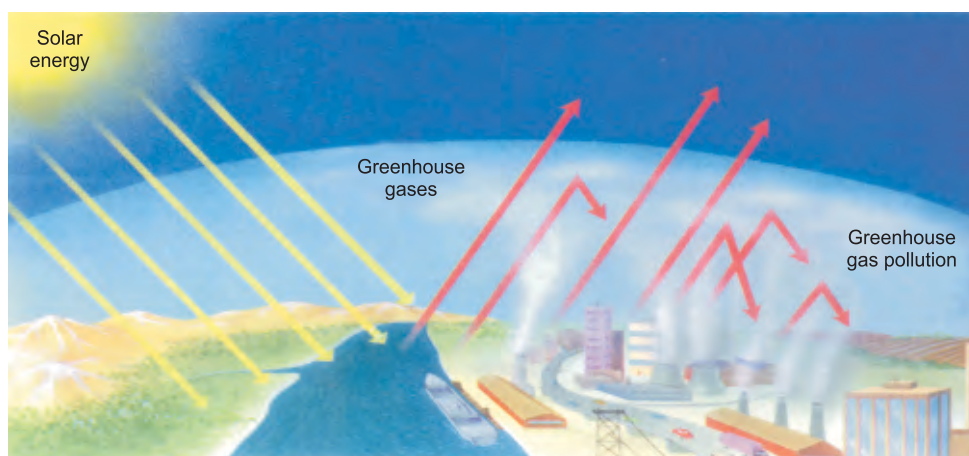


Fig. 6.5: Green house effect

Atmospheric pollution due to industrialization in modern times has increased the proportion of carbon dioxide, chlorofluorocarbons and methane in air. These gases produce greenhouse effect. Because of greenhouse effect global temperature is increasing. This is called **global warming**.

Greenhouse effect and global warming have many undesirable effects. For example:

1. Earth's climate and weathers may change.
2. Melting of ice caps on poles and mountains and excessive rains may raise sea level. Many coastal areas may go under sea.

## Effects of Human Activities on Climate, Winds and Weather

Are we humans really bringing such changes in the atmosphere that may change global climate? Shall increasing greenhouse gases due to human activities lead to global warming?

Shall these changes lead to alteration in air circulation patterns, intensity of rains and climatic conditions. And shall these changes become intolerable for humans and other living things?

A close relationship has been observed between the increasing global temperature and increasing levels of greenhouse gases during the second half of the 20<sup>th</sup> century. Some experts of environment say that in future heat will become unbearable. Deserts will expand. Some areas will have more rains and floods.

Sea level will rise due to melting of ice. Also climatic changes will lead to extinction of many present day species.

## 6.2 Environmental Pollution.

Pollution means, any change in the properties of air, water or land which have undesired effects on man or other living things or may have such effects in future.

Human activities in the modern industrial world produce a large amount of wastes. Different gases (carbon dioxide, carbon monoxide, sulphur dioxide, oxides of nitrogen etc.), smoke, useless particles and toxic water are released from factories and vehicles. Human excreta, left over food stuff and domestic trash is also included in wastes causing pollution. Fertilizers and pesticides are used to increase agricultural production. They are washed off by water or blown away with wind and cause environmental pollution. Any excess or waste substance that can cause pollution is called a pollutant.

### Types of Pollution

According to the part of the environment being affected pollution is categorized into three types:

1. Air or atmospheric pollution
2. Water pollution
3. Land pollution

#### 1. Air pollution

Air is considered polluted when a change occurs in its composition or quality. This change in quality of the air is due to the addition of different gases, smoke and particles. Some important sources of these materials are:

- (i) Burning of fuels in factories, vehicles and fuel driven power stations.
- (ii) Materials released during the preparation of goods in the factories or coming out

stacks of furnaces. For example asbestos fibres, particles of lead and zinc.

- (iii) Release of chlorofluorocarbons from spray cans and during the preparation of packing foam.
- (iv) Dust, chemical fertilizers and insecticides blown into the atmosphere by wind.



