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Management of Natural Resources

In the Chapter

- Our resources such as forests, water, wildlife, coal and petroleum have to be used in a sustainable manner.
- We can reduce pressure on the environment by sincerely using the maxim of 'Reduce, Reuse and Recycle' in our lives.
- Management of forest resources has to take into account the interests of various stakeholders.
- The fossil fuels, petroleum and coal, will ultimately be exhausted. Because of this and because their combustion pollutes our environment, we have to use these resources judiciously.
- The harnessing of water resources by building dams has economic, social and environmental implications. Alternatives to large dams that exist. These are locale-specific and may be developed so as to give local people control over their local resources.

Intext Exercises

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1. **What changes can you make in your habits to become more environment friendly?**

Ans. We can become more environment friendly in various ways. We can pursue the maxim of three R's i.e., Reduce, Recycle and Reuse and contribute to this mission in a very effective way.

2. **What would be the advantages of exploiting resources with short-term aims?**

Ans. The advantage is to reap huge profit without any accountability.

3. **How would these advantages differ from the advantages of using a long term perspective in managing our resources?**

Ans. Exploiting resources with short term aim is just to reap huge profit while using with a long term perspective is to reap the benefit in a sustainable manner so that these will last for the generations to come.

4. **Why do you think there should be equitable distribution of resources? What force would be working against an equitable distribution of our resources?**

Ans. Mother earth is for all. Every living being has an equal right to the vast resources of the earth. If any body is using excessively means some where else somebody is being deprived of it. And then the struggle begins which leads to imbalance in the environment.

But there are handful of rich and powerful industrialists who see these resources just as a means to reap huge profits. They are the main threats to equitable distribution of our resources.

Page No. 273**1. Why should we conserve forests and wildlife?**

Ans. Forests are 'biodiversity hotspots'. One measure of the biodiversity of an area is the number of species found there. However, the range of different life forms (bacteria, fungi, ferns, flowering plants, nematodes, insects, birds, reptiles and so on) is also important. One of the main aims of conservation is to try and preserve the biodiversity we have inherited. Experiments and field studies suggest that a loss of diversity may lead to a loss of ecological stability.

2. Suggest some approaches towards the conservation of forests.

Ans. Forest resources ought to be used in a manner that is both environmentally and developmentally sound. In other words, while the environment is preserved, the benefits of the controlled exploitation go to the local people, a process in which decentralised economic growth and ecological conservation go hand in hand.

Page No. 276**1. Find out about the traditional systems of water harvesting/management in your region.**

Ans. There are many traditional ways of water harvesting / management. There are tals, khadis, ponds and wells. Wells have been dug for irrigation and drinking water. Water tanks are also made by government for drinking water facility.

2. Compare the above system with the probable systems in hilly/ mountainous areas or plains or plateau regions.

Ans. Water harvesting system in the hilly areas are quite different from those of plain areas. Like in Himachal Pradesh, parts of it had evolved a local system of canal irrigation called kulhs over four hundred years ago. The water flowing in the streams was diverted into man-made channels which took this water to numerous villages down the hillside. The management of the water flowing in these kulhs was done by a common agreement between all the villages. Interestingly, during the planting season, water was first used by the village farthest away from the source of the kulh, then by villages progressively higher up. These kulhs were managed by two or three people who were paid by the villagers. In addition to irrigation, water from these kulhs also percolated into the soil and fed springs at various points.

3. Find out the source of water in your region/locality. Is water from this source available to all people living in that area?

Ans. The sources of water in my locality are ground water and the municipality supply. Sometimes, especially in summer season, water from these sources becomes scant.

Exercise**1. What changes would you suggest in your home in order to be environment - friendly?**

Ans. By pursuing the maxim of three R's i.e., Reduce, Recycle and Reuse, we can save the environment in an effective way.

Reduce means to use less. I would save electricity by switching off unnecessary lights and fans, prefer to walking or cycling than using a vehicle, turn off the engine at red lights, repair leaky taps, and would not waste food, etc.

