

## OUR RESOURCES

Natural resources which satisfy the material and spiritual needs of humans are the free gifts of the nature. In other words, any material which is valuable and useful for humans is called a resource. These resources include physical like land, water, soils and minerals; biological living like vegetation, wildlife and fisheries. In fact every material has some utility for human beings but its utilisation is possible on the availability of appropriate technology. For example, for centuries, coal and petroleum were present below the earth's surface, but the technology for their utilisation has been developed recently. These materials turned into resources only when they could be used. It is, therefore, human ability and need which create resource value.

In this lesson we will study importance of resources, their types, extent of utilisation, their distribution and various measures of conservation.



### OBJECTIVES

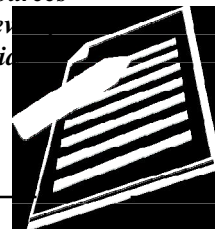
After studying this lesson, you will be able to:

- recall the definition of resources;
- explain the importance of resources;
- describe different types of natural resources with suitable examples;
- identify the distribution of biotic and abiotic resources in India;
- give reasons for unequal utilisation of resources and their availability;
- suggest various methods of conserving resources and;
- assess the methods of managing resources in consonance with our policies and plans.

### 19.1 MEANING AND SIGNIFICANCE OF RESOURCE

As noted earlier, the term resource generally means the things of utility for the

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humans. It could be both natural as well as cultural. Humans develop technologies to utilise nature favourably. The popular use of a technology in a natural system turns it into a culture i.e. a way of life or living. As such it attains the status of cultural resource.

1. Resources form the backbone of the economy of a nation. Without land, water, forest, air, mineral one cannot develop agriculture and industry.
2. They constitute natural environment like air, water, forests and various life forms, which are essential for human survival and development.
3. By utilising natural resources, humans created their own world of houses, buildings, means of transport and communication, industries etc. These are also very useful along with natural resources and these human made resources are essential for development.

## 19.2 CLASSIFICATION OF RESOURCES

Resources can be classified in several ways: one the bases of (i) renewability, (ii) origin and (iii) utility. (see fig. 19.1)

The objective of classification would primarily decide how we put a resource under a particular category.

