

## 5. Biosphere

### Improve your learning

#### 1. Question

Life itself constitutes a separate sphere called 'Biosphere'. Explain.

#### Answer

Biosphere means all that is about life. It includes all the plants, animal and even the microorganisms. It also extends to the above areas of the atmosphere where birds and insects live. So, it includes any type of place where life might exist. In a broader view, it consists of the lithosphere, hydrosphere, and atmosphere. It is a part of the global ecological system that integrates all the living beings and their relationship. So it is said that life itself constitutes a separate sphere called the biosphere.

#### 2. Question

Why is an ecological crisis created in modern times? What are its effects?

#### Answer

An ecological crisis occurs when there is a change in the environment of a particular species that reduces the chances of its continued survival. The ecological crisis is created in modern times due to the following reasons: 1. Degrading quality of the environment 2. Increase in population 3. Global warming 4. Deforestation 5. High level of pollution 6. The increased pressure of the predators 7. The extreme level of climate change. The ecological crisis has led to the extinction of various species and other unfavorable conditions. For example, Permian-Triassic extinction event 250 million years ago, Cretaceous-Paleogene extinction event 66 million years ago, ozone layer depletion, volcanic eruption and the nuclear meltdown in Chernobyl in 1986.

#### 3. Question

Natural vegetation depends upon the climate of the place. Write different kinds of forests and climatic conditions of their existence?

#### Answer

The different types of forests are Tropical Rain Forest, Tropical Deciduous and Thorn Forest.

**TROPICAL RAINFOREST:** The tropical rainforest is the forest that exists in the areas of Tropical rainforest climate. They are found in the equatorial zone between the Tropic of Cancer and Tropic of Capricorn. They have three major climatic parameters- temperature, rainfall season intensity. Other factors that affect this type of rainforest are solar radiation, nitrogen available carbon dioxide concentration. The weather is warm and there is high annual rainfall. This makes it the moistest area. They are also classified on the basis of rainfall they receive

each year. The true tropical forest has an annual rainfall greater than 2 mm while the other lowland tropical forest has a rain for lesser than this.

**TROPICAL DECIDUOUS FOREST:** The tropical deciduous rainforest is also called tropical dry forest, monsoon forest, vine scrub, and dry rainforest. They are located in the tropical and subtropical latitude. They mostly occur in climates that are warm all over the year, yet there are a few forests that are dry in nature that can last several months. But this Peculiar feature is dependent on the geographical location of the forest. Since the trees do not have any moisture they tend to shed their leaves. Hence they are called a deciduous forest. They mostly exist in the North and South areas of the Tropical rainforest belt. The driest forest in the world is in southern Mexico and the Bolivian areas. They receive a high amount of rainfall more than 1000 mm per year but with a specific dry season

**THORN FOREST:** A thorn forest is a forest which is dense in nature, along with a dry subtropical and warm temperate area. It receives an annual rainfall of 250 mm to 500 mm. The trees are maximum of 10 M or 33 feet in height. The trees species of Acacia and Boabab is found here. They also have low shrubs and grasses. It covers a large part of southwestern North America, southwestern Africa and smaller areas in Africa, South America, and Australia.

#### **4. Question**

How can we protect natural resources?

#### **Answer**

The natural resources are utilized by the humans either directly or indirectly. Some examples of natural resources are air, soil, sun, coal, plants, animals, birds etc. All that we utilize in our day to day life is drawn from the available natural resources. However, these are being depleted and it is very important to use them responsibly. The increase in population, industrialization, and urbanization has led to a disastrous situation. It is extremely important to conserve natural resources. We can protect them in the following ways.

**A. Steps to conserve water**

1. Turn off the tap while brushing your teeth.
2. Wash only a full load of laundry
3. Harvest rainwater
4. Install water efficient devices

**B. Steps to manage food at home**

1. Do not splurge on food items.
2. Dispose of the food waste separately
3. Start a compost pile
4. Keep the food in reusable containers
5. Try to use less plastic crockery
6. Start a Community Garden
7. Reuse water bottles

**C. Steps to save fuel**

1. Turn off the engine when not in use
2. Try to use public transport instead of individual vehicles
3. Regular fuel unless your vehicle requires premium
4. Use the AC only when required

**D. Steps to use less paper**

1. Switch to online bill payment
2. Subscribe to digital magazines
3. Do not subscribe to any magazine which is of no use

**E. Steps to saving electricity**

1. Use AC only when required
2. Open the windows and not the AC when the weather is pleasant
3. Do not switch on the lights when not in use
4. Unplug appliances and charges when not in use
5. Turn off the lights before leaving home
6. Use LEDs.
7. Install a solar panel at home

**F. Misc steps to save natural resources**

1. Plant a garden to harvest your own food
2. Develop the habit of planting trees in children
3. Plant flowers for the birds and insects
4. Do not throw any old appliances. Give it to the needy
5. Do not use a plastic bag

These are a few steps which can help us to save the natural resources

#### **5. Question**

Read the chapter and fill up the table

| S. No. | Type of forest | Spread across the countries | Trees grew | Animals |
|--------|----------------|-----------------------------|------------|---------|
|        |                |                             |            |         |