Recycle means collect used things like plastic, paper, glass and metal items and recycle these materials to make required things instead of synthesising or extracting fresh plastic, paper, glass or metal.

And Reuse refer to use things again and again. For example, instead of throwing away used envelopes, they can be used by reversing.

2. **Can you suggest some changes in your school which would make it environment friendly?**

Ans. As discussed in the previous answer, pursuing the maxim of three R's is the best way to become environment-friendly.

3. **We saw in this chapter that there are four main stakeholders when it comes to forests and wildlife. Which among these should have the authority to decide the management of forest produce? Why do you think so?**

Ans. Out of the four stakeholders viz., the local people, the Forest Department, the industrialists, and the wildlife and nature enthusiasts, I think the best authority to decide the management of forest produce will be the local people i.e., the people who live nearby or in the forests. Because, the local people use the forest in a sustainable manner. For centuries, the local people had been using the forests but they had developed such practices that an optimum amount of produce is left for all generations to come. Besides, the traditional use of forest areas by shepherds, etc. only ensure the balance in the forests ecology.

Further management of forests by keeping the local people out only leads to damage of the forests. In fact, forest resources ought to be used in a manner that is both environmentally and developmentally sound, i.e., keeping the environment preserved, the benefits of the controlled exploitation go to the local people.

4. **How can you as an individual contribute or make a difference to the management of (a) forests and wildlife, (b) water resources and (c) coal and petroleum?**

Ans. (a) Forests and wildlife : Forests resources cannot be handled without an active participation of the local people. An example of it is of sal forests of Arabari which underwent a remarkable recovery. So I will ensure people's active participation. I will also ensure an equitable distribution of resources in a sustainable manner so that all and not just a handful of rich and powerful people, benefit from the development of these resources.

(b) Water resources : During our day-to-day life knowingly or unknowingly we waste water which must be stopped. I will ensure that I would cultivate habits so that water can be saved. Further, by pursuing any water harvesting technique, we can also conserve water.

(c) Coal and Petroleum : They are the main source of energy today. We can save them in many ways. For example :

- (i) Using fluorescent tubes.
- (ii) Switching off unnecessary electric and electronic devices.
- (iii) using solar devices.
- (iv) Prefer walking or cycling than using vehicle.
- (v) Even if we use vehicle, it should be turned off while waiting on red lights.
- (vi) Using stairs instead of lifts.
- (vii) Keeping the air pressure in the tyres right.

5. **What can you as an individual do to reduce your consumption of the various natural resources?**

Ans. The consumption of various natural resources can be reduced in the following ways :

- (i) Saving electricity by switching off unnecessary lights and fans.
- (ii) Use of fluorescent tubes.

- (iii) Using the stairs instead of lift.
- (iv) Prefer walking or cycling than to use vehicle.
- (v) Turning off the engine of the vehicle while waiting on red lights.
- (vi) Repairing leaky taps.
- (vii) By not wasting food, etc.

6. **List five things you have done over the last one week to –**
(a) conserve our natural resources.
(b) increase the pressure on our natural resources.

- Ans.** (a) (i) Saved electricity by switching off unnecessary lights.
(ii) Used stairs instead of lift.
(iii) Repaired leaky taps.
(vi) Preferred to walk instead of using vehicle.
(v) Used empty bottles of jams for storing purpose.
(b) (i) Wasted water during bathing.
(ii) TV remained on while I fell asleep.
(iii) Frequently used heating devices.
(iv) Used bulbs instead of fluorescent tubes.
(v) Wasted food.

7. **On the basis of the issues raised in this chapter, what changes would you incorporate in your life-style in a move towards a sustainable use of our resources?**

- Ans.** I would incorporate the maxim of three R's i.e., reduce, recycle and reuse in my life style in a move towards a sustainable use of our resources.

Additional Questions

1. **State an instance where human intervention saved the forests from destruction.**

- Ans.** Amrita Devi sacrificed her life for the protection of Khejri trees in Khejrli village near Jodhpur in Rajasthan.