Fig. 6.6: Air pollution

**Effects:** Air pollution affects plant, animal and human life in many ways:

Hydrocarbons, carbon monoxides, lead particles and asbestos fibres may cause cancer and respiratory and eye diseases.

A brown coloured gas called nitrogen peroxide combines with some other gases in the presence of light and form a compound called

smog. Smog causes lung diseases. Other than this, the things cannot be seen clearly.



Fig. 6.7: Acid rain

Excess of carbon dioxide in the atmosphere produces greenhouse effect. Earth's temperature is said to be rising due to the greenhouse effect. Sulphur dioxide and oxides of nitrogen in air cause acid rain, which damages plants, aquatic animals and buildings.





Fig. 6.8: The things can not be seen clearly due to smog

## 2. Water pollution

Water pollution is generally caused when industrial wastes, trash and sewage from cities is discharged into the water bodies like rivers, streams, ponds, lakes and oceans. Water pollution is a problem chiefly of industrialized countries but now a days many developing countries like Pakistan are also facing this problem.

Heavy metals like chromium, lead, mercury are produced as wastes in the leather, textile, plastic and other chemical factories. They get entry into the water bodies. When heavy metals and other toxic materials enter into bodies of living organisms, they may cause cancer and various other diseases.



Fig. 6.9: Water pollution

Sewage and domestic wastes contain left over food, detergents and human excreta. On entering into the water bodies they increase the concentration of salts and organic matter in water. This results in the decrease of amount of oxygen in water. Consequently, aquatic life (fish and aquatic plants) is badly affected. Fishes have disappeared from Nallah Dek and river Ravi near Lahore due to water pollution.

In addition to the above effects, polluted water becomes unfit for drinking as well as for domestic and industrial use.

Disease causing germs are another serious cause of water pollution. They cause cholera, typhoid and disease due to worms of digestive tract. Especially the children are affected by these diseases.

Chemical fertilizers and pesticides sprayed on crops are washed off with rain water and enter into rivers, streams and underground water. Oil spills from oil tankers have dangerous effects on the life of marine plants and animals as they form thick layer of oil on the surface of sea water. In July 27, 2003 a Greek oil tanker Tasman Spirit met accident near Karachi harbour and split up into two sections. About 20,000 tons of crude oil spilled into the sea, most of it reaching the Clifton beach. This oil spill badly affected coast line environment, marine life and recreational spots like Manora. Dumping of nuclear wastes into the sea or oceans may become another source of water pollution.

### 3. Land pollution.

Municipal trash, sewage sludge, agricultural wastes and chemicals from industries are the major sources of land pollution.



Fig. 6.10: Land pollution



Solid wastes are often disposed of either by burning in or dumping into the ground. From the environmental view point both these methods are not completely safe. Germs and toxic substances from heaps of trash enter into the environment or food by wind, water or flies. Germs and toxic substances thus carried cause a number of diseases. Waste polythene bags are not decomposed and are often seen flying in streets and open places. They also cause choking of drains.

### Measures to Reduce Pollution

Pollution and environmental degradation can only be prevented if individuals, society and government feel their responsibility. Everyone should be aware of and sensitive to the environmental problems. All should play an active role in the solution of these problems.



Fig. 6.11: Recycling of the materials

Agriculture and industry are essential for economic development and better living but keeping pollution to the minimum level is also necessary, so that human beings, other organisms (Plants, Animals) and thus future generations live a healthy and happy life.

We should:

- i. not throw waste articles here and there or into the water bodies. Dispose of the things properly.
- ii. make minimum and only necessary use of resources. Do not waste them.
- iii. prefer things that can be reused. Materials can also be recycled.
- iv. prefer things which are biodegradable i.e. they can easily be decomposed into simple harmless substances by the action of microorganisms.
- v. throw domestic industrial and hospital wastes into air, land or water only after treating to make them harmless.
- vi. at government level, minimum environmental standard must be set and enforced. The owners of industries and factories be bound to the measures that should minimize pollution.
- v. Implant more and more trees and should take care of them.

