

# **GEOGRAPHY**

## **WORKSHEET**

**WORKSHEET-49**

1. It is called Resource Planning.
2. These are called Stocks.
3. Non-renewable.
4. Forests are essential for maintaining ecological balance.
5. Black soil.
6. It is known as soil erosion.
7. 3.28 million sq. km.
8. Weathering and erosion.
9. Usara or Urvara.
10. Khadar

**WORKSHEET-50**

1. Ravines are the bad lands in the Chambal basin.
2. Land degradation is meant by making of land unfit for agriculture.
3. Cotton crop
4. Alluvial soil
5. Terrace farming.
6. Alluvial soil.
7. These are called reserves.
8. It is called Resource.
9. These are biotic resources.
10. Non-renewable resources
11. Human-made resources
12. Renewable and non-renewable resources.
13. Developed resources
14. It is known as Sustainable development.
15. (i) Forests (ii) Waste lands (iii) Current fallow (iv) Net sown area

**WORKSHEET-51**

1. It is called Territorial waters of a country.
2. Renewable resources.
3. Fallow land
4. Resources are classified on the basis of ownership as:  
**Individual Resources:** These are owned privately by individuals. Urban people own plots, houses and other property. Plantation, pasture lands, ponds, water in wells etc. are some of the examples of resources owned by individuals.  
**Community Owned Resources:** There are resources which are accessible to all the members of the community. Village commons (grazing grounds, burial grounds, village

ponds, etc.) public parks, picnic spots, playgrounds in urban areas are accessible to all the people living there.

**International Resources:** There are international institutions which regulate some resources. The oceanic resources beyond 200 km of the exclusive economic zone belong to open ocean and no individual country can utilise these without the concurrence of international institutions.

5. Human beings interact with nature through technology and create institutions to accelerate their economic development. In this process they often consume resources more in quantity which cause depletion of resources. As more technological development occurs there is increased need for input and utilisation of resources. For example, more factories providing employment to more people is a necessity. For the factory, land and metal (for machines) are used. For this mining of minerals/metals increases, causing land degradation and depletion of mineral resources of a certain area. As technical or technological development is closely linked to economic development we can say that both of these have led to more consumption of resources.
6. Resource planning is the widely accepted strategy for judicious use of resources.  
Resource planning is a complex process which involves:
  - (a) Identification and inventory of resources across the regions of the country. This involves surveying, mapping and qualitative and quantitative estimation and measurement of the resources.
  - (b) Evolving a planning structure endowed with appropriate technology, skill and institutional set up for implementing resource development plans.
  - (c) Matching the resource development plans with overall national development plans.
7. Measures taken to control land degradation in different regions of India are:
  - (a) Afforestation and proper management of grazing can help to some extent.
  - (b) Planting of shelter belts of plants, control on overgrazing, stabilisation of sand dunes by growing thorny bushes are some of the methods of checking land degradation.
  - (c) Proper management of waste lands, control of mining activities, proper discharge and disposal of industrial effluents and wastes after treatment can reduce land and water degradation in industrial and suburban areas.

### WORKSHEET-52

1. The problem of land degradation can be solved in hilly and desert areas by the following methods:
  - (a) Afforestation and proper management of grazing can help to some extent.
  - (b) Ploughing along the contour lines can decelerate the flow of water down the slopes. This is called contour ploughing.
  - (c) Steps can be cut out on the slopes making terraces. Terrace cultivation restricts erosion. Western and central Himalayas have well-developed terrace farming.
2. Alluvial soil is found in the river deltas of the eastern coast.  
Main features of this type of soil are:
  - (a) It consists of various proportions of sand, silt and clay.
  - (b) Towards the river valleys, soil particles are bigger in size. In the upper reaches the soils are coarse. They are common in piedmont plains such as Duars, Chos and Terai.
  - (c) Alluvial soils are of two types on the basis of their age — Khadar and Bangar.

- (d) These are very fertile soils and contain adequate proportion of potash, phosphoric acid and lime which are ideal for the growth of sugarcane, paddy, wheat and other cereal and pulse crops.
  - (e) Regions of alluvial soils are intensively cultivated and densely populated.
  - (f) Soils in the drier areas are more alkaline and can be productive after proper treatment and irrigation.
3. Soil Erosion: The denudation of the soil cover and subsequent washing down is described as soil erosion.
- The running water cuts through the clayey soils and makes deep channels or gullies. The land becomes unfit for cultivation and is known as bad land. In the Chambal basin such lands are called ravines. Sometimes water flows as a sheet over large areas down a slope. In such cases the top soil is washed away. This is known as sheet erosion.
4. Major problems which occur due to indiscriminate use of resources are:
- (a) Depletion of resources for satisfying the greed of few individuals.
  - (b) Accumulation of resources in few hands, which, in turn, divide the society into two segments i.e. haves and have-nots or rich and poor.
  - (c) Indiscriminate exploitation of resources has led to global ecological crises such as, global warming, ozone layer depletion, environmental pollution and land degradation.
5. Resource Planning is the widely accepted strategy for judicious use of resources.
- Reasons:
- (i) Resources are unevenly distributed over the country.
  - (ii) Some regions are rich in certain types of resources but are deficient in some other resources.
  - (iii) There are some regions which have acute shortage of some vital resources.
  - (iv) Resources are limited.
  - (v) Resource planning helps in reducing wastage.
  - (vi) Resource planning takes care of future generation.
  - (vii) Any other relevant point.
- (Any two points to be explained)
6. Human factors are activities like deforestation, over-grazing, construction and mining, defective methods of farming (ploughing in a wrong way i.e. up and down the slope forms channels for the quick flow of water leading to soil erosion etc.)
- Physical factors like wind, glacier and water lead to land degradation.
- (a) The running water cuts through the clayey soils and makes deep channels or gullies. The land becomes unfit for cultivation and is known as bad land. In the Chambal basin such lands are called ravines. Sometimes water flows as a sheet over large areas down a slope. In such cases the top soil is washed away. This is known as sheet erosion.
  - (b) Wind blows loose soil off flat or sloping land known as wind erosion.

### WORKSHEET-53

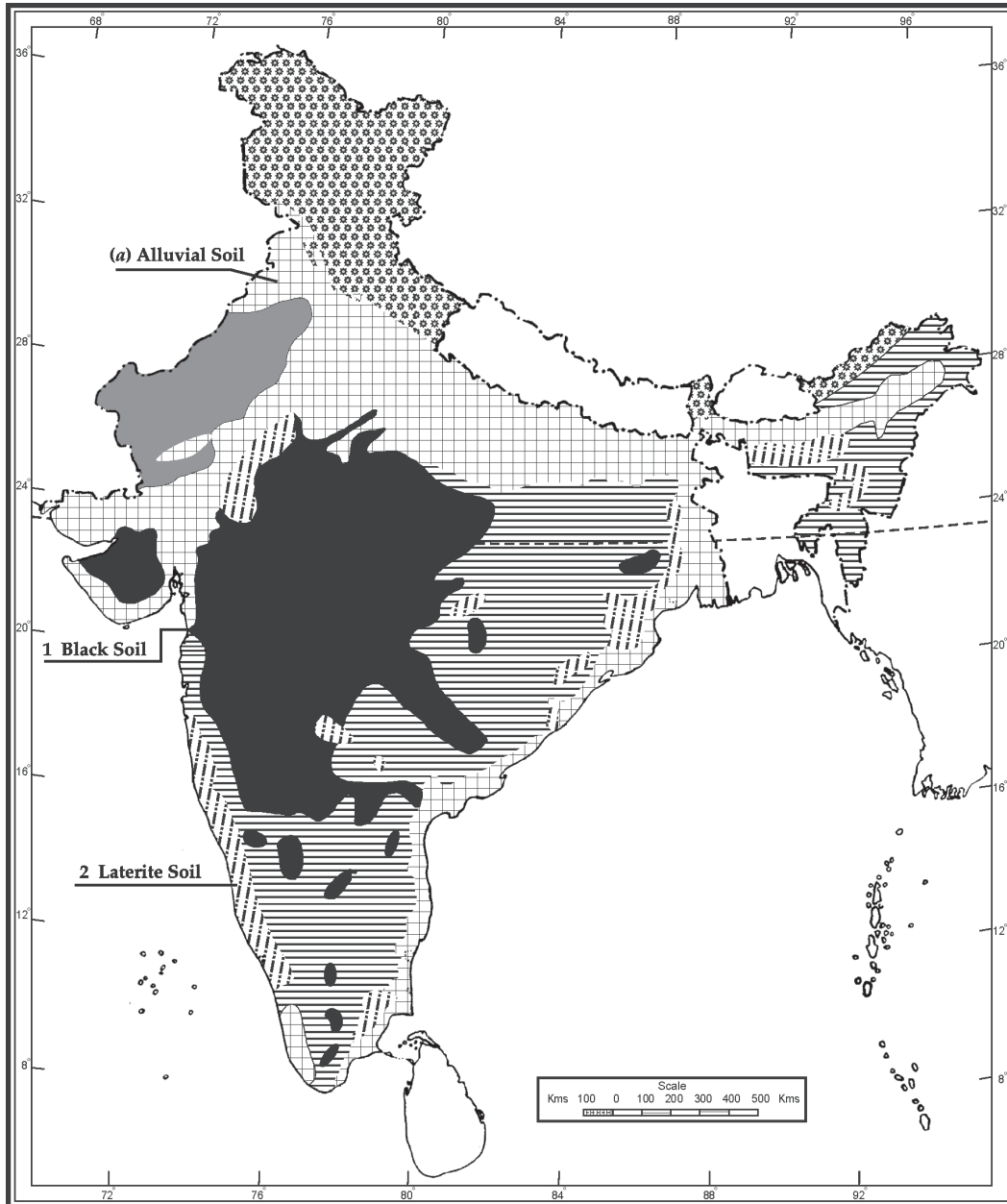
1. Resource planning is a complex process which involves:
- (a) Identification and inventory of resources across the regions of the country. This involves surveying, mapping and qualitative and quantitative estimation and measurement of the resources.

