CLASS X

Name of Chapter: 2. FOREST AND WILDLIFE RESOURCES

1. What do you mean by "Biodiversity"? Why is biodiversity important for human lives?

Ans: 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 network of interdependencies.

It is important for human lives because:

1. It provides more food resources,
2. It stabilises and moderates the earth's climate,
3. It purifies air.

2. Attempt a classification of plants and animals given by IUCN.

Ans: The plants and animal species are classified on the basis of International Union on Conservation of Nature and Natural resources **(IUCN)** as:

- **Normal species:** Species whose population levels are considered to be normal for their survival such as cattle, pine,etc.
- **Endangered species:** The species which are on the verge of extinction such as blackbuck, crocodile, etc.
- **Vulnerable species:** The species whose population has declined to levels from where it is likely to move into the endangered category in the near future if negative factors continue to operate. Examples are blue sheep, Gangetic dolphin, etc.
- **Rare species:** Species with small population may move into the endangered or vulnerable category if negative factors continue to operate. Examples are hornbill, desert fox, etc.
- **Endemic species:** The species which are only found in some particular areas usually isolated by natural or geographical barriers. Examples are Andaman Teal, Nicobar pigeon, etc.
- **Extinct species:** The species which are not found after searches of known or likely areas where they may occur. Examples are Asiatic cheetah, pink head duck.

3. Mention the negative factors which since pre-independence to present period have contributed significantly to the fearful depletion of flora and fauna in India.

Ans:

- Human beings have transformed nature into a resource obtaining directly or indirectly from the forests and wildlife - wood, bark, leaves, rubber, medicine, food, fuel, fodder, manure, etc.
- The greatest damage inflicted on Indian forests was during the colonial period due to the expansion of railways, agriculture, commercial and scientific forestry and mining activities.
- Even after Independence, agricultural expansion continues to be one of the major causes of depletion of forest resources.
- Large parts of tribal belts especially in the north-eastern and central India have been deforested by shifting cultivation or slash and burn agriculture.
- Large scale developmental projects or dams have also caused damage to the forests. Since 1951, over 5,000 sq km of forest was cleared for river valley projects.
- Mining is also a cause of deforestation. The Buxa Tiger Reserve in West Bengal is seriously 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.

4. How has destruction of forests and wildlife resulted into the loss of cultural diversity"? Explain.

OR

"Poverty is the direct outcome of environmental destruction." Justify the statement.

Ans: 1. The biological loss is strongly correlated with the loss of cultural diversity. Such losses have increasingly marginalised and impoverished many indigenous and other forest dependent communities who directly depend on various components of forest and wildlife for food, drink, medicine, culture, spirituality, etc.

2. Within the poor, the women are affected more as they bear the major responsibility of collection of fuel, fodder, water and other basic subsistence needs and sometimes they have to walk for more than 10 km to collect these resources..

3. The indirect impact of degradation such as severe drought or deforestation- induced floods, etc. also hits the poor the hardest.

5. Why do we need to conserve our forest and wildlife?

Ans: 1. Conservation is necessary as it preserves the ecological diversity and our life support system- water, air and soil.

2. It also preserves the genetic diversity of plants and animals for better growth of species and

breeding.

3. For example, in agriculture, we are still dependent on traditional crop varieties. Fisheries too are heavily dependent on the maintenance of aquatic biodiversity.

6. What methods of conservation have been adopted by the Indian Government?

OR

Write the main objectives of the Indian Wildlife Act of 1972?

Ans: 1. The Indian Wildlife (Protection) Act was implemented in 1972, with various provisions for protecting habitats.

2. An all-India list of protected species was also published.

3. 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.

4. Central and many state governments established national parks and wildlife sanctuaries.

5. The central government also announced several projects for protecting specific animals, which were gravely threatened, including the tiger, the one-horned rhinoceros, the Kashmir stag or hangul etc.