2. **Define Biodiversity.**

- Ans.** Biodiversity. The total number of individuals of each species found in a particular area.

3. **Write one objective of conservation.**

- Ans.** The main objective of conservation is to preserve the biodiversity.

4. **What will happen if there is loss of biodiversity?**

- Ans.** Loss of biodiversity will result into loss of ecological stability.

5. **List any four industries based on forest produce.**

- Ans.** Timber, Lac, Paper and Sports industries.

6. **What is the use of tendu leaves?**

- Ans.** Tendu leaves are used for making bidis.

7. **Name the most common practice of recharging ground water?**

- Ans.** Rain water harvesting.

8. **What do you mean by natural resources? List its two main categories.**

- Ans.** Natural resources are components of biosphere and include energy, air, land, water minerals, plants, animals and micro-organisms.

The natural resources are categorised into two main groups i.e. renewable and non-renewable.

9. **Why do we need to manage our resources?**

- Ans.** Need to manage our resources

1. These resources are limited and with the human population increasing at a tremendous

rate, the demand for all resources is increasing at an exponential rate.

2. The management of natural resources requires a long-term perspective so that they will last for the generations to come and will not merely be exploited to the hilt for the term gains.

3. This management should also ensure equitable distribution of resources so that people benefit from these resources.

4. Preservation of bio diversity.

5. Damage to these resources cause pollution.

10. Why is dependence of man on nature greater than that of any other organism?

Ans. Man's dependence on the environment is greater than that of other organisms because he:

(1) has developed curiosity for more comforts and security.

(2) consumes large amount of material and energy.

(3) has developed a new kind of socio-economic environment which consists of things developed by man through his tools and techniques.

11. What do you mean by coliform bacteria?

Ans. Coliform is a group of gram-negative rod-shaped bacteria that are found in human intestine. Their presence in water is an indicator of contamination by disease-causing microorganisms caused by faecal pollution.

Examples: It includes *Escherichia coli* and *Salmonella*.

12. What are the causes of over exploitation of natural resources?

Ans. Causes of over-exploitation of natural resources are :

(i) Increasing population.

(ii) Technical advancement.

(iii) Rising standard of living.

13. What is the measure of biodiversity of an area?

Ans. The number of species found there and the range of different life forms.

14. What do you understand by the term socio-cultural environment?

Ans. By socio-cultural environment, we mean man-made environment through his historical, cultural, economic, political and moral activities.

15. What is the name given to main programme for the replenishment of forests?

Ans. The name given to main programme for replenishment of forests is called silviculture.

16. What is Amrita Devi Bishnoi National Award?

Ans. Amrita Devi Bishnoi sacrificed her life along with 363 other persons for preventing felling of Khejri trees. The Govt. of India has recently instituted an award in her memory for protection of wildlife.

17. Define pollutant.

Ans. Pollutant is a substance that causes harmful change in the environment, thereby producing adverse effects on living organism.

18. What are fossil fuels?

Ans. Coal and petroleum which were produced from biomass beneath the earth's surface millions of years ago are called fossil fuels.

19. What are the causes of over exploitation of natural resources?

Ans. Industrial growth, urbanisation, population growth and the enormous increase in the use of consumer goods.

20. "Management of natural resources requires a long term perspective." Why?

Ans. So that they will last for the generations to come and will not merely be exploited to the hilt for short term gains.

21. With the help of an example show that 'reuse' strategy is better than 'recycling'.

Ans. Two examples-Paper, Plastic bottles Recycling uses some energy. Recycling needs to segregate wastes. Therefore, 'reuse' strategy is better than recycling.

22. Why must we conserve our forests? List any two causes for deforestation taking place.

Ans. We must conserve our forests to conserve the biodiversity which we have inherited. This is because the loss of biodiversity leads to the loss of ecological stability of the forest ecosystem.

Causes for deforestation taking place:

(i) The forest wood is used as a fuel.

(ii) The forest wood is used for construction purposes like making doors, windows and furniture.