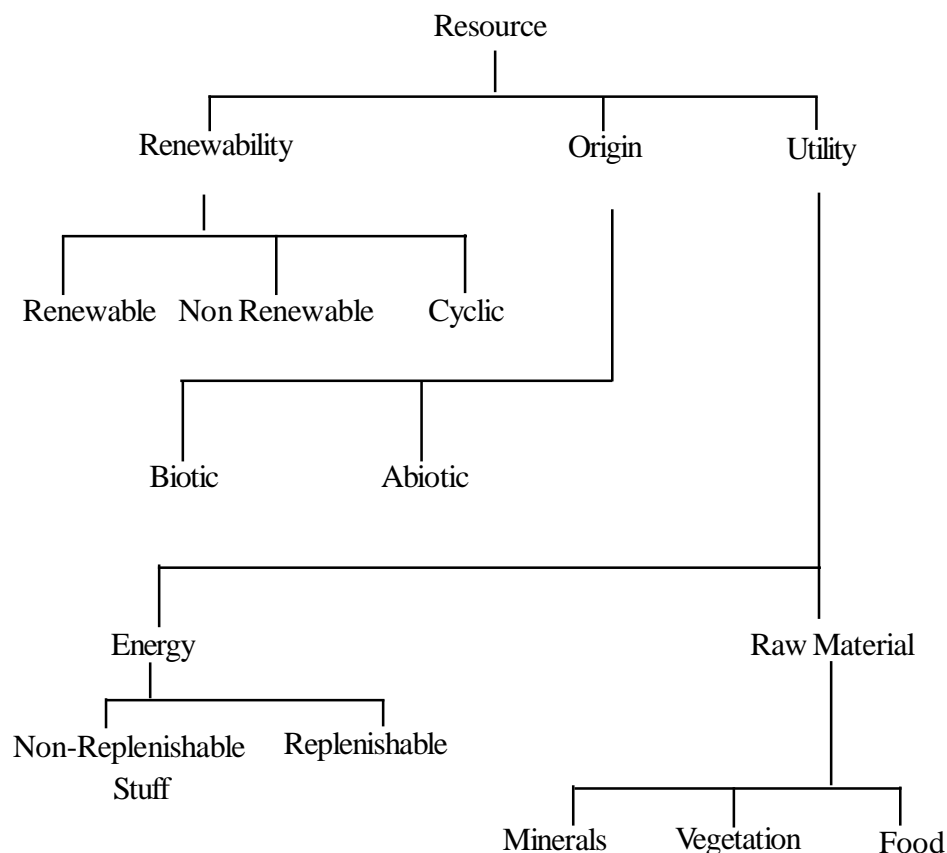


Fig. 19.1 : Classification of Resources

- (i) **Biotic resources:-** These resources include all living elements of the environment. Forests and forest products, crops, birds, wildlife, fishes and other marine lives are the examples of biotic resources. These resources reproduce and regenerate themselves, hence, are renewable. Coal and mineral oil are also biotic resources but they are non-renewable.
- (ii) **Abiotic resources:-** These resources include all non-living elements of the environment. Land, water, air and minerals e.g., iron, copper, gold, silver etc. are abiotic resources. They are **exhaustible and non-renewable** as they cannot be regenerated or reproduced.

- Natural resources satisfy human wants are the free gifts of the nature. For example land, water, soils etc.
- Any material which is valuable and useful for humans is called a resource.
- Resources constitute the natural environment like air, water, forests and various life forms, which are essential for human survival and development.
- Resources can be classified on the basis of origin, renewability and utility.



### INTEXT QUESTIONS 19.1

1. Define the term 'resources'.  
\_\_\_\_\_
2. Classify resources on the basis of their origin.  
(i) \_\_\_\_\_ (ii) \_\_\_\_\_
3. Give two examples of biotic resources.  
(i) \_\_\_\_\_ (ii) \_\_\_\_\_
4. Give two examples of Abiotic resources.  
(i) \_\_\_\_\_ (ii) \_\_\_\_\_
5. Name two biotic resources which are non-renewable.  
(i) \_\_\_\_\_ (ii) \_\_\_\_\_

### 19.3 DISTRIBUTION OF BIOTIC RESOURCES

#### Forests

When we use the term 'distribution' in the discipline of geography our main concern remain with geographical or spatial distribution of geographical phenomena. Otherwise, distribution for a sociologist primarily mean distribution among different social classes in a society.



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From a geographer's point of view understanding of areas differentiations in distribution of geographical phenomena such as forests in the present case and to examine the factors responsible for such differentials is first and most vital task of any geographical study of earth's phenomena.

In India, at present forest areas cover about 76.5 million hectares of land, which is about 23 per cent of the total geographical area. It ranges from about 87 per cent in Andaman & Nicobar Islands to only about 4 percent in Haryana making to range difference of 83 percent. According to our National Forest Policy, 33% of the total geographical area of the country should be under the forest cover to maintain ecological balance. Unfortunately, it is below the norm outlined in our forest policy. The vegetation found in India can be divided into six main types. They are tropical evergreen forests, tropical deciduous forests, thorn forests, tidal forests and mountain forests.

#### Wildlife

India possesses a great variety of wildlife. Out of a known world total of 1.05 million species of animals about 75,000 species (7.46%) are found in India.

India has over 1200 species of birds. Among the mammals we have the majestic elephant found in the forest of Assam, Kerala and Karnataka. Camel and Wild ass are confined to the arid areas and Runn of Kachchh in Gujarat, respectively. Indian lions are found in the Gir forests of Gujarat. One horned rhinos are found in the swampy and marshy lands of Assam and West Bengal. Among the most handsome animals include four horned antelope (*Chousingha*), Indian antelope (Black buck) and gazelle. India has several species of monkeys and deers.

The species of deer include Hangul (Kashmir stag) swamp deer, spotted deer, musk deer and mouse deer. The animals belonging to the **cat family** are leopards, clouded leopards and snow leopards. Several interesting animals are found in the Himalayan ranges such as wild sheep, mountain goats, ibex, Shrew and tapir.

Bird life is equally rich and colourful in our country. The gorgeous 'peacock' is India's National Bird. In the forests and wetlands pheasants, geese, ducks, mynahs, parakeets, pigeons, cranes, hornbills and sunbirds are found. There are song birds like the nightangale and the *bulbul*.