- (b) Evolving a planning structure endowed with appropriate technology, skill and institutional set up for implementing resource development plans.
  - (c) Matching the resource development plans with overall national development plans.
2. On the basis of exhaustibility resources are classified as following:
- (i) Renewable Resources. The resources which can be used again and again and can be reproduced by physical, chemical or mechanical processes, are known as renewable or replenishable resources. For example, solar and wind energy, water, forests and wildlife, etc. The renewable resources may further be divided into continuous or flow and biological resources.
  - (ii) Non-renewable Resources. The resources which take millions of years in their formation and occur over a very long geological time are known as non-renewable resources. For example, minerals and fossil fuels. Some of the resources like metals are recyclable while fossil fuels cannot be recycled and get exhausted with their use.
3. Resource Planning is the widely accepted strategy for judicious use of resources.
- Reasons:
- (i) Resources are unevenly distributed over the country.
  - (ii) Some regions are rich in certain types of resources but are deficient in some other resources.
  - (iii) There are some regions which have acute shortage of some vital resources.
  - (iv) Resources are limited.
  - (v) Resource planning helps in reducing wastage.
  - (vi) Resource planning takes care of future generation.
  - (vii) Any other relevant point.  
(Any two points to be explained)
4. (i) Territorial waters and exclusive economic zone. The oceanic area up to 12 nautical miles from the coastline is called territorial waters of a country. The exclusive economic zones are the area up to 200 km from the coastline in which the country has the exclusive rights to exploit the natural resources. It includes territorial waters in it.
- (ii) Sustainable economic development. It means development should take place without damaging the environment, and development in the present should not compromise with the needs of the future generations.
- (iii) Planning. Planning is a widely accepted strategy for cautious use of resources. In the country like India it is very important to follow and execute such planning as India has enormous diversity in the availability of resources. Some regions are rich in certain types of resources but deficient in some other resources. Some regions are self-sufficient in terms of the availability of resources while others have acute shortage of some vital resources.
5. Human activities such as deforestation, overgrazing and mining have contributed significantly in land degradation.
- (i) Mining sites are abandoned after mining work is complete leaving deep scars and traces of over-burdening.
  - (ii) In states like Jharkhand, Chhattisgarh, Madhya Pradesh and Odisha deforestation has occurred due to mining. In states like Gujarat, Rajasthan, Madhya Pradesh and Maharashtra overgrazing is one of the main reasons for land degradation.
  - (iii) In Punjab, Haryana, western Uttar Pradesh, overirrigation is responsible for land degradation due to waterlogging leading to increase in salinity and alkalinity in the soil.

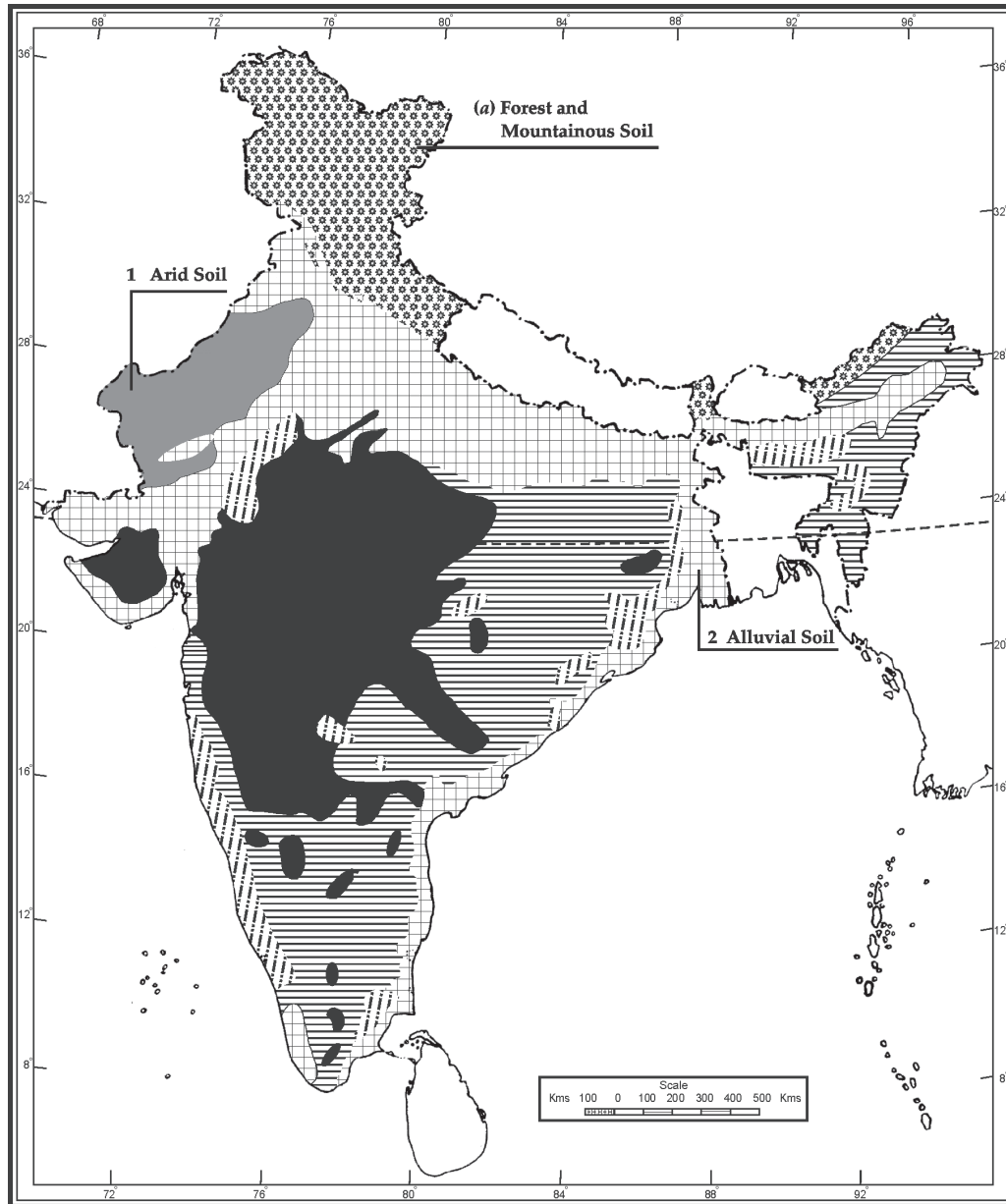
- (iv) The mineral processing like grinding of limestone for cement industry and calcite and soapstone for ceramic industry generate huge quantity of dust in the atmosphere which retards the process of infiltration of water into the soil after it settles down on the land.
- (v) Industrial effluents as waste have become a major source of land and water pollution.

**WORKSHEET-54**

1.



2.



### WORKSHEET-55

1. On the basis of the status of development resources are classified as:

**Potential Resources:** Resources which are found in a region, but have not been utilised. For example, the western parts of India particularly Rajasthan and Gujarat have enormous potential for the development of wind and solar energy, but so far these have not been developed properly.

**Developed Resources:** Resources which are surveyed and their quality and quantity have been determined for utilisation. The development of resources depends on technology and level of their feasibility.

**Stock:** Materials in the environment which have the potential to satisfy human needs but human beings do not have the appropriate technology to access these, are included among stock. For example, water is a compound of two inflammable gases; hydrogen and oxygen, which can be used as a rich source of energy. But we do not have the required technical 'know-how' to use them for this purpose. Hence, it can be considered as stock.

**Reserves:** These are the subset of the stock, which can be put into use with the help of existing technical 'know-how' but their use has not been started. These can be used for meeting future requirements. River water can be used for generating hydroelectric power but presently, it is being utilised only to a limited extent. Thus, the water in the dams, forests etc. is a reserve which can be used in the future. An equitable distribution of resources has become essential for a sustained quality of life and global peace.

2. The total area of India is 3.28 million square kilometres. According to the land use data, records are available only for about 93% of the total area. Of this 46% is the net sown area, forests cover is 22%, 5% is cultivable land, 8% is fallow land and 4% is covered by pastures, 1% is covered by tree crops. The net sown area and the land under forests have increased over the years. The pattern of net sown area varies from one state to another. The forest area in India is much below the scientific norm and it needs to be raised in order to restore the ecological balance.

