

## **MODULE 23 - BIODIVERSITY AND ITS CONSERVATION**

### **OBJECTIVES**

By the end of the session the students will be able to: -

1. Know that the biodiversity of any country is assessed by the richness of the flora and fauna of the country.
2. Biodiversity has different values such as productive in the form of timber and medicines consumptive, such as food grains, social such as picnic spots and national parks. Ethical in the form of green pool and aesthetic offering flowers as gesture of friendship and observing various birds and animals in forest or zoo.

### **SUMMARY**

Value of biodiversity in the field of production & consumption has been described in this module. Green plants are producers while animals are consumers. Biodiversity solves the problems of food, cloth & shelter as the basic needs of mankind. Biodiversity is connected with social, ethical and aesthetic values also. The very existence of man is in danger without biodiversity.

### **TRANSCRIPTION**

#### **Introduction:**

The richness of the flora & fauna are good example of biodiversity of a country. Biodiversity has different values such as productive consumptive, social, ethical & aesthetic. The main objectives of this film are to present a glimpse of different values of biodiversity.

#### **Value of Biodiversity:**

Biodiversity has great value due to the flora & fauna of lithosphere & Hydrosphere. All green plants are producers while all animals are consumers.

Consumers may be herbivores carnivores or omnivores. Human being is omnivore because he may feed upon the plants as well as animals

Food and feeding relationships are responsible for the mobility of animals.

Fishes are always found of swimming in water but every kind of fish prefers a specific habitat. Birds fly from equator to poles and from poles to equator. Several Siberian birds visit India in winter. Their flight is influenced by climate & reproductive season.

Host parasite relationships such as cuscutta growing on various other trees or pollution relationships also exhibit biodiversity. Yucea plant produces flowers at Indore but does not produce fruits because of its pollinator.

Pronunba Yuccasela a nocturnal moth is not found in Indore. The same plant produce fruits & seeds at Chandigarh where its pollinator is present on some orchid flowers such as ophyris resemble a female insect. The male insect copulates with this flower under the impression that the flower is female insect. In this way the flower gets pollinated by deceiving the insect. These are wonderful examples of biodiversity developed in nature either by chance or by trial & error methods. Mating of a male insect with such a flower which resembles the female insect is called pseudo copulation.

### **Consumptive and Productive use of biodiversity:**

Plants meet out the three basic needs of mankind that is food, cloth & shelter. Man has been using plants and animals for his benefit from ancient days.

Biodiversity is important because it provides man with food, fiber, medicine fumitories and masticatories, furniture and several other useful articles.

Plants animals and microbes are the source of food.

About 80,000 plant species are used as food in various parts of the world. All cereals are actually wild grasses brought under cultivation by man. Maize was the first cereal brought under cultivations by man. It was named as pampered corn.

Through green revolution several high yielding varieties of wheat have been produced.

With the help of biotechnology golden rice has been produced which is very good source of vitamin A

For medicinal value also biodiversity is important out of various medicines available in the market about 50% are obtained from the plants, animals & microbes. We got blue print of Aspirin (Acetyl Salicylic Acid) from salix plant while that of quinine from cinchona bark. Java is earning several thousand dollars every year by exporting quinine.

Periwinkle leaves are very good sources of vincristin and vinblastine. Taxus baccata is source of Taxol.

All these are anticancerous drugs Madagaskar is earning 15 million dollars per year from periwinkle crop. These plants been destroyed by man out of ignorance the science of medicine would have received great loss. According to united states development program, developing countries are preparing medicine worth Rs 30 Million dollars from plants animals & micro organisms. Teak, sal and shisham are good sources of furniture .Thus more rich is biodiversity mare is its value.

### **Social Values:**

In Villages big trees are the meeting place for society; villagers hold their meeting under the canopy of trees and decide the pattern of living. Coconut is kalpa Vraksha for South Indians Society as it is sources of food, fiber & soil. Social forestry has been started by the Govt. of Gujrat to grow useful trees by the people of society to improve the greenery & also to obtain useful products from the plant.

Exchange of plants and animals strong then the relationships between different societies. Emperor Ashok had sent a sapling of Banyan tree to srilanka through his daughter & son as symbol of friendship between two nations.

### **Ethical Values:**

It is believed that Lord Gautam Budha got spiritual knowledge under a tree. This tree is believed to be Ginkgo biloba. Even today it is worshipped by Budha people & grown near Budha temples.