7. What are permanent forests? Why are they maintained? Name the state which has the largest area under these forests.

Ans:

- Reserved and protected forests are also referred to as permanent forest estates maintained for the purpose of producing timber and other forest produce, and for protective reasons.
- Madhya Pradesh has the largest area under permanent forests, constituting 75 per cent of its total forest area.

8. Describe how communities have conserved and protected forests and wildlife in India?

Ans: 1**.** In some areas of India, local communities are struggling to conserve these habitats along with government officials, recognising that only this will secure their own long-term livelihood.

2. In Sariska Tiger Reserve, Rajasthan, villagers have fought against mining by citing the Wildlife Protection Act.

3. The inhabitants of five villages in the Alwar district of Rajasthan have declared 1,200 hectares of forest as the Bhairodev dakav “Sonchuri”, declaring their own set of rules and regulations which do not allow hunting, and are protecting the wildlife against any outside encroachments.

4. The famous **Chipko movement** in the Himalayas has not only successfully resisted deforestation in several areas but has also shown that community afforestation with indigenous species can be enormously successful.
5. 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 and economically viable.

9. Discuss the salient features of Joint Forest Management Programme (JFM).

Ans: 1. The programme has been in formal existence since 1988 when the state of Orissa passed the first resolution for JFM.

2. JFM depends on the formation of local (village) institutions that undertake protection activities mostly on degraded forest land managed by the forest department.
3. In return, the members of these communities are entitled to intermediary benefits like non-timber forest produces and share in the timber harvested by "successful protection".

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CLASS X

Name of Chapter: 3.Water Resources

Q1. How is freshwater obtained?

Ans: Freshwater can be obtained directly from precipitation, surface run-off and groundwater.

Q**2. Analyse the major causes of water scarcity in India.**

Ans: The major causes of water-scarcity in India are given below:

(i) Increase in Population: Water scarcity is an outcome of large and growing population and consequent greater demands for water, and unequal access to it.

(ii) Rising demand for food and cash crops: To facilitate higher food-grain production, water resources are being over-exploited to expand irrigated areas and dry-season agriculture.

(iii) Industrialisation: The ever-increasing number of industries has made matters worse by exerting pressure on existing freshwater resources. Industries, apart from being heavy users of water, also require power to run them. Much of this energy comes from hydro-electric power.

(iv) Urbanisation and rising standards of living: Multiplying urban centres with large and dense populations and urban lifestyles have not only added to water and energy requirements but have further aggravated the problem.

(v) Bad quality of water: Water resources are polluted by domestic and industrial wastes, chemicals, pesticides and fertilisers used in agriculture, thus, making it hazardous for human use.

Q3. Why do we need to conserve water resources?

Ans: Water resources should be managed and conserved because:

(i) To safeguard ourselves from health hazards: Polluted water is not good for health. It may cause various kinds of water borne diseases.

(ii) To ensure food security, continuation of our livelihoods and productive amenities:

Sufficient water is required for growing crops to meet the food requirement in the country.

(iii) To prevent degradation of our natural ecosystems: Over exploitation and mismanagement of water resources will impoverish this resource and cause ecological crisis that may have profound impact on our lives.

Q4. What is a Dam? What are its different types?

Ans:

- A dam is a barrier across flowing water that obstructs, directs or retards the flow, often creating a reservoir, lake or impoundment.
- Based on structure and the materials used, dams are classified as timber dams, embankment dams and masonry dams.
- According to height, dams can be categorised as low dams, medium height dams and high dams.

Q5. Why are dams referred to as "multi-purpose river valley projects"?

OR

What are the advantages of dams?

Ans: 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 "multi-purpose river valley projects" where the many uses of the impounded water are integrated with one another.

Q6. Explain any five reasons due to which large dams have come under great opposition in recent years.

Ans: **1. Dams affect the natural flow of water/river:** Regulating and damming of rivers affect their natural flow causing poor sediment flow and excessive sedimentation at the bottom of the reservoir, resulting in rockier stream beds and poorer habitats for the rivers' aquatic life.