Large scale development projects, industrialisation and urbanisation as well as agricultural expansion have widely reduced forest cover in various parts of the country. Though afforestation and social forestry measures have been adopted, it has led to only a marginal increase in the forest area.

3. Factors resulting in land degradation are as follows:
  - (a) Human activities such as deforestation due to mining have contributed in land degradation in the states like Jharkhand, Chhattisgarh, Madhya Pradesh and Odisha. Mining sites are abandoned after excavation work is complete, leaving deep scars and traces of overburdening.
  - (b) Overgrazing in the states like Gujarat, Rajasthan, Madhya Pradesh and Maharashtra is the main reason for land degradation.
  - (c) In the states of Punjab, Haryana, Western Uttar Pradesh, over-irrigation is responsible for land degradation due to water logging, leading to increase in salinity and alkalinity in the soil.
  - (d) Mining and quarrying have contributed significantly in land degradation.
  - (e) The mineral processing like grinding of limestone for cement industry and calcite and soapstone for ceramic industry generate huge quantity of dust in the atmosphere. It retards the process of infiltration of water into the soil after it settles down on the land.
  - (f) Industrial effluents as wastes have become a major source of land and water pollution in many parts of the country.

### Chapter Test

1. Land degradation
2. This region is known for Black soil.
3. Alluvial soil.
4. Red soil



5. The total area of India is 3.28 million square kilometres. According to the land use data, records are available only for about 93% of the total area. Of this 46% is the net sown area, forests cover is 22%, 5% is cultivable land, 8% is fallow land and 4% is covered by pastures, 1% is covered by tree crops. The net sown area and the land under forests have increased over the years. The pattern of net sown area varies from one state to another. The forest area in India is much below the scientific norm and it needs to be raised in order to restore the ecological balance.

Large scale development projects, industrialisation and urbanisation as well as agricultural expansion have widely reduced forest cover in various parts of the country. Though afforestation and social forestry measures have been adopted, it has led to only a marginal increase in the forest area.

6. Resource planning is a technique or skill of proper utilisation of resources. It is a complex process. It is important in country like India because
- (a) There is an enormous diversity in the availability of resources.
  - (b) There are regions which are rich in certain types of resources but are deficient in some other resources. For example, the states of Jharkhand, Chhattisgarh and Madhya Pradesh are rich in minerals and coal deposits. Arunachal Pradesh has abundance of water resource but lacks in infrastructural development. The state of Rajasthan is very well endowed with solar and wind energy but lacks in water resources.
7. (a) Afforestation and proper management of grazing can help to some extent.
- (b) Ploughing along the contour lines can decelerate the flow of water down the slopes. This is called contour ploughing.
  - (c) Steps can be cut out on the slopes making terraces. Terrace cultivation restricts, erosion, western and central Himalayas have well-developed terrace farming.
  - (d) Afforestation and proper management of grazing can help to some extent.
  - (e) Planting of shelter belts of plants, control on overgrazing, stabilisation of sand dunes by growing thorny bushes are some of the methods to check land degradation.
  - (f) Proper management of waste lands, control of mining activities, proper discharge and disposal of industrial effluents and wastes after treatment can reduce land and water degradation in industrial and suburban areas.

### FORMATIVE ASSESSMENT

#### WORKSHEET-56

- |                         |                      |
|-------------------------|----------------------|
| 1. Individual Resources | 2. Resource Planning |
| 3. Soil Erosion         | 4. Gross sown area   |
| 5. Gullies              | 6. Sheet erosion     |
| 7. Contour ploughing    | 8. Strip cropping    |
| 9. Shelter belts        | 10. Resource         |

#### WORKSHEET-57

- |        |        |        |        |         |
|--------|--------|--------|--------|---------|
| 1. (i) | 2. (j) | 3. (c) | 4. (a) | 5. (b)  |
| 6. (b) | 7. (d) | 8. (e) | 9. (f) | 10. (g) |

**WORKSHEET-58**

1. Each form of life in the earth is dependent either directly or indirectly on the plants.
2. Plants which belong to outside the country are known as exotic plants.
3. These are called critical.
4. It is the physical environment of a place formed by all kinds of plants and animals of that place.
5. Forest cover has increased.
6. During the colonial period.
7. In 1952.
8. Due to shifting cultivation.
9. In West Bengal.
10. The major threat is Dolomite mining.
11. Grazing and fuel wood collection.
12. In Himachal Pradesh.

**WORKSHEET-59**

1. Central and state governments.
2. In 1973.
3. There are 29 tiger reserves in India.
4. Reserved and Protected Forests.
5. These are 14 biosphere reserve in India.
6. Mahua and Kadamba.
7. (i) Agricultural expansion (ii) Large-scale development projects (iii) Rapid industrialisation and urbanisation
8. Extinct species.
9. Normal species.
10. Endangered species.
11. Rare species.
12. Endemic species.
13. During colonial period few favoured species were promoted which were termed as 'enrichment plantation'. In this, a single commercially valuable species was extensively planted and other species eliminated. Plantation of teak had damaged the natural forest in South India and Chir Pine (*Pinus roxburghii*) plantations in the Himalayas have replaced the Himalayan oak (*Quercus* spp.) and Rhododendron forests. As a result of this, biodiversity was destroyed.
14. From the Himalayan Yew tree a chemical compound called 'taxol' is extracted from its bark, needles, twigs and roots, and it has been successfully used to treat some cancers—the drug is now the biggest selling anti-cancer drug in the world. The species is under great threat due to over-exploitation. In the last one decade, thousands of yew trees have dried up in various parts of Himachal Pradesh and Arunachal Pradesh.

## WORKSHEET-60

1. India's environment is at great risk because over half of India's natural forests are gone, one-third of its wetlands drained out, 70 per cent of its surface water bodies polluted, 40 per cent of its mangroves wiped out, and with continued hunting and trade of wild animals and commercially valuable plants, thousands of plant and animal species are heading towards extinction.
2. The destruction of forest and wildlife has affected greatly the forest dependent communities. These communities directly depend on various components of the forest and wildlife for food, drink, medicine, culture, spirituality, etc.  

Within the poor, women are affected more than men. In many societies, women bear the major responsibility of collection of fuel, fodder, water and other basic subsistence need and sometimes they have to walk for more than 10 km to collect these resources. This causes serious health problems for women and negligence of home and children because of the increased hours of work, which often has serious social implications.

The indirect impact of degradation such as severe drought or deforestation-induced floods, etc. also hits the poor the hardest.
3. We need to conserve our forests and wildlife because:
  - (a) Environmental destruction results in poverty in the communities that are directly dependent upon forests and wildlife. Therefore, forests and wildlife are vital to the quality of life and environment in the subcontinent. It is imperative to adapt to sound forest and wildlife conservation strategies.
  - (b) Conservation preserves the ecological diversity and our life support systems – water, air and soil.
  - (c) It also preserves the genetic diversity of plants and animals for better growth of species and breeding. For example, in agriculture, we are still dependent on traditional crop varieties. Fisheries too are heavily dependent on the maintenance of aquatic biodiversity.
4. Tiger is one of the key wildlife species in the faunal web. In 1973, the authorities realised that the tiger population had dwindled to 1,827 from an estimated 55,000 at the turn of the century. The major threats to tiger population are numerous, such as poaching for trade, shrinking habitat, depletion of prey base species, growing human population, etc. The trade of tiger skins and the use of their bones in traditional medicines, especially in the Asian countries left the tiger population on the verge of extinction. Since India and Nepal provide habitat to about two-thirds of the surviving tiger population in the world, these two nations became prime targets for poaching and illegal trading. Therefore, it became imperative to formulate Project Tiger to protect tigers.
5. "Project Tiger", one of the well publicised wildlife campaigns in the world, was launched in 1973. Initially, it showed success as the tiger population went up to 4,002 in 1985 and 4,334 in 1989. But in 1993, the population of the tiger had dropped to 3,600. There are 27 tiger reserves in India covering an area of 37,761 sq km. Tiger conservation has been viewed not only as an effort to save an endangered species, but with equal importance as a means of preserving biotypes of sizeable magnitude. Corbett National Park in Uttarakhand, Sunderbans National Park in West Bengal, Bandhavgarh National Park in Madhya Pradesh, Sariska Wildlife Sanctuary in Rajasthan, Manas Tiger Reserve in Assam and Periyar Tiger Reserve in Kerala are some of the tiger reserves in India.

6. The conservation projects are now focusing on biodiversity rather than on a few of its components. There is now a more intensive search for different conservation measures. Increasingly, even insects are beginning to find a place in conservation planning. In the notification under Wildlife Act of 1980 and 1986, several hundred butterflies, moths, beetles, and dragonfly have been added to the list of protected species. In 1991, for the first time plants were also added to the list, starting with six species.