## 6.3 Minerals and Fossil Fuels

Development and progress of a country depends upon what type of land, water, minerals, forests and wild life etc are present there and how they are being utilized. All the things mentioned above are called resources. God has blessed Pakistan with all types of resources which are basis for the development of any nation.

### Fossil Fuels

Coal, oil and gas are called fossil fuels. Energy required for transport, power generation, agriculture and industry comes mainly from these sources. They are called fossil fuels because they were formed from the remains of plants and animals of remote past, which were buried under the earth. With the passage of time they changed into coal, oil and gas due to excessive pressure and temperature in the earth.

#### Coal

It is one of the oldest sources for obtaining thermal (heat) power. Coal was formed millions of years ago by burying of trees and remains of plants growing in marshes. In Pakistan coal is mostly used in brick kilns. However, it is also being used in production of electricity.

#### Petroleum

Petroleum is a liquid fossil fuel. It is formed in shallow seas from marine plants and animal remains, which were buried under earth and changed later on into petroleum due to pressure and high temperature. Gas was also formed along with petroleum.

Petroleum is one of the most important resource in the modern times. Various products are obtained by refining crude oil pumped out from the earth. Gasoline (Petrol), diesel, furnace oil and kerosene oil all are petroleum products used as fuels in vehicles, ships, power station, industries and homes. Grease, asphalt, synthetic fibre ( such as nylon, polyester), and plastic are some other petroleum products.

#### Natural gas

Natural gas is a mixture of different gases including methane, ethane, propane etc. Large deposits of natural gas exist in Pakistan. Natural gas, like petroleum and coal, is a major source of energy. It is used in electricity generation in power plants, production of cement and chemical fertilizers, industries and homes for heating and cooking. Many vehicles now a days are also being run on compressed natural gas.

### Effects of fossil fuels on environment

Although fossil fuels are a cheap and convenient source of energy but at the same time these are creating many environmental problems. As already discussed under air pollution, burning of fossil fuel produces smoke and a number of gases, which cause environmental pollution. Large areas of fertile land, forests and natural habitats of many animals are destroyed during exploration and drilling of coal and oil.

### Minerals

Minerals include those elements (e.g. gold, iron, copper) and compounds (e.g. gypsum, mica) which are found in solid state in the earth crust and are important for human use. Mostly minerals are in rock form. The rocks from which minerals can be obtained are called **ores**.

Minerals are important for us in many ways. Metals (iron, silver, copper, aluminum etc.) and non-metals (sulphur, lime stone, granite etc.) have become part of our daily life. Gypsum is used in cement and plaster making and for reclamation of saline (salt affected) soils. Chromium is obtained from chromite. In addition to making alloys chromium is used in many industries. Gemstone is source of gems and diamonds. Silicon is obtained as silica ( $\text{SiO}_2$ ), which is used in glass making. Now a days silicon is used in making microprocessors of computers.

God has gifted Pakistan with great minerals wealth. Especially Balochistan is rich in minerals.

### Conservation of Natural Resources (fossils fuels and minerals)

Use of natural resources is essential for industrial development, progress, prosperity and better quality of life. However, it is also a fact that fossil fuels and mineral are non-renewable resources. They are called **non-renewable resources** because either they cannot be reproduced or it takes long time to reform. For example, millions of years are needed for the formation of fossil fuels. Also, the amount of minerals on earth is limited. They may end up soon if their excessive use is continued. Resources must be conserved for future use. Measures like recycling of used materials, substitution (use of alternatives) and reuse of articles of common use may be adopted in this regard.

## 6.4 Agriculture and Crops of Pakistan

Food is the basic human need. It is fulfilled by agriculture as are clothing, housing and many other requirements. Increasing human population at global level demands increase in agricultural production.