#### Livestocks

India has about three fifths or 57 per cent of the world's buffalo population and about one-sixth or 15 per cent of the cattle population. Madhya Pradesh, Uttar Pradesh, Chhattisgarh, Bihar, Uttarakhand, Jharkhand, Maharashtra, Orissa, Karnataka and Rajasthan have over two-thirds of the cattle population of India. One-fourth of the total sheep of India is found in Rajasthan and more than half of India's goats are found in Bihar, Jharkhand, Rajasthan, West Bengal and Uttar Pradesh.

Farm animals such as ox, buffalos, cows are the friends of the farming community in India. They are used in various farm operations such as ploughing, sowing, thrashing and transporting of farm products. However, with farm Mechanization especially in Green Revolution areas of north western India, coastal Andhra and Tamil Nadu and other pockets, the importance of dwarf energy for agricultural operations is on decline. Milk is provided by the cows and she-buffalos. Sheep provide us wool, mutton and skin. Goat supplies milk, meat, hair, hides and skin. Chickens, ducks, geese and turkeys are reared for eggs and feathers.

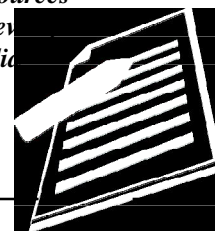
### Fisheries

There is a large scope for the development of fisheries in the country because of large continental shelf of 20 lakh square km, availability of sufficient fish food in big lakes and rivers, oceanic currents and skilled fishermen. **Marine fishing** is done in seas and oceans and **Inland fishing** is carried out in lakes, rivers and reservoirs.

More than 1,800 distinct species of fish are known to exist in India. Four forms of fisheries are found in India such as marine fisheries, freshwater or inland fisheries, estuarine fisheries and the peral fisheries. Marine fisheries accounts for about 63 per cent of the annual fish production. **Major fishes are sardines, mackerel, prawns, clupeoids and silver bellies.**

About two fifths or 37 per cent of the country's total fish production comes from inland fisheries. **Major fishes are catla, rohita, kalabasil, mringal and carp etc.** More than nine-tenths or 97 percent of the country's total production of marine fish and more than three-fours or 77 per cent of inland water fish is raised in Kerala, Maharashtra, Tamil Nadu, West Bengal, Andhra Pradesh, Karnataka and Gujarat. Notably, all are coastal states.

- Forest area cover in India is about 23 per cent of the total geographical area which is much below the figure mentioned in national forest policy to maintain ecological balance.
- According to the national forest policy about 33% of total area of the country should be under forest in order to maintain ecological balance.
- About 75,000 species of animals and over 1200 species of birds are found in India.
- Nearly three-fifths or 57 per cent of the World's buffalo population and 15 per cent of the cattle population is found in India.
- Four forms of fisheries are found in India such as Marine Freshwater, estuarine and Peral Fisheries.





## INTEXT QUESTIONS 19.2

1. How much area of India is under forests?  
\_\_\_\_\_
2. Name the state or Union Territory having the highest and the lowest proportional share of forest cover in the country.  
\_\_\_\_\_
3. Name six types of vegetation found in India.  
\_\_\_\_\_
4. How many species of animals are found in India?  
\_\_\_\_\_
5. What are the shares of India in total buffalo and cattle population in the world?  
\_\_\_\_\_
6. Name four types of fishing done in India.  
\_\_\_\_\_

## 19.4 DISTRIBUTION OF ABIOTIC RESOURCES

**Land resources:** India covers an area of 32,87,263 sq km. According to area size, it is the seventh largest country of the world after Russia, Canada, China, U.S.A., Brazil and Egypt. This vast size itself is the most important resource. About 30 per cent of area is covered by the mountains which are source of scenic beauty, perennial rivers, home of forests and wildlife. About 43 per cent of land area is plain which is highly suitable for agriculture. Remaining about 27 percent under plateaus is the store house of minerals and metals.

**Water resources:** India is fortunate to have large water resources. Diversity in resources is the result of diversity in land forms in the form of glaciers, surface rivers and underground water, rains and oceans. The average annual rainfall is estimated at 117 cm. Rivers are major source of surface water in India. The Indus, the Ganga, the Brahmaputra carry about 60 per cent of the total surface water. Replenishable groundwater potential in India is about 434 billion cubic metres. Today, over 70 per cent of the population uses ground water for its domestic needs and more than half of irrigation is obtained from this source.