### WORKSHEET-61

1. Need to conserve forest and wildlife resources:
  - (i) Rapid decline in forests and wildlife population.
  - (ii) Conservation maintains the ecological balance.
  - (iii) Forest depletion accelerates soil erosion.
  - (iv) Conservation is needed to protect wildlife because it is threatened by man's intervention.
  - (v) They provide economic benefits.
  - (vi) Any other relevant point.  
(Any three reasons to be explained)
2. Causes of depletion of Flora and Fauna
  - (i) *Expansion of the commercial and scientific forestry and mining activities.* During the colonial period due to the expansion of the railways, agriculture, commercial and scientific forestry and mining activities, Indian forests got depleted to an extent.
  - (ii) *Agricultural Expansion.* Even after Independence, agricultural expansion continues to be one of the major causes of depletion of forest resources. Between 1951 and 1980 over 26,200 sq. km. of forest area was converted into agricultural land especially in the northeastern and central India for shifting cultivation (jhum) and a type of 'slash and burn' agriculture.
  - (iii) *Enrichment Plantation.* It was a plantation in which a single commercially valuable species was widely planted and other species reduced.
  - (iv) *Development Projects.* Large-scale development projects have also contributed significantly to the loss of forests. Projects still in continuation like the Narmada Sagar Project in Madhya Pradesh have swallowed up 40,000 hectares of forests.
  - (v) *Mining.* It is another important factor behind deforestation. The Buxa Tiger Reserve in West Bengal is threatened by the ongoing dolomite mining. It has disturbed the natural habitat of many species and blocked the migration route of several others including the great Indian elephant.
  - (vi) *Unequal Access to Resources.* The wealthiest 5% of Indian society cause more ecological damage because of the amount they consume than the poorest 25 per cent and shares minimum responsibilities for environmental well-being.
  - (vii) *Habitat destruction.* Habitat destruction, hunting, poaching, over-exploitation, environmental pollution, poisoning and forest fires are factors, which have led to the decline in India's biodiversity.
3. (i) Cutting of the trees in the forests must be stopped. The government has taken adequate steps in this direction. Forest department has been created for this purpose. Laws have been implemented to punish the persons who are found guilty of cutting of trees.

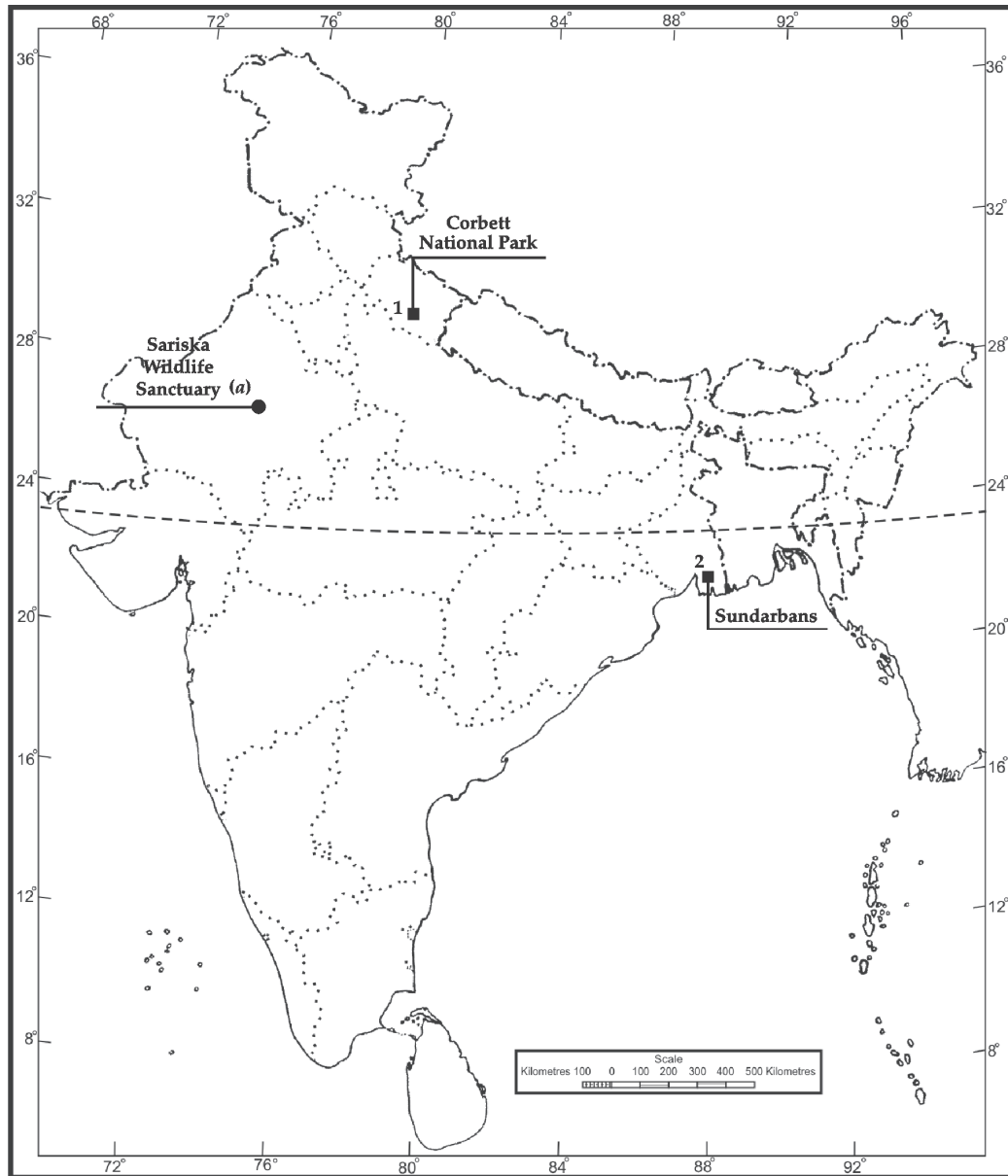
However, awareness among the people is more important. Without this awareness results cannot be satisfactory.

- (ii) The people must cooperate to check the felling of trees. Their active participation is most important in this regard.  
many persons have come forward for this task. Movements like 'Chipko Andolan' have been launched by the people themselves.
- (iii) Necessary wood for industrial purposes and for other activities, must be acquired in a well planned manner, so that industrial growth and environment protection both can be achieved.
- (iv) Wherever the trees have been cut for any reason; new trees must be planted to maintain the ecological balance.
- (v) Festivals like 'Vanmahotsava' should be celebrated everywhere. It would help in growing the awareness.
- (vi) 33% of the total land area must be brought under forest cover.

### WORKSHEET-62

1. Forests are classified under the following categories:
  - (a) **Reserved Forests:** More than half of the total forest land has been declared reserved forests. Reserved forests are regarded as the most valuable as far as the conservation of forests and wildlife resources are concerned.
  - (b) **Protected Forests:** Almost one-third of the total forest area is protected forest, as declared by the Forest Department. This forest land is protected from any further depletion.
  - (c) **Unclassed Forests:** These are other forests and wasteland belonging to both government and private individuals and communities.
2.
  - (a) Jammu and Kashmir, Andhra Pradesh, Uttarakhand, Kerala, Tamil Nadu, West Bengal and Maharashtra have large percentages of reserved forests of its total forest area.
  - (b) Bihar, Haryana, Punjab, Himachal Pradesh, Odisha and Rajasthan have a bulk of it under protected forests.
  - (c) All North-eastern states and parts of Gujarat have a very high percentage of their forests as un-classed forests managed by local communities.
3.
  - (a) The famous Chipko Movement in the Himalayas has successfully resisted deforestation in several areas. It has also shown that community afforestation with indigenous species can be enormously successful.
  - (b) Attempts have been made to revive the traditional conservation methods. At the same time new methods of ecological farming have also been developed. Farmers and citizen's groups like the 'Beej Bachao Andolan' in Tehri and Navdanya have shown that adequate levels of diversified crop production without the use of synthetic chemicals are possible as well economically viable.
  - (c) In our country Joint Forest Management (JFM) programme offers a nice example for involving local communities in the management and restoration of degraded forests. JFM depends on the formation of local (village) institutions that undertake protection activities mostly on degraded forest land managed by the forest department. In return the members of these communities are given the right to intermediary benefits such as non-timber forest produces and share in the timber harvested by 'successful protection'.

4.



### Chapter Test

1. Extinct species
2. Enrichment plantation
3. Unclassed forests.
4. Reserved forests.
5. Biodiversity or Biological Diversity is immensely rich in wildlife and cultivated species, diverse in form and function but closely integrated in a system through multiple networks of interdependencies. We can say that India is rich in biodiversity because

over 81,000 species of fauna and 47,000 species of flora are found in this country so far. Of the estimate 47,000 plant species, about 15,000 flowering species are endemic (indigenous) to India.

6. Certain species become endangered because the survival of certain species is difficult if the negative factors that have led to a decline in their population continue to operate. The examples of such species are black buck, crocodile, Indian wild ass, Indian rhino, lion tailed macaque, sangai (a type of deer in Manipur), etc.
7. (a) To protect flora and fauna, the Indian Wildlife (Protection) Act was implemented in 1972, with various provisions for protecting habitats.
- (b) An all-India list of protected species was also published. The thrust of the programme was towards protecting the remaining population of certain endangered species by banning hunting, giving legal protection to their habitats, and restricting trade in wildlife.
- (c) Central and many state governments established national parks and wildlife sanctuaries.
- (d) The central government announced several projects for protecting specific animals, which were gravely threatened, including the tiger, the one-horned rhinoceros, the Kashmir stag or hangul, three types of crocodiles – freshwater crocodile, saltwater crocodile and the Gharial, the Asiatic lion, and others. Most recently, the Indian elephant, black buck (chinkara), the great Indian bustard (godawan) and the snow leopard, etc., have been given full or partial legal protection against hunting and trade throughout India.