Pakistan is an agricultural country. About 60 percent of its population depends directly or indirectly on agriculture. Almighty Allah has blessed Pakistan with large areas of fertile agricultural land. We also have an extensive and world's one of the best canal irrigation system. Pakistan has attained self-sufficiency in cereal foods (wheat, rice) and fruits. This has become possible because of favorable climate, application of chemical fertilizers, and insecticides, mechanized farming, and efforts of our hard working farmers. Certain cash crops, such as cotton, rice and fruits, are also being produced in substantial quantities. These cash crops are a big source of earning foreign exchange. In spite of these successes, there is still need for growing and increasing the production of some crops e.g. pulses and crops yielding edible oils.

### Mechanized Farming and Production Trends

Till recently, farming in Pakistan was labour-intensive, depending mainly upon muscle power. However, since last few decades production trends have emerged in agriculture. This means that now the crops are not grown only for substantive living but also for the purpose of export sale and earning money. Mechanized farming is getting popular in order to obtain more crop yield. Irrigation by tube wells, ploughing and tilling of land by tractors, and the use of harvester and threshers are common practice these days.



Fig. 6.12: Mechanized farming

Many disease-resistant varieties have been produced through research in agriculture. Use of chemical fertilizers and insecticides is also increasing and become popular among the farmers. All these trends have resulted in increased crop production leading to betterment in the economic and social life of our people.

On the other hand, some environmental problems have also surfaced as a consequence of these development. Canals and distributors are often not lined with bricks and so water seeps down from them. This results in rising water table. Consequently the irrigated areas are becoming victim to the twin menace of water-logging and salinity. As a result of this problem large area of fertile land has been rendered unfit for agriculture. Insecticides and fertilizer application is adding to environmental pollution. The number of insects that have become resistant to insecticides and pesticides has increased. Cultivation of the same crop year after has

led to decreased soil fertility. Sustainable agriculture, which incorporates rotation of crops, conservation of soil and land, and minimum use of fertilizer is the need of the day.

## 6.5 Dairy and Poultry Farming

Balanced diet is a requirement for proper development and good health. Milk, butter, cheese, meat and eggs are important constituents of balanced diet, these constituents are obtained from cattle (cow, buffalo and goat), chicken and fish.

Man has been raising domestic animals since ancient times. However, in recent times dairy farming, cattle farming and poultry farming is carried out on scientific principles. Using the knowledge of biology, improved varieties of cattle and chicken have been produced that give better yields of milk, meat and eggs. These animals are also raised and taken care of on scientific lines. Now a days we do not depend for fish on natural sources such as rivers and oceans, but instead fish are grown in specially built fish farms.

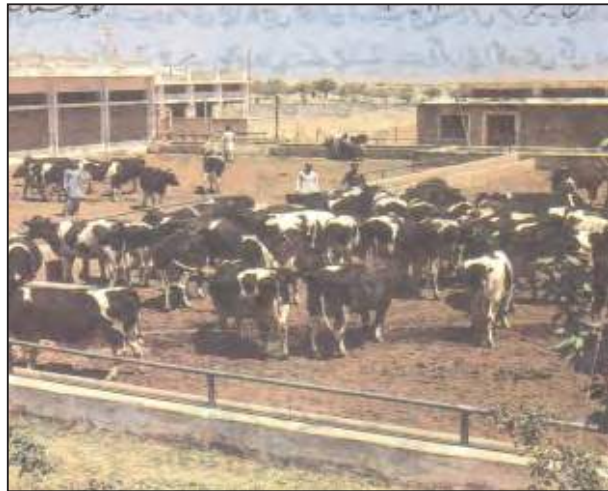


Fig. 6.13: Dairy farm

### Dairy Products

Sufficient quantity of milk and butter is produced in Pakistan. However, large bulk of this milk and butter is not processed and packed properly. That is why country needs are not adequately fulfilled. Due to the application of biotechnology standard of dairy products has much improved.