23. Suggest any four changes that you would likely to be incorporated in the life-style of students of your age to move towards a sustainable use of available resources.

Ans. (i) Walking on foot or riding a bicycle to go to nearby market or other nearby places.

(ii) Using stairs in a building upto at least three floors instead of using a lift.

(iii) Put on an extra sweater on a cold day rather than use a room heater.

(iv) Stop wearing fur coat.

24. List any four suggestions you would recommend to your friends to make them more environment-friendly.

Ans. (i) Reduce the use of energy resources. For example, we can 'Save electricity by switching off unnecessary lights and fans.

(ii) Recycle of plastic, paper, glass and metal articles.

(iii) Reuse of things. For example, we can reverse the envelopes and use them again. Similarly, we can use empty bottles of pickles, jams and squashes for storing kitchen items.

(iv) On day to day basis, we can decide which route to take to undertake a project, so that the minimum use of energy and resources is involved.

25. List any four changes you would like to incorporate in your life style in a move towards a sustainable use of available resources in our country.

Ans. Four changes that can be incorporated in my life style as a move towards sustainable use of available resources are :

(i) I shall reduce wastage of electricity by switching off unnecessary lights and fans.

(ii) I shall reduce the use of petrol by pooling my car.

(iii) I shall segregate non-biodegradable waste consisting of plastic, glass and metal from other waste and send it for recycling.

(iv) I shall pass on my books and notes to my junior instead of disposing off as raddi.

26. Why should we conserve forests? Suggest any two ways to conserve forests.

Ans. Forests are biodiversity hot spots. The aim of conservation of forests is to preserve the biodiversity that we have inherited. Loss of diversity leads to ecological instability.

Ways to conserve forests:

(i) **Silviculture:** Reforest those forest lands where a large number of trees have been felled in a planned way.

(ii) **Help of local people:** Local people can help a lot in conserving the forests.

27. Although coal and petroleum are produced by degradation of biomass, yet we need to conserve them. Why?

Ans. Both the energy sources, coal and petroleum, take millions of years for their formation. As

these resources are being utilised at a much faster rate than their formation, they will be exhausted in the near future, hence they need to be conserved.

28. Rainfall, soil conservation and depleting forest resources are interlinked with one another. Explain how they are related to one another?

Ans. If soil is conserved, vegetation in forests will grow. Vegetation will keep the water cycle going and bring rains. Rains falling on soil will seep down and form ground water raising the water table. Plants getting enough water from ground will grow in forest. Roots of plants anchor the soil and falling leaves etc., replenish humus thus conserving the soil. Thus rainfall, soil conservation and depleting forest resources are inter-linked with one another.

29. How the 'Chipko Andolan' ultimately benefit the local population?

Ans. (i) The quality of environment was maintained due to the conservation of forests (and wildlife).

(ii) The local people could use the forest resources in a sustainable way.

30. What are 'biodiversity hot spots'. What is the measure of biodiversity in an area? How is it being affected?

Ans. Forests are a storehouse of biodiversity (hotspots of biodiversity). One measure of biodiversity of an area is the types and number of species found there. Biodiversity of an area is being affected by destruction of forests.

Multiple Choice Questions

1. Which of the item is not a natural resource ?

- (a) soil
- (b) water
- (c) electricity
- (d) air

Ans. (c) electricity

2. The most rapidly dwindling natural resource in the world is

- (a) water
- (b) forests
- (c) wind
- (d) sunlight

Ans. (b) forests

3. The most appropriate definition of a natural resource is that it is a substance/ commodity that is

- (a) present only on land
- (b) a gift of nature which is very useful to mankind
- (c) a man-made substance placed in nature
- (d) available only in the forest

Ans. (b) a gift of nature which is very useful to mankind

4. The main cause for abundant coliform bacteria in the river Ganga is

- (a) disposal of unburnt corpses into water
- (b) discharge of effluents from electro plating industries
- (c) washing of clothes
- (d) immersion of ashes

Ans. (a) disposal of unburnt corpses into water

5. The pH of water sample collected from a river was found to be acidic in the range of 3.5-4.5, on the banks of the river were several factories that were discharging effluents into the river. The effluents of which one of the following factories is the most likely cause for lowering the pH of river water?