### FORMATIVE ASSESSMENT

#### WORKSHEET-63

- |        |        |        |         |        |        |
|--------|--------|--------|---------|--------|--------|
| 1. (f) | 2. (e) | 3. (a) | 4. (b)  | 5. (g) | 6. (d) |
| 7. (c) | 8. (j) | 9. (h) | 10. (i) |        |        |

#### WORKSHEET-64

- (a) Neem is grown in both tropical and sub-tropical regions. Neem has endless medicinal properties. It is used to control pests and treat pox viruses. Neem is a major ingredient in soaps and shampoos and is healthy for our skin.
- (b) Arjuna tree is generally found around river beds. Arjuna is known for its medicinal values in bark. It is used as a diuretic and relief in hypertension. It is considered to be a good cardiac tonic and used in about 12 ayurvedic medicinal preparations.
- (c) Rosewood mainly grows on the banks of the river below 900 meter elevation. It is widely found in the state of Haryana. It can also be found in the Periyar National Park. Rosewood holds many medicinal properties. Rosewood oil stimulates new cell growth, regenerate tissues, and helps minimize lines and wrinkles.
- (d) Sandalwood tree flourishes in regions where the climate is cool with moderate rainfall, plentiful sunshine and long periods of dry weather. Sandalwood is very beneficial for treating gastric irritability and any other kind of gastric ailments. The wood is used in treatment of dysentery. Since ancient times, sandalwood paste has been used to relieve headache and control the body temperature during fever.

- (e) Tulsi is generally grown in rich loamy soil with ample precipitation and strong sunlight. It is grown the best in the North Central plains of India that are near rivers. Tulsi has very potent germicidal, fungicidal, anti-bacterial and anti-biotic properties that are great for resolving fevers. It is a powerful anti-oxidant. Tulsi helps reduce the uric acid levels in the blood. It purifies the blood giving the skin a beautiful glow. It gives a great relief for coughs, cold, and other respiratory disorders.
- (f) Cinchona is grown in the hilly terrain of West Bengal. The bark of cinchona is stripped from the tree, dried, and powdered for medicinal uses. It contains quinine, which is a chemical used in the treatment of malaria.
- (g) Babool is a tree 5 m–20 m high grown in sandy or sterile regions, with the climate dry during the greater part of the year. It is used for stomach upset and pain, the bark is chewed to protect against scurvy, an infusion is taken for dysentery and diarrhoea.
- (h) Khajuri or date palm is grown as an ornamental tree along the Mediterranean shores of Europe, and its leaves are used for the celebration of Palm Sunday among Christians. Date sugar, a commercial product of India, is obtained from the sap of a closely related species.
- (i) Teak is well grown in all the parts of India. It is also found in the Gir National Park, Satpura National Park, Pench Tiger Reserve in India. Teak also holds the medicinal value. The bark is bitter tonic and is considered useful in fever, in headache and stomach problems. Digestion may be enhanced by the teak wood or bark. It is used in the furniture making, boat decks and for indoor flooring.
- (j) Sundari is distributed widely in the Old World tropics, in eastern Africa and from India eastwards throughout Southeast Asia to tropical Australia, Hawaii and New Caledonia. In India, This tree is found in the inland zone of mangrove forests along the coasts of peninsular India, the Sundarban in West Bengal state and the Andaman Islands. A decoction of the seeds of this plant is given to relieve dysentery and diarrhea. The twigs are used as toothbrushes and the seeds of Sundari are edible.





**WORKSHEET-65**

1. Three-fourth of earth's surface is covered with water.
2. Surface run-off
3. It is 97%.
4. 2.5% is freshwater on the earth's surface.
5. India receives 4% of global precipitation.
6. By the year 2025.
7. Because their flow depends on the rainfall.
8. The uplands that separates two drainage basins is called the water divide.
9. In 11th century.
10. Iltutmish. It is located in Delhi.

**WORKSHEET-66**

1. West Bengal
2. Karnataka and Andhra Pradesh
3. In Rajasthan
4. It refers to streams resembling like the branches of a tree.
5. For irrigation purpose.
6. Dams, reservoirs and embankments have been built.
7. It is the area which is drained by a single river system. It is also called drainage basin.
8. Koyna, Bhima, Tungabhadra, Ghatprabha.
9. Because of displacement of people.
10. Environmental issues
11. Multi-purpose projects are called as the temples of modern India because they not only help in irrigation but also in electricity generation, water supply for domestic and industrial uses, flood control, recreation, inland navigation and fish breeding. For example, in the Sutluj-Beas river basin, the Bhakra-Nangal project water is being used both for hydel power production and irrigation. Similarly, the Hirakud project in the Mahanadi basin integrates conservation of water with flood control. That is why Jawaharlal Nehru proudly proclaimed the dams as the 'temples of modern India'; the reason being that it would integrate development of agriculture and the village economy with rapid industrialisation and growth of the urban economy
12. In the semi-arid and arid regions of Rajasthan, particularly in Bikaner, Phalodi and Barmer, almost all the houses traditionally had underground tanks or tankas for storing drinking water. The tanks could be as large as a big room; one household in Phalodi had a tank that was 6.1 metres deep, 4.27 metres long and 2.44 metres wide. The tankas were parts of the well-developed rooftop rainwater harvesting system and were built inside

the main house or the courtyard. They were connected to the sloping roofs of the houses through a pipe. Rain falling on the rooftops would travel down the pipe and was stored in these underground 'tankas'.

13. Over-utilisation and mismanagement of water resources may cause:
- serious health hazards.
  - shortage of availability of food which may adversely affect food security in the country.
  - our livelihoods and productive activities may be affected.
  - degradation of our natural ecosystems.
  - depletion of water resources.

### **WORKSHEET-67**

- Over-exploitation and mismanagement of water resources will impoverish this resource and cause ecological crisis that may have profound impact on our lives. So, there is a need for conservation of water resources.
- Dams are classified according to the structure, intended purpose and height.
  - Classification of dams based on structure and the materials used: timber dams, embankment dams or masonry dams.
  - Classification of dams based on the height: Large dams and major dams, medium height dams and high dams.
- Traditional dams were built to impound rivers and rainwater that could be used later to irrigate agricultural fields only but now multipurpose projects are built not just for irrigation but for electricity generation, water supply for domestic and industrial uses, flood control, recreation, inland navigation and fish breeding. Hence, dams are now referred to as multipurpose projects where the many uses of the impounded water are integrated with one another.
- Today, dams are built not just for irrigation but for electricity generation, water supply for domestic and industrial uses, flood control, recreation, inland navigation and fish breeding. Hence, dams are now referred to as multipurpose projects where the many uses of the impounded water are integrated with one another. For example, in the Sutluj-Beas river basin, the Bhakra-Nangal project water is being used both for hydel power production and irrigation. Similarly, the Hirakud project in the Mahanadi basin integrates conservation of water with flood control.
- Qualitative aspect of water scarcity refers to bad quality of water. Even if there is ample water to meet the needs of the people, still the area suffers from water scarcity, much of it may be polluted by domestic and industrial wastes, chemicals, pesticides and fertilisers used in agriculture thus, making it hazardous for human use.
- Narmada Bachao Andolan or Save Narmada Movement is a Non-Governmental Organisation (NGO) that activated tribal people, farmers, environmentalists and human rights activists to fight against the Sardar Sarovar Dam being built across the Narmada river in Gujarat. This was initiated to save trees from getting destroyed due to building of dam and to get full rehabilitation facilities from the government for the displaced people.

### **WORKSHEET-68**

- Rainwater harvesting is carried out to conserve and store water. This method reduces water scarcity. In various regions of India rainwater harvesting system is being adopted to meet the ever-growing water needs. Realising its importance the Tamil Nadu government has made rooftop rainwater harvesting structure compulsory to all houses across the state.

2. Reasons of scarcity of water:

- (i) Rapidly growing population.
- (ii) Rising demand of food and cash crops.
- (iii) Water resources are being over-exploited to expand irrigated areas in dry seasons
- (iv) Industrialisation
- (v) Any other relevant reason.