### Poultry Products

Protein rich food like meat and eggs is obtained from chicken.



Fig. 6.14: Poultry farm



Development of poultry farming on scientific lines has helped greatly in increasing overall production of food in the country.

### Fisheries

Fish is a source of highly nutrient diet. Fish are found in streams, rivers, lakes and oceans. Rahu, thalah and trout are fishes of our fresh water streams. Their meat is very delicious and full of nutrients. Modern aquaculture techniques have led to many fold increase in fish production.

## 6.6 Wildlife and National Parks

All non-cultivated plants and wild (non-domesticated) animals of an area are called wildlife of that area. As wildlife is integral part of the natural environment of an area, elimination of species or decrease in its population may upset the natural balance.

### Importance of Wildlife.

- i. Many products obtained from wildlife are used in our homes, industry and agriculture. Food, timber and medicines are few examples.
- ii. Wildlife maintains balance in nature.
- iii. Wildlife satisfies our aesthetic sense. Colorful flowers and plants, forests, beautiful animals and hunting of game animals add to our happiness.
- iv. Wildlife (plants and animals) of today will determine what types of plants and animals will be found in future.

### Endangered Species.

About 200 species of mammals, 600 kinds of birds, 150 types of reptiles and 700 different types of fishes are found in Pakistan. Destruction of habitats as a result of human activities and over-hunting is resulting in the local extinction of many types of wildlife.

Those organisms which are threatened of extinction are called **endangered species**.

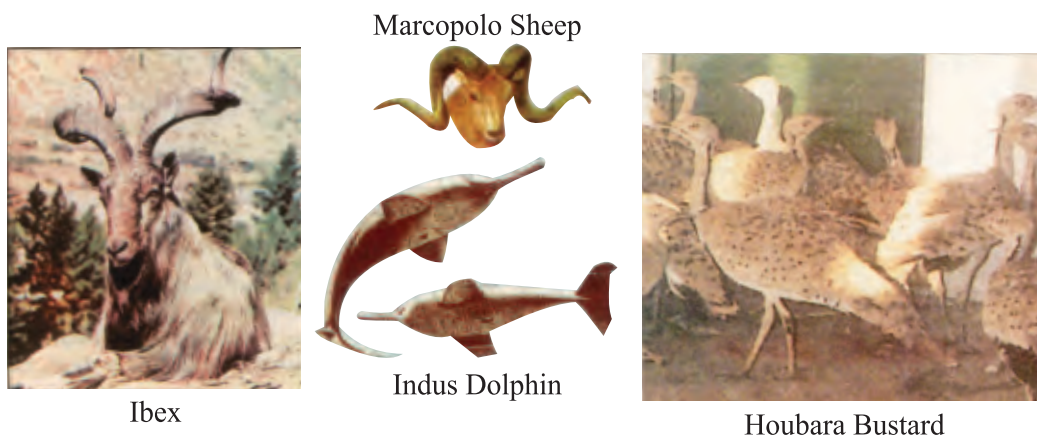


Fig. 6.15: Endangered species

Cheetah, musk deer, wild ass, alligator and red-headed goose have disappeared before our eyes. Morcopolo sheep, Musk deer, Snow leopard, Ibex of Suleman range, Urial of Punjab, Houbara bustard, Crocodile, Indus river blind dolphin, Balochistan bear, sea Turtle and Gizzale are among the animals which are listed endangered in Pakistan.

### Conservation of wildlife

Wildlife can be saved from extinction if their habitats are re-established. For this purpose certain areas are marked and specified for wildlife. Such areas are called wildlife reserves and wildlife parks.

For the sake of wildlife conservation it becomes very necessary to ban hunting of some animals or to restrict their hunting or trading. Laws exist in this regard but they need to be enforced strongly.

### National Parks

National Parks play an important role in the conservation of wildlife. National parks are natural areas which are kept in their original setting along with their natural plants and animals for future generation. All sort of human interference except for educational and research purpose is strictly prohibited.