**Mineral resources:** India is very rich in mineral resources and has the potential to become an industrial power. It possesses large reserves of iron ore, extensive deposits of coal, mineral oil, rich deposits of bauxite and mica. Jharkhand, Orissa and Chhattisgarh possess large concentration of mineral deposits, accounting for nearly three-fourths of the country's coal deposits. Other important minerals found in our country are iron ore, manganese, mica, bauxite and radioactive minerals.

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- India is the seventh largest area sized country of the world.
- The average annual rainfall is estimated at 117 cm.
- The Indus, the Ganges and the Brahmaputra river systems carry 60 per cent of the total surface water available in the country.
- Jharkhand, Chhatisgarh and Orissa possesses large reserves of iron ore, bauxite and mica.



### INTEXT QUESTIONS 19.3

1. In terms of area size which is the rank of India in the world?  
\_\_\_\_\_
2. What is amount of average annual rainfall in India?  
\_\_\_\_\_
3. Name the three river system which carry, sixty per cent of the total surface water in India?  
\_\_\_\_\_
4. Which are the three Indian states which have the large reserves of mineral deposits.  
\_\_\_\_\_

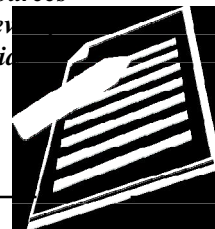
### 19.5 RESOURCE UTILISTION

To satisfy their needs, Humans have been using resources for time immerged. This process is called 'resource utilisation'. Human skills, technical know how and hard work converts the neutral stuff into a commodity or service to serve material and spiritual needs of the human society. Thus resources are created by man. But he needs the help of culture to convert the neutral stuff into valuable resources. Culture includes all the equipments and machines, means of transport and communication as well as efficient management, group cooperation, recreation, intellectual work, education, training, improved health and sanitation. Without culture, man has only a limited capacity to work and produce.

In the modern age, the application of science and technology has increased the human capacity and capability to use resources in efficient manner for production purposes. For example, United States of America and West European countries have 'high developed economies' for efficient use of their natural wealth with advanced technologies. On the other hand, several countries in Africa, Asia and Latin America are lagging far behind in development level inspite of abundant

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natural resources there. Since, these countries are lagging behind in terms of advanced technology.

## 19.6 EXTENT OF RESOURCE UTILISATION IN INDIA

The natural resources have played a significant role in the socio-economic development of our country. India is the second largest agricultural giant in the world today. It is because India has varied climatic conditions and an endless growing seasons to grow different crops. India's large mineral wealth has enabled India to be industrially developed.

In recent decades, in our desire not only to feed the fastly growing population but also to accelerate economic well being to vast Indian population, exploitation of resources has increased phenomenally. This has led to environmental and ecological imbalances as resources were used on un-sustainable basis. Production of resources has been motivated by the maximisation of output and profit maximization rather than the optimisation of net social benefits. The precious resource of land is under the threat of degradation because of soil erosion, deforestation, overgrazing and careless management of forests. Unscientific farming practices like Jhuming in north-east India and an excessive use of chemical fertilizers and pesticides coupled with over irrigation result in loss of soil nutrients, water logging and salinity.

Under pressure from rapid population growth the available resources of water are being exploited and depleted at a fast rate. Due to lack of technology only 37 per cent of total annual flow of Indian rivers and equal proportion of the available ground water resource is available for use.

After independence, the fisheries Industry, particularly the marine sector, has witnessed a massive transformation from a traditional and subsistence type enterprise to market driven multicore industry. Currently, India exports nearly 55 categories of marine products to South Asian, European countries and U.S.A.

- To satisfy their material and spiritual needs humans have been using the resources from the time immemorial and this process is called 'resource utilisation'.
- Precious resource of land is under the threat of degradation because of soil erosion, deforestation and overgrazing.



### INTEXT QUESTIONS 19.4

1. What do you understand by resource utilization?

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2. Name the four main causes of land degradation in India.  
\_\_\_\_\_
3. What share of total average annual flow of water in the Indian rivers is available for use?  
\_\_\_\_\_
4. What percentage share of ground water is utilized in India?  
\_\_\_\_\_  
\_\_\_\_\_

### 19.7 CONSERVATION OF RESOURCES

Conservation of resources mean the judicious and planned use as well as reuse of natural resources by avoiding their wastage, misuse and over use.