(Any three reasons to be explained)

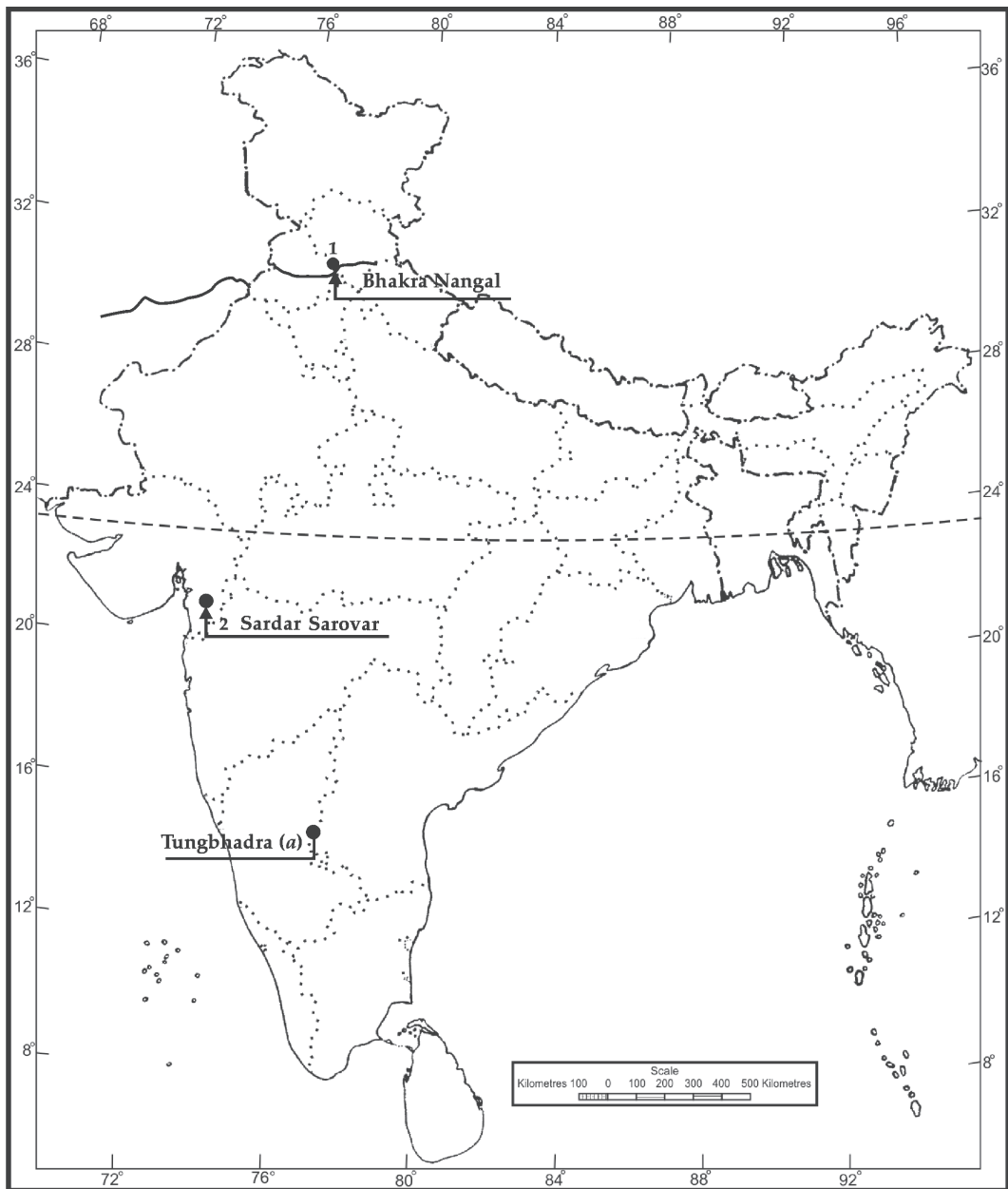
3. Water Scarcity or water stress occurs when water availability is not enough to match the demand for water. It is caused by an increase in population and consequent greater demands for water and unequal access to it. A country with a high industrial demand or which depends on large scale irrigation will therefore be more likely to experience times of scarcity than a country without such demands.

Some of the major causes of water scarcity:

- 1. Overexploitation. Most of the houses and farms have their own private groundwater pumping devices which allows them easy access to consume water at their will. This eventually leads to overexploitation of water resources, thus leading to depletion of underground water reservoir. Water is not only used for domestic purposes but also to produce more food. To increase foodgrain production, water resources are being over-exploited to expand irrigated areas and dry-season agriculture.
  - 2. Deteriorating Quality. Pollution by domestic and industrial waste is harming the quality of clean water. As a result even areas with abundant water are facing acute shortage of water. Water is polluted by domestic and industrial wastes, chemicals, pesticides and fertilisers used in agriculture, thus making it unsafe for human use.
  - 3. Adverse Effect of Economic Development. Increased business activity is further putting pressure on scarce water resources. Many industries are exploiting water resources to the maximum.
  - 4. Hydroelectric Power. 22% of total electricity produced in India is through hydroelectric power. This creates additional pressure on water resources.
  - 5. River Pollution. India's rivers have got polluted to such an extent that they have turned into toxic streams. It's all due to population growth, agricultural modernisation, urbanisation and industrialisation.
  - 6. Unequal distribution and availability of water resources. The distribution and availability of water resources is unequal in space and time, mainly due to the variations in seasonal and annual precipitation.
4. Over-utilisation and mismanagement of water resources may cause:
- (a) serious health hazards.
  - (b) shortage of availability of food which may adversely affect food security in the country.
  - (c) our livelihoods and productive activities may be affected.
  - (d) degradation of our natural ecosystems.
  - (e) depletion of water resources.

## WORKSHEET-69

1.



2. Hydraulic structures have been in existence since time immemorial. Below is given some hydraulic structures that existed in ancient India.

- (a) In the first century B.C., Sringerapur near Allahabad had sophisticated water harvesting system channelling the flood water of the river Ganga.
- (b) During the time of Chandragupta Maurya, dams, lakes and irrigation systems were extensively built.

- (c) Evidences of sophisticated irrigation works have also been found in Kalinga (Odisha), Nagarjunakonda (Andhra Pradesh), Bennur (Karnataka), Kolhapur (Maharashtra), etc.
  - (d) In the 11th Century, Bhopal Lake, one of the largest artificial lakes of its time was built.
  - (e) In the 14th Century, the tank in Hauz Khas, Delhi was constructed by Iltutmish for supplying water to Siri Fort area.
3. Quantitative aspect of water scarcity
- (a) Water scarcity may be an outcome of large and growing population and consequent greater demands for water.
  - (b) A large population means more water to produce more food. Hence, to facilitate higher food-grain production, water resources are being over-exploited to expand irrigated areas and dry-season agriculture.
  - (c) Most farmers have their own wells and tube-wells in their farms for irrigation to increase their produce. But it may lead to falling groundwater levels, adversely affecting water availability and food security of the people.
  - (d) Intensive industrialisation and urbanisation: Large industrial houses are as commonplace as the industrial units of many MNCs (Multinational Corporations). The ever increasing number of industries are exerting pressure on existing freshwater resources.
  - (e) Industries require power to run them. Much of this energy comes from hydroelectric power. Today, in India hydroelectric power contributes approximately 22 per cent of the total electricity produced.
  - (f) Multiplying urban centres with large and dense populations and urban life-styles have added to water and energy requirements. Most of these have their own groundwater pumping devices to meet their water needs. Water resources are being overexploited and have caused their depletion in several of these cities.

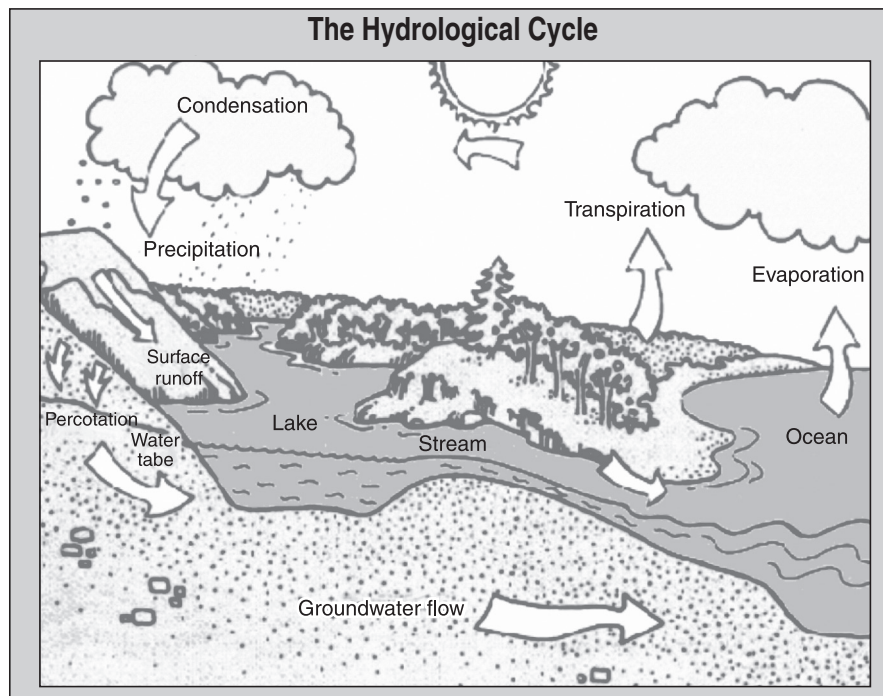
### Chapter Test

- |                         |                             |
|-------------------------|-----------------------------|
| 1. Rainwater harvesting | 2. Bikaner, Phalodi, Barmer |
| 3. Shillong             | 4. Tamil Nadu               |
| 5. Inundation canal     | 6. 96.5 per cent            |
| 7. River Narmada        |                             |
8. In order to avoid ecological crisis caused due to overexploitation and mismanagement of water we need (any four)
- 1. to conserve and manage our water resources.
  - 2. to safeguard ourselves from health hazards.
  - 3. to ensure food security.
  - 4. continuation of our livelihoods.
  - 5. productive activities.
  - 6. to prevent degradation of our natural ecosystems.
9. Today, dams are built not just for irrigation but for electricity generation, water supply for

domestic and industrial uses, flood control, recreation, inland navigation and fish breeding. Hence, dams are now referred to as multipurpose projects where the many uses of the impounded water are integrated with one another. For example, in the Sutluj-Beas river basin, the Bhakra–Nangal project water is being used both for hydel power production and irrigation. Similarly, the Hirakud project in the Mahanadi basin integrates conservation of water with flood control.