Fig. 6.16: National park near Bahawalpur

## 6.7 Effects of Rising Population on Environment

### The Population

The total number of people living in an area at a particular time is called **population**. For example in 1998, 130.5 million people, were living in Pakistan. We call it the population of Pakistan in 1998.

### Increase in Population

Human population at global level is fastly increasing in the modern period. It can be easily judged from the fact that population on earth has doubled during the last forty one years



Fig. 6.17: Increase in population

Population growth rate in under-developed countries is much higher than that of developed countries. For example, at present average annual population growth rate in Pakistan is 2.6 percent whereas it is 0.6 percent in the U.S.A. and 0.2 percent in Britain and Japan. This growth rate (2.6%) is higher even than the SAARC countries.

### Population Growth and Balance in Nature

Resources in any ecosystem are limited. Thus, every ecosystem has a capacity to support (provide requirements of housing, food and protection) a definite number of individuals. If population exceeds the carrying capacity of an ecosystem, the population has to face problems. In case of human populations we can say that faster growth in population of an area affects the economic progress of that area. Resources come under pressure and development stops.

### Population and Environmental Problems

Rising populations affect the environment in many ways. Consequently, a number of environmental problems of physical, economic and social nature arise. Basic necessities of life such as clean air, water, housing and food are not properly fulfilled. Facilities of health and education are not available for all. In spite of all our efforts for development quality of life falls. Increase in population also produces social-cultural and moral problem. Crime, violence, uncertainty, hunger and sense of deprivation cast very negative effects on society.

Some important environmental problems are poverty; poor quality of life; pollution; degradation of land; destruction of forests; expansion of cities; migration.

People come to live in an area for the sake of better job opportunities, more health and educational facilities, and for socio-political reasons. This act is called **migration**. Migration from rural to urban areas leads to huge increase in city population. Consequently, many people are forced to live in slums.



Fig. 6.18: Slums

The quality of life of a nation is judged by certain indicators, which are education, health, nutrition, housing and other facilities such as clean water, electricity. Due to increased population and shortage of resources, number of illiterate children is increasing day by day.

Forests are cleared to fulfill the needs of growing population. This action leads to unfavourable climatic changes. Soil erosion occurs and fertile agricultural land is wasted.

### IMPORTANT POINTS

- Atmosphere of the earth is like an envelope, which is very important for life on earth. It maintains temperature of the earth and prevents harmful solar radiation from reaching the earth.
- Atmosphere consists of four layers. Ozone present in the stratosphere stops ultra violet radiation. Destruction of ozone layer as a result of human activities is causing diseases like cancer.
- Increased levels of carbon dioxide and greenhouse gases produces greenhouse effect, as a result of which global temperature is rising.
- Industrialization, agriculture and excessive use of resources has created environmental problems like pollution. It has become necessary to take such measures which may conserve environment and resources without hampering economic development.
- Use of minerals and fossil fuel is essential for industrial developments, economic progress and better quality of life. However, use of minerals and fossil fuels is also creating pollution of air, water and land.
- Minerals and fossil fuels are non-renewable resources. They may finish soon. They must be preserved for use by future generation. Limited use of resources, recycling, use of alternatives and re-use of used articles are some methods of conservation.
- Mechanized farming is practiced for higher yields. Improved crops have been produced. Chemical fertilizers and pesticides are important characteristics of modern agriculture.
- Scientifically operated dairy, poultry and fish farming has helped in overcoming food shortage.
- Many species have become endangered due to wildlife habitat destruction and unnecessary and over-hunting. Wildlife reserves and parks are established for conservation of wild life. These are the areas where organisms are provided their natural environment and human interference is banned.

- Modern industrialized era has seen explosive increase in world population. Population growth rate is specially very high in developing countries. Fast rate of population growth has led to many environmental problems of physical, economic and social nature. Quality of human life has been adversely affected.