Depletion of resources is a matter of great concern today. In order to reach the maximum production limit, we are using all those resources which are in fact the property of future generations. In fact, as the concept of sustainable development, resources are the inheritance which one generation of human society has to pass on to next one. Non-renewable resources may come to an end after some time, therefore, striking a balance between the growth of population and the utilization of resources is absolutely necessary. Of course, such a balance is bound to vary in time and space. Obviously, we have to look at the balance between population and resources in a region or country as dynamic rather than static one. Any imbalance in either of the two may disrupt the continuity of our economic, social and cultural development. So resources should be used in a planned way that imbalance does not take place.

### 19.8 METHODS OF CONSERVATION OF RESOURCES

- (1) It is necessary to **create awareness** about the preservation and conservation of resources among people. They should be made aware of the harmful result of large scale destruction of natural resources.
- (2) **Afforestation**, preventing the felling of immature and young trees and creating awareness amongst the local people about planting and nurturing trees may help in conserving forests.
- (3) **Terrace farming** in hilly regions, contour ploughing, controlling the shifting cultivation, overgrazing and plugging the Gullies. Some of are the import methods of soil conservation.
- (4) Construction of dams to impound rain water, use of sprinklers, drip or trickle irrigation technique, **recycling of water** for industrial and domestic purposes will help in conservation of the invaluable water resource.
- (5) Minerals are non-renewable resources so they need to be conserved through efficient utilisation, development of better technology of extraction and purification, **recycling of minerals** and use of substitutes.



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(6) **Non conventional sources of energy** e.g. solar, wind or water will have to be developed in order to save conventional sources of energy.

- Conservation of resources means Judicious and planned use of natural resources by avoiding their wastage, misuse and over use.
- It is necessary to create awareness among people about the preservation and conservation of resources.
- Non renewable resources need to be conserved and used with utmost care.



### INTEXT QUESTIONS 19.5

1. What do you understand by conservation of resources?

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2. What is a matter of great concern today?

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3. Which irrigation technique should be used to conserve water?

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4. What type of farming is suitable for hilly regions?

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5. Give two methods of conservation of forests.

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6. Name renewable sources of energy.

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### 19.9 POLICY ON CONSERVATION OF RESOURCES

With growing consciousness of environment conservation, the efficient use of resources has become important for a developing country like India. We have to increase our R & D (Research and Development) efforts to explore for new resources, devise technologies to minimize waste and conserve non-renewable resources. Government of India has formulated several policies and programmes to implement for conservation of our biotic & abiotic resources.

1. A ministry of forests and environment was created at the Union level in 1980 to give high priority to issues relating forest and environment in the country. By now, all the state government have also created independent ministry of forest and environment.

2. National Forest policy of 1950 was revised in 1988 to make an effective tool as per current needs to protection, conservation and development of forest in the country. Under this policy social forestry scheme was launched to increase green coverage, produce and supply of fuelwood etc.
3. National land use and conservation Boards were established in 1983, and restructured in 1985 for land resource conservation and preparation of perspective plan for optimum utilization of land resources.
4. National water policy was adopted in 1987 which accord the highest priority to drinking water, followed by irrigational hydel power generation, navigational, industrial and other uses of water.
5. A National Mineral Policy framed in 1990 has allowed both domestic and foreign enterprise to invest in mineral extraction and export. It also allowed the authority to permit investment in mineral extraction directly under the Union Ministry of Mines.
6. In new agriculture policy of encouragement is given to use eco-friendly and sustainable agricultural technology, i.e. bio-technology.

- National Forest Policy has been launched for the protection and development of forest.
- National Water Policy was adopted to conserve and preserve water resources.
- New Agriculture Policy places premier use of bio-technology.