10. In Rajasthan:

- (a) 'Rooftop rainwater harvesting' was commonly practised to store drinking water.
- (b) In arid and semi-arid regions, agricultural fields were converted into rain-fed storage structures that allowed the water to stand and moisten the soil like the 'khadins' in Jaisalmer and 'Johads' in other parts of Rajasthan.
- (c) In the semi-arid and arid regions of Rajasthan, particularly in Bikaner, Phalodi and Barmer, almost all the houses traditionally had underground tanks or tankas for storing drinking water. The tankas were parts of the well-developed rooftop rainwater harvesting system and were built inside the main house or the courtyard. They were connected to the sloping roofs of the houses through a pipe. Rain falling on the rooftops would travel down the pipe and was stored in these underground 'tankas'.
- (d) In western Rajasthan, the practice of rooftop rainwater harvesting is on the decline as plenty of water is available due to the perennial Rajasthan Canal, though some houses still maintain the tankas since they do not like the taste of tap water.



**FORMATIVE ASSESSMENT****WORKSHEET-70**

	River	State in which it is built
1.	Damodar	West Bengal
2.	Satluj	Punjab
3.	Mahanadi	Odisha
4.	Kosi	Bihar
5.	Chambal	Madhya Pradesh
6.	Tungabhadra	Karnataka
7.	Krishna	Andhra Pradesh
8.	Narmada	Gujarat
9.	Beas	Rajasthan
10.	Ganga	Uttarakhand

**WORKSHEET-71**

Do yourself.



**WORKSHEET-72**

1. In North-eastern parts of India.
2. Jute, cotton, natural silk.
3. In Mexico.
4. Wheat
5. UP, AP and Gujarat.
6. Cotton crop
7. Wheat
8. Ragi
9. Maharashtra
10. Karnataka

**WORKSHEET-73**

1. Primitive subsistence agriculture
2. It is a Kharif crop.
3. Andhra Pradesh.
4. Jute is called the golden fibre of India.
5. Uttar Pradesh is the largest sugar cane producing state in India.
6. It is 26%.
7. It is two-third of population.
8. Net sown area.
9. Kharif season.
10. Rabi season.
11. Agriculture is important for Indian economy because:
  - (a) Two-thirds of its population is engaged in agricultural activities.
  - (b) Agriculture is a primary activity, which produces most of the food that we consume.
  - (c) It also produces raw material for various industries e.g. paper industry, textile industry etc.
12. Jhumming is a type of Primitive Subsistence Farming. It is a 'slash and burn' agriculture. Farmers clear a patch of land and produce cereals and other food crops to sustain their family. When the soil fertility decreases, the farmers shift from that land and clear a fresh patch of land for cultivation. This type of shifting allows Nature to replenish the fertility of the soil through natural processes. It is called *Jhumming* in North eastern states like Assam, Meghalaya, *Dipa* in Bastar District of Chhattisgarh and in Andaman and Nicobar Island, *Bewar* or *Dahiya* in Madhya Pradesh, *Podu* or *Penda* in Andhra Pradesh, *Pama Dabi* or *Koman* or *Bringa* in Odisha etc.



## WORKSHEET-74

1. If the land under cultivation gets reduced day by day, soon we will be facing the following consequences:
  - Less land under cultivation would mean less production of food crops causing lack of food for people.
  - Less land will be forced to yield more by use of chemical fertilisers and biotechnology which may degrade the land bringing down crop production.
2. Kerala leads in the production of rubber because it is an equatorial crop. It requires moist and humid climate with rainfall of more than 200 cm. and temperature above 25°C and Kerala provides the ideal conditions for the growth of rubber.
3. Considering the importance of agriculture in India, the Government of India made concerted efforts to modernise agriculture. Establishment of Indian Council of Agricultural Research (ICAR), agricultural universities, veterinary services and animal breeding centres, horticulture development, research and development in the field of meteorology and weather forecast, etc. were given priority for improving Indian agriculture. Improving the rural infrastructure was also considered essential for the same.
4. **Horticulture.** It is an art of cultivating fruits and vegetables. India is the largest producer of fruits and vegetables in the world. India is producer of tropical as well as temperate fruits. India is known for
  - (a) mangoes of Maharashtra, Andhra Pradesh, Uttar Pradesh and West Bengal,
  - (b) oranges of Nagpur and Cherrapunjee (Meghalaya),
  - (c) bananas of Kerala, Mizoram, Maharashtra and Tamil Nadu,
  - (d) lichi and guava of Uttar Pradesh and Bihar,
  - (e) pineapples of Meghalaya,
  - (f) grapes of Andhra Pradesh and Maharashtra,
  - (g) apples, pears, apricots and walnuts of Jammu and Kashmir and Himachal Pradesh are in great demand all over the world.

India produces about 13 per cent of the world's vegetables. It is an important producer of pea, cauliflower, onion, cabbage, tomato, brinjal and potato.

5.

Subsistence agriculture	Commercial agriculture
(a) Subsistence agriculture is practised on small patches of land with the help of primitive tools like hoe, dao and digging sticks, and family/community labour.	(a) The main characteristic of this type of farming is the use of higher doses of modern inputs, e.g. high yielding variety (HYV) seeds, chemical fertilisers, insecticides and pesticides in order to obtain higher productivity.
(b) Farmers and his family produce cereals for themselves and for the local market.	(b) Crops are grown on a large scale with a view to export them to other countries.

(c) It is practised in thickly populated areas.	(c) It is practised in sparsely populated areas.
(d) Cereals like wheat, rice, millets are mainly raised.	(d) Wheat, cotton, sugar cane etc. are mainly raised.

### WORKSHEET-75

#### 1. Rice crop

Climatic conditions for cultivation:

Temperature: 16°C – 27°C and rainfall 100 cm to 200 cm is ideal for rice growing. Annual coverage temperature around 24°C is ideal.

Soil: rice is grown well on the alluvial soil or on the fertile river basins. It is also grown in mixed soil or loamy and clayey soil.

Land: Plain lands or gentle slopes are suitable for the production of rice.

Major states producing rice: West Bengal, Bihar, Orissa, Andhra Pradesh, Tamil Nadu, Kerala, Assam, Uttar Pradesh are the main rice producing states of India.

2. Agriculture has been the backbone of the Indian economy. It provides employment and livelihood to the 63% of population. Two-thirds of India's population is engaged in agricultural activities. Agriculture is a primary activity, which produces most of the food that we consume. Besides food grains, it also produces raw material for various industries. Moreover, some agricultural products like tea, coffee, spices, etc. are also exported. All other sectors of Indian economy heavily depend on agriculture for their growth.

3. The growth rate in agriculture is decelerating. There are several reasons for this. Today, Indian farmers are facing a big challenge from international competition and our government is going ahead with reduction in the public investment in agriculture sector, particularly in irrigation, power, rural roads, market and mechanisation. Subsidy on fertilisers is decreased leading to the increase in the cost of production.

Considering the importance of agriculture in India, the Government of India made concerted efforts to modernise agriculture. Establishment of Indian Council of Agricultural Research (ICAR), agricultural universities, veterinary services and animal breeding centres, horticulture development, research and development in the field of meteorology and weather forecast, etc. were given priority for improving Indian agriculture.

#### 4. Contribution of agriculture

Agriculture has been the backbone of the Indian economy. Its share in providing employment and livelihood to the population continues to be as high as 63 per cent in 2001.