- (a) Soap and detergent factory
- (b) Lead battery manufacturing factory

- (c) Plastic cup manufacturing factory
- (d) Alcohol distillery

Ans. (b) Lead battery manufacturing factory

6. The pH range most conducive for life of fresh water plants and animals is

- (a) 6.5-7.5
- (b) 2.0-3.5
- (c) 3.5-5.0
- (d) 9.0 - 10.5

Ans. (a) 6.5-7.5

7. The three R's that will help us to conserve natural resources for long term use are

- (a) recycle, regenerate, reuse
- (b) reduce, regenerate, reuse
- (c) reduce, reuse, redistribute
- (d) reduce, recycle, reuse

Ans. (d) reduce, recycle, reuse

8. Given below are a few statements related to biodiversity. Pick those that correctly describe the concept of biodiversity.

- (i) Biodiversity refers to the different species of flora and fauna present in an area
 - (ii) Biodiversity refers to only the flora of a given area
 - (iii) Biodiversity is greater in a forest
 - (iv) Biodiversity refers to the total number of individuals of a particular species living in an area
- (a) (i) and (ii)
 - (b) (ii) and (iv)
 - (c) (i) and (iii)
 - (d) (ii) and (iii)

Ans. (c) (i) and (iii)

9. Among the statements given below select the ones that correctly describe the concept of sustainable development.

- (i) Planned growth with minimum damage to the environment
 - (ii) Growth irrespective of the extent of damage caused to the environment
 - (iii) Stopping all development work to conserve the environment
 - (iv) Growth that is acceptable to all the stakeholders.
- (a) (i) and (iv)
 - (b) (ii) and (iii)
 - (c) (ii) and (iv)
 - (d) (iii) only

Ans. (a) (i) and (iv)

10. In our country, vast tracts of forests are cleared and a single species of plant is cultivated. This practice promotes

- (a) biodiversity in the area
- (b) monoculture in the area
- (c) growth of natural forest
- (d) preserves the natural ecosystem in the area

Ans. (b) monoculture in the area

11. A successful forest conservation strategy should involve

- (a) protection of animals at the highest trophic level
- (b) protection of only consumers
- (c) protection of only herbivores
- (d) comprehensive programme to protect all the physical and biological components.

Ans. (d) comprehensive programme to protect all the physical and biological components.

12. The important message conveyed by the 'Chipko Movement' is

- (a) to involve the community in forest conservation efforts

- (b) to ignore the community in forest conservation efforts
- (c) to cut down forest trees for developmental activities
- (d) government agencies have the unquestionable right to order destruction of trees in forests

Ans. (a) to involve the community in forest conservation efforts

13. In our country, there are attempts to increase the height of several existing dams like Tehri and Almati, dams across Narmada.

Choose the correct statements among the following that are a consequence of raising the height of dams.

- (i) Terrestrial flora and fauna of the area is destroyed completely
- (ii) Dislocation of people and domestic animals living in the area
- (iii) Valuable agricultural land may be permanently lost
- (iv) It will generate permanent employment for people

- (a) (i) and (ii) (b) (i), (ii) and (iii)
- (c) (ii) and (iv) (d) (i), (iii) and (iv)

Ans. (b) (i), (ii) and (iii)

14. Expand the abbreviation GAP

- (a) Governmental Agency for Pollution Control
- (b) Gross Assimilation by Photosynthesis
- (c) Ganga Action Plan
- (d) Government Agency for Animal Protection

Ans. (c) Ganga Action Plan

15. Select the incorrect statement.

- (a) Economic development is linked to environmental conservation.
- (b) Sustainable development encourages development for current generation and conservation of resources for future generations.
- (c) Sustainable development does not consider the viewpoints of stakeholders.
- (d) Sustainable development is a long planned and persistent development

Ans. (c) Sustainable development does not consider the view points of stakeholders.