2. Dams block fish migration: Dams also fragment rivers making it difficult for aquatic fauna to migrate, especially for spawning.

3. Dams affect natural vegetation and soil: The reservoirs that are created on the floodplains also submerge the existing vegetation and soil leading to its decomposition over a period of time.

4. Dams cause many social movements: Multi-purpose projects and large dams have also been the cause of many new social movements like the "Narmada Bachao Andolan" and the "Tehri Dam Andolan" etc.

5. Displacement of people: Local people often had to give up their land, livelihood and their meagre access and control over resources for the greater good of the nation.

6. Change in cropping pattern: Irrigation has also changed the cropping pattern of many regions with farmers shifting to water intensive and commercial crops. This has great ecological consequences like the salinisation of the soil.

7. Increasing the gap between rich and poor: At the same time, it has transformed the social

landscape i.e., increasing the social gap between the richer landowners and the landless poor.

8. Dams create conflicts: Dams create conflicts between people wanting different uses and benefits from the same water resources. Inter-state water disputes are also becoming common with regard to sharing the costs and benefits of the multi-purpose project.

9. Failure to control floods: Ironically, the dams that were constructed to control floods have triggered floods due to sedimentation in the reservoir. Moreover, the big dams have mostly been unsuccessful in controlling floods at the time of excessive rainfall.

10. Land Degradation: Sedimentation also meant that the flood plains were deprived of silt, a natural fertiliser, further adding on to the problem of land degradation.

11. Dams cause earthquakes, water-borne diseases and pollution: It was also observed that the multi-purpose projects induced earthquakes, caused water-borne diseases and pests and pollution resulting from excessive use of water.

Q7. Describe any five rainwater harvesting systems practised in India.

Ans: 1. Guls or Kuls: In hill and mountainous regions, people built diversion channels like the "guls" or "kuls" of the Western Himalayas for agriculture.

2. Roof-top rain water harvesting: It was commonly practiced to store drinking water, particularly in Rajasthan.

3. Inundation Channels: In the flood plains of Bengal, people developed inundation channels to irrigate their fields.

4. Johads and Khadins: In arid and semi-arid regions, agricultural fields were converted into rain fed storage structures that allowed water to stand and moisten the soil like the "khadins" in Jaisalmer and "Johads" in other parts of Rajasthan.

5. Bamboo- Drip Irrigation: In Meghalaya, a 200 year-old system of tapping stream and spring water by using bamboo pipes is prevalent. About 18-20 litres of water enters the bamboo pipe system, gets transported over hundreds of metres, and finally reduces to 20-80 drops per minute at the site of the plant.

Q8. Describe the rooftop rainwater harvesting technique.

Ans: 1. Roof top rain water is collected using a PVC pipe.

2. Filtered using sand and bricks

3. Underground pipe takes water to sump for immediate usage.

4. Excess water from the sump is taken to the well

5. Water from the well recharges the underground

6. Take water from the well (later)

Q9. Explain how rainwater harvesting is done in the semi-arid and arid regions of Rajasthan.

Ans: 1. 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.

2. 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".
3. The first spell of rain was usually not collected as this would clean the roofs and the pipes.
4. The rainwater from the subsequent showers was then collected.
5. The rainwater can be stored in the **tankas** till the next rainfall making it an extremely reliable source of drinking water when all other sources are dried up, particularly in the summers.

Q10. Describe how the drip irrigation system is done in Meghalaya.

Ans: 1. Bamboo pipes are used to divert perennial springs on the hilltops to the lower reaches by gravity.

2. The channel sections, made of bamboo, divert water to the plant site where it is distributed into branches, again made and laid out with different forms of bamboo pipes.
3. The flow of water into the pipes is controlled by manipulating the pipe positions.
4. If the pipes pass a road, they are taken high above the land.
5. Reduced channel sections and diversion units are used at the last stage of water application.
6. The last channel section enables water to be dropped near the roots of the plant.

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