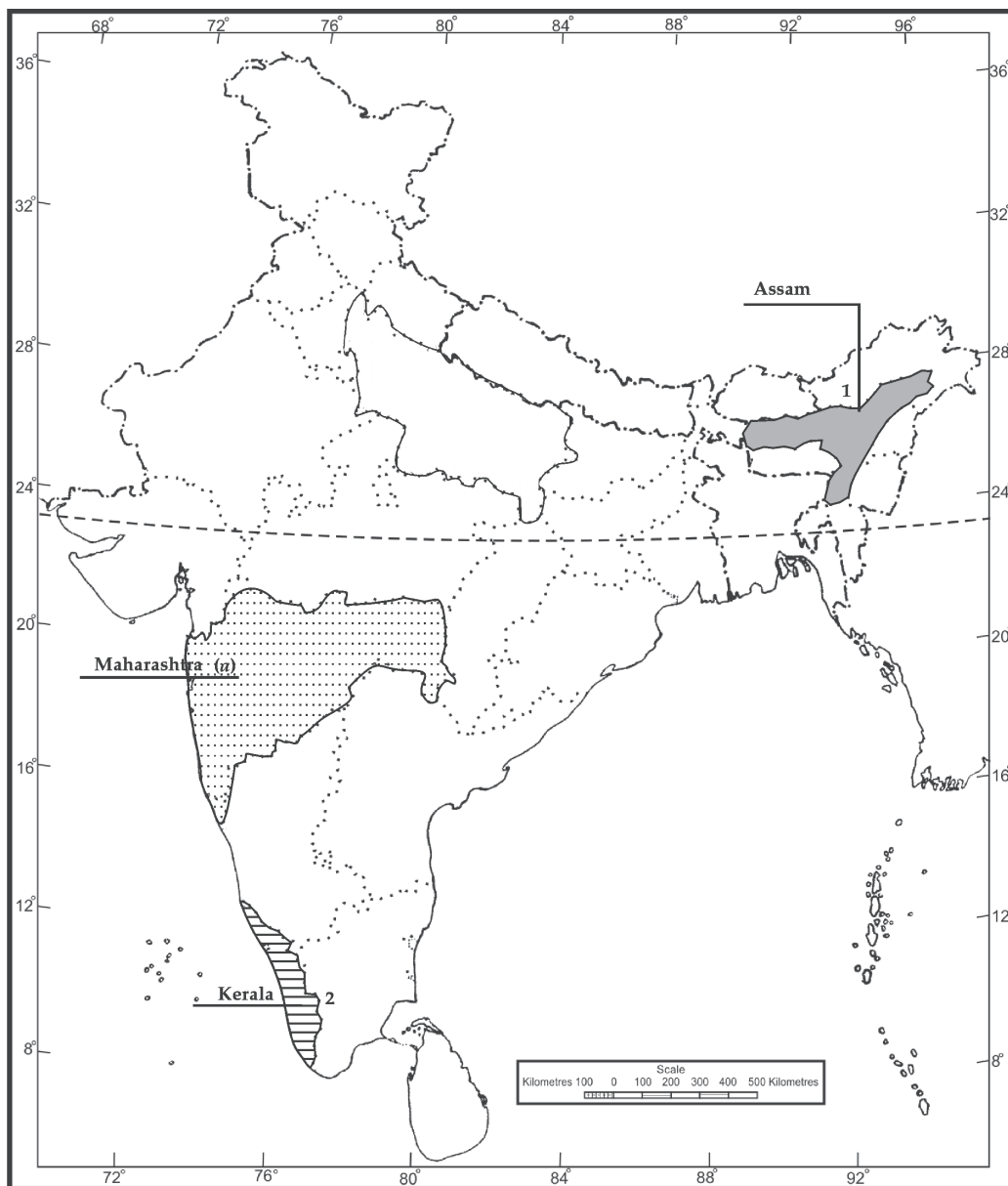
Steps taken by the Government:

- (i) Indian Council of Agricultural Research established.
- (ii) Agricultural universities have been established.
- (iii) Veterinary services have been provided.
- (iv) Animal breeding centres have been opened.
- (v) Infrastructure like roads, electricity, cold storage etc is being developed.
- (vi) Development in the field of meteorology and weather forecast were given priority.
- (vii) Any other relevant point.

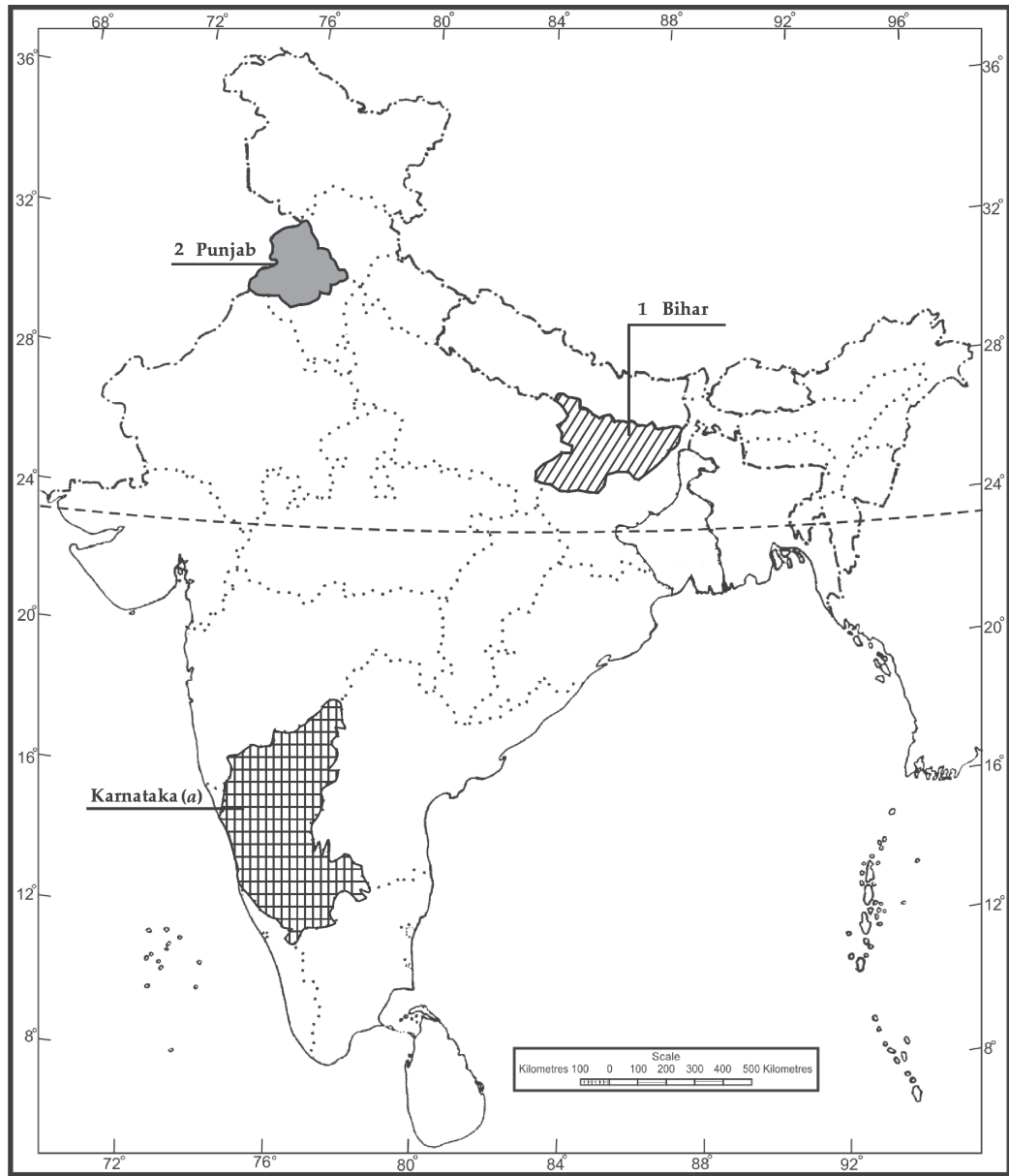
(Any three points to be explained)

**WORKSHEET-76**

1.



2.



**Chapter Test**

1. Zaid season.
2. Slash and burn agriculture
3. Commercial farming
4. Plantation Agriculture
5. Aus, Aman, and Boro.
6. Dry land farming

7. Intensive farming
8. Sericulture
9. The 'right of inheritance' leading to the division of land among successive generations has rendered land-holding size uneconomical. The farmers continue to take maximum output from the limited land in the absence of alternative source of livelihood. Thus, there is enormous pressure on agricultural land.
10. Rice: Geographical conditions required for its growth: Temperature-25°C and above and rainfall-100 cm. In the areas of less rainfall, it grows with the help of irrigation.  
Wheat: Geographical conditions required for the growth of wheat is that it requires a cool growing season and a bright sunshine at the time of ripening. It requires 50 to 75 cm of annual rainfall evenly distributed over the growing season.
- 11.

Subsistence agriculture	Commercial agriculture
(a) Subsistence agriculture is practised on small patches of land with the help of primitive tools like hoe, dao and digging sticks, and family/community labour.	(a) The main characteristic of this type of farming is the use of higher doses of modern inputs, e.g. high yielding variety (HYV) seeds, chemical fertilisers, insecticides and pesticides in order to obtain higher productivity.
(b) Farmers and his family produce cereals for themselves and for the local market.	(b) Crops are grown on a large scale with a view to export them to other countries.
(c) It is practised in thickly populated areas.	(c) It is practised in sparsely populated areas.
(d) Cereals like wheat, rice, millets are mainly raised.	(d) Wheat, cotton, sugar cane etc. are mainly raised.

### FORMATIVE ASSESSMENT

#### WORKSHEET-77

1. Banana plantation – Kerala, Karnataka
2. Rice cultivation – West Bengal, Haryana
3. Maize cultivation – Uttar Pradesh, Bihar
4. Sugar cane cultivation – Punjab, Maharashtra
5. Tea cultivation – Assam, Tamil Nadu

#### WORKSHEET-78

- |        |        |        |         |        |        |
|--------|--------|--------|---------|--------|--------|
| 1. (i) | 2. (g) | 3. (d) | 4. (f)  | 5. (h) | 6. (c) |
| 7. (j) | 8. (a) | 9. (e) | 10. (b) |        |        |