## GLOSSARY

Atmosphere:	An envelope of gases that surrounds earth.
Ozone:	A gas containing three oxygen atoms per molecule.
Global Warming:	An increase in earth's surface temperature caused by increase in greenhouse gases.
Greenhouse gases:	Gases in the atmosphere that trap heat.
Chlorofluorocarbon (CFCs):	A compound of carbon, chlorine, and fluorine used in refrigerators, air conditioners, aerosol cans, and in the production of foam.
Smog:	A mixture of nitrogen peroxide, water vapour and some other gases.
Recycling:	Production of new useful articles from used materials.
Fossil fuel:	Fuel derived from the remains of organisms that lived long ago.
Wildlife:	Naturally occurring organisms of an area.
Wildlife reserve:	Area reserved for wildlife conservation.

## QUESTIONS

Q No. 1 Fill in the blanks:

- Atmosphere is an \_\_\_\_\_ of gases that covers the earth from all sides
- Ozone prevents \_\_\_\_\_ from reaching the earth.
- Temperature of the thermosphere may be upto \_\_\_\_\_.
- Radiation of \_\_\_\_\_ wavelength can not go out of greenhouse.
- Substances that cause pollution of the environment are called \_\_\_\_\_
- Coal, oil and gas are called \_\_\_\_\_.
- Fossil fuels and minerals are \_\_\_\_\_ resources.
- One reason for the extinction of many species is \_\_\_\_\_ destruction.



(ix) Areas reserves for wildlife are called \_\_\_\_\_.

(x) Moving out from an area and settling in another area is called. \_\_\_\_\_

Q No. 2 Four answers have been provided for each question. Encircle the right answer.

(i) Thickness of atmosphere is

(a) 200 km (b) 1000 km

(c) 1200 km (d) 1600 km

(ii) The proportion of carbon dioxide in air is

(a) 40 percent (b) 0.4 percents

(c) 0.04 percent (d) 0.004 percent

(iii) Ozone forms a protective layer in

(a) Troposphere (b) Stratosphere

(c) Mesosphere (d) Thermosphere

(iv) Major cause of depletion of ozone layer is

(a) Oxygen (b) Hydrogen

(c) Chlorofluorocarbons (d) Hydrocarbon

(v) About \_\_\_\_\_percent population of Pakistan is dependent upon agriculture

(a) 90% (b) 80%

(c) 60% (d) 50%

(vi) The total number of persons living in an area is called

(a) Species (b) Population

(c) Community (d) Habitat

(vii) Pakistan's population in 1998 was \_\_\_\_\_.

(a) 130.5 Million (b) 13.5 Million

(c) 135 Million (d) 0.135 Million

(viii) At present population growth rate is 2.6 percent, in how many years the population of Pakistan will double?

- (a) 47 years                      (b) 37 years
- (c) 27 years                      (d) 17 years

**Q No. 3      Short questions**

- (i) Define
  - (a) Pollution                      (b) Pollutants
  - (c) Recycling                      (d) Endangered species
- (ii) Write names of the four layers of atmosphere.
- (iii) Write any two effects of greenhouse effect on environment.
- (iv) Write two methods of conservation of natural resources.
- (v) Write two benefits of wildlife .

**Q No. 4**      Explain composition and different layers of atmosphere.

**Q No. 5**      Write a note on depletion of ozone layer.

**Q No. 6**      What is meant by greenhouse effect? Describe its causes and effects on environment.

**Q No. 7**      How human activities affect environment?

**Q No. 8**      Write down causes, effects and measures of controlling aquatic pollution.

**Q No. 9**      Explain use and environmental effects of fossil fuels.

**Q No. 10**      Write a note on conservation of resources.

**Q No. 11**      Write brief notes on: -

- (a) Mechanized farming and modern trends in agriculture.
- (b) Dairy, poultry and fish farming.
- (c) Wildlife conservation and National parks .
- (d) Importance of wildlife.

**Q No. 12**      Explain environmental problems arising due to increase in population.