**Answer**

| S. No. | Type of forest            | Spread across the countries  | Trees grew  | Animals  |
|--------|---------------------------|--|---|--|
| 1.     | Tropical Evergreen        | US, Cannada, Venezuela, Brazil, South East countries, ChinaIndia       | Oak, Tea, Rubber, Coffee, Rosewood, Mahagony, Ebony.                |  |
| 2.     | Tropical Deciduous Forest | foothills of Himalayas, eastern slopes of the Western Ghats and Orissa | Teak, sal, shisham, hurra, mahua, amla, semul, Kusum and sandalwood | Tigers, lions, elephants, langurs, and monkeys |
| 3.     | Temperate Evergreen       | South East USA, South China, South East Brazil                         | Oak, Pine Eucalyptus  |  |
| 4.     | Temperate deciduous       | <a href="#">Northern Hemisphere: North America, East Asia,</a>         | Oak, maple, elm   | Deer, lion, tigers, elephants                  |

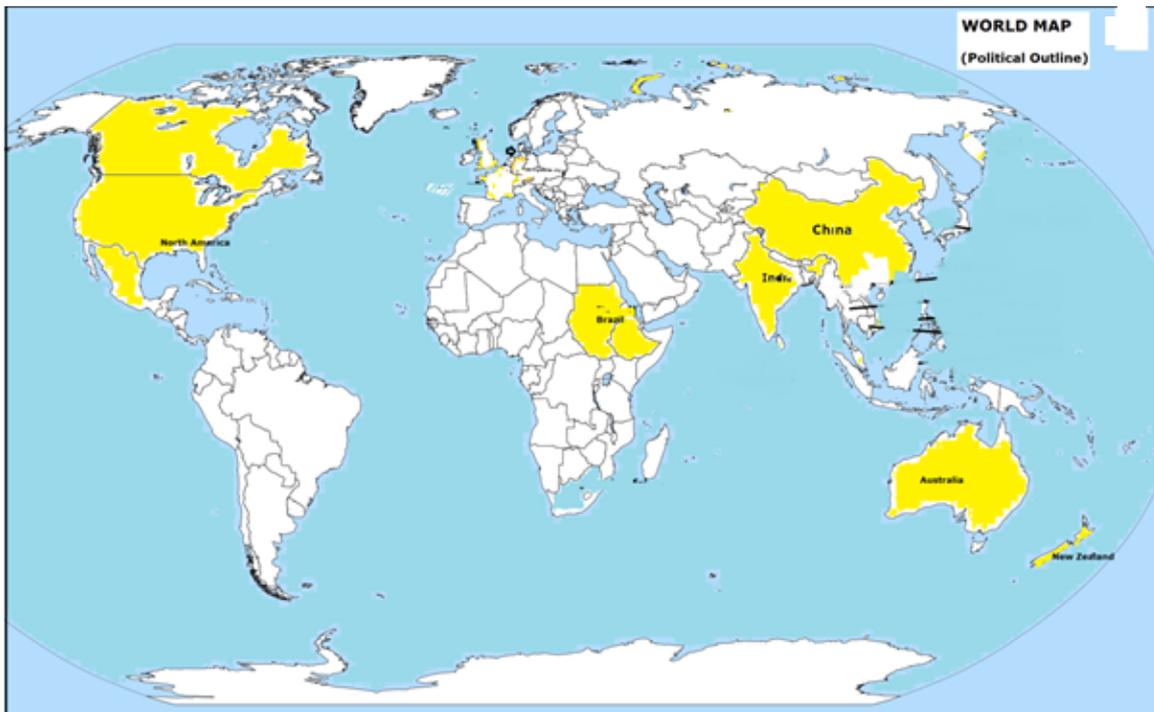
|    |               |  |                              |
|----|---------------|--|------------------------------|
|    |               | <u>Central, and Western Europe</u>                 |                              |
| 5. | Mediterranean | California, west South Africa, southeast Australia | Coniferous oak, pine, walnut |

### 6. Question

Locate the following countries in the world map.

- (a) New Zealand (b) Brazil (c) Australia  
 (d) North America (e) China (f) India

### Answer



### 7. Question

Read the paragraph under the title 'In addition to..... And soil' on page 57 and comment on it. (AS<sub>3</sub>)

### Answer

Increase in a number of industries have increased the level of pollution.

- a. Spontaneous burning of fossil fuels has increased carbon dioxide in the atmosphere.

b. Industries releases waste materials in the form of gases and liquid into atmosphere and water bodies respectively.

c. This has contaminated the air and water.

d. As a result air and water pollution has increased at an alarming rate.

**Discussion:** Collect information with regard to the animals/birds extinction. Fill up this table and discuss in the classroom.

| SI. NO | Name of the animal/bird | Extinct | Being Extinct | Reasons For Extinction | Results | Preventive measures/our responsibility |
|--------|-------------------------|---------|---------------|------------------------|---------|--|
| 1.     | Dodo                    | Extinct |               | Starvation             |         |  |
| 2.     | Emu                     | Extinct |               | Hunting/Poaching       |         |  |
| 3.     | Black Rhino             |         | Being Extinct | Slaughter              |         | Strict guidelines and punishments      |
| 4.     | Hawksbill Turtle        |         | Being Extinct | Illegal Trade          |         | Strict guidelines and punishments      |