### INTEXT QUESTIONS 19.6

1. In which year the National Forest Policy was re-framed?  
\_\_\_\_\_
2. In which year National Water Policy was adopted?  
\_\_\_\_\_
3. What was the main aim of new agricultural policy?  
\_\_\_\_\_



### WHAT YOU HAVE LEARNT

Natural resources which satisfy material and spiritual needs of humans are the free gifts of the nature. Any material found on the earth becomes a resource only when it has got some utility. It is therefore human ability and need which create resource



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value. Resources form the backbone of the economy of a nation. They constitute the natural environment like air, water, forests and various life forms, which are essential for human survival. They are the bases for economic strength and prosperity.

There are two types of resources on the basis of their origin - biotic and abiotic. Biotic resources include forests and all forest products, crops, birds, animals, fish and other marine life forms. Abiotic resources include land, water and minerals e.g. iron, copper, gold and silver.

About 23 percent of total area of India is covered by forests. About 75,000 species of animals are found in India. Wide climatic variations and a long crop growing season has put an advantage before India to grow variety of crops. India has nearly three-fifths or about 57 percent of the world's buffalo population and 15 percent of the cattle population. Further, the large continental shelf provides large scope for the development of fisheries in India. Vast size of India in itself is the most important resource. Large water resources are found in form of surface water, ground water, rains and oceans. Mineral wealth of India is equally rich.

Conservation of resources stands for judicious and planned use of natural resources. It is necessary to create awareness among people about the preservation and conservation of resources. Various methods like afforestation, terrace farming in hilly regions, use of advanced irrigation techniques, efficient utilization of minerals and use of alternative sources of energy should be used to conserve natural resources.

Government has adopted various measures to conserve natural resources. Several policies and programmes have been framed and Implemented to conserve the resources. Examples are framing of National forest policy, establishment of National landuse and Conservation Board, National water policy, Mineral policy and Agricultural policy.



### TERMINAL QUESTIONS

1. Define resources and state how they are important to us.
2. Differentiate between biotic and abiotic resources.
3. Give a brief description of distribution of biotic resources in India.
4. Briefly explain the distribution of abiotic resources in India.
5. What do you understand by resource utilization? How is it related to culture?
6. Write a brief note on the extent of resource utilization in India.
7. What do you mean by conservation of resources? Explain various methods of resource conservation.

8. Describe major programmes and policies undertaken by Government of India for conservation of natural resources.



### ANSWERS TO INTEXT QUESTIONS

#### 19.1

1. Resources which satisfy human wants are the free gifts of the nature.
2. (1) Biotic (2) Abiotic
3. Forests, crops, birds, animals and fish.
4. Land, water, minerals.
5. Coal and mineral oil.

#### 19.2

1. About 23 percent
2. Andaman & Nicobar Islands and Haryana
3. It is because of wide climate variations, ample sunshine and long growing season. Rice, wheat, maize, millets
4. About 75,000 species
5. Buffalo population - 57 per cent  
Cattle population - 15 per cent
6. Marine Fisheries, Freshwater, Estuarine and Pearl fisheries.

#### 19.3

1. Seventh
2. 117cm
3. The Indus, the Ganga and the Brahmaputra
4. Jharkhand, Orissa and Chhattisgarh

#### 19.4

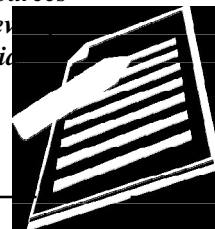
1. Humans use their natural environment to satisfy their needs. This is called resource utilization.
2. Soil erosion, deforestation, overgrazing and careless management of forests.
3. About 37 percent
4. 37 percent

#### 19.5

1. Judicious and planned use of natural resources.

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2. Depletion of resources
3. Sprinklers, drip or trickle irrigation
4. Terrace farming
5. Afforestation, preventing the felling of immature and young trees.
6. Solar, wind or water.

### 19.6

1. In 1988
2. In 1987
3. To use those agricultural techniques which are eco friendly and sustainable like bio technology.

### HINTS TO TERMINAL QUESTIONS

1. Natural resources which satisfy human wants are the gifts of nature.
  - (i) Resources form the backbone of the economy of a nation.
  - (ii) They constitute the natural environment which is essential for human survival and development.
  - (iii) By utilizing natural resources humans created their own world of living like houses, buildings, means of transport & communication etc.
2. Refer section 19.2
3. Refer section 19.3
4. Refer section 19.4
5. Refer section 19.5
6. Refer section 19.6
7. Refer section 19.7 and 19.8
8. Refer section 19.9