Offering beautiful flowers to god & Goddesses is the common ethic in Indian culture.

### **Aesthetic Values:**

Biodiversity has great aesthetic value. For enjoying picnic people prefer forest area. Bird watching, pet keeping and gardening provide Internal pleasure to man. Plants like peepal, Amla, Tulsi and khejri (*Prosopis cineraria*) are worshiped.

Several people like to have aquarium to decorate their drawing room. The Aquarium is an example of manmade biodiversity having several aquatic plants & animals.

Several people love to have parrot in their house.

Lotus is national flower of India Rhododendron flower is state symbol of Sikkim while Banyan tree is state symbol of Madhya Pradesh Assembly. Antelopes is state animal of the M.P. flowers like bird of paradise (*Strelitzia*) and parrot flowers are admired by every body, Rose is admired for its beautiful look as well as fragrance, Jasminum and shewanti (*Chrysanthemum*) find place to adorn the hair style by ladies. People of every age younger or old like to visit Zoo frequently.

### **Opinion Values:**

Biodiversity is important to maintain the richness of lithosphere as well as hydrosphere. Biodiversity is necessary to maintain climatic control by forest and Oceania systems. Natural pest control pollination of plants by insects & birds, Protection of soil, conservation of water and various cycles of gases & minerals are automatically governed by biodiversity. In the opinion of scientists the value of biodiversity can amount to trillions of rupees.

### **GLOSSARY**

- |    |                     |   |                              |
|----|---------------------|---|------------------------------|
| 1. | <b>Biodiversity</b> | - | Varieties of Plants & Faura. |
| 2. | <b>Lithosphere</b>  | - | Earth atmosphere             |
| 3. | <b>Hydrosphere</b>  | - | Aquative atmosphere          |
| 4. | <b>Herbivore</b>    | - | Vegetarian                   |
| 5. | <b>Carnivore</b>    | - | Flesh eating animal.         |
| 6. | <b>Symbiosis</b>    | - | Mutualism                    |
| 7. | <b>Pollination</b>  | - | Transfer of pollen grain     |

- |            |                  |   |                           |
|------------|------------------|---|---------------------------|
| <b>8.</b>  | <b>Paraosite</b> | - | When fair feeds upon last |
| <b>9.</b>  | <b>Pampered</b>  | - | Healthy                   |
| <b>10.</b> | <b>Ethical</b>   | - | Moral                     |
| <b>11.</b> | <b>Aesthetic</b> | - | Beauty oriented           |

### **FAQ's**

Q1. Which two aspects decide the value of biodiversity?

Ans. 1.Vegetation 2.Fauna

Q2. What is position of vegetation is biodiversity of the global?

Ans. Vegetation is producer.

Q3. What is the position of animals?

Ans. Animals are consumers.

Q4. What is position of man?

Ans. Man is omnivores .Man is the only animal whose food habits are not fixed.

Q5. What are different types of consumers?

Ans. 1Herbiuores 2.Carnivores 3.Omnivores

Q6. Which animals are found always moving?

Ans : Fish

Q.7. In Which season Siberian birds visit India?

Ans. In Winter.

Q8. List two factors which decide the migration of birds.

Ans 1.Climatic changes & reproduction.

Q9. Why yucca plant does not produce fruits at Indore through it produces flowers?

Ans. Because at Indore its pollinator Pronuba Yuccasela is absent.

Q10. Can pollination by bisect be considered as an example of symbioses?

Ans. Yes, because the insect as well plants both are benefited.

Q11. Name an orchid where flowers looks like the female of an insect?

Ans. Ophyris

Q12. Do host parasite relationship exhibit in biodiversity?

Ans. Yes cuscutta has about 70 diverse hosts.

Q13. What is pseudo copulation?

Ans. When a male insect copulates with a flower which resembles female of that insect it is called as pseudo copulation.

Q14. List 3 basic needs of man made good by the plants?

Ans. 1. Food 2. Cloth 3. Shelter

Q15. Name two important timber trees of M.P. used to prepare furniture of good quality?

Ans. 1. Teak 2. Shisham

Q16. What are fumitories & masticatories?

Ans. Substances used by man to smoke & chew just for pleasure.

Q17. What are cereals?

Ans. Grains like wheat, rice & maize used as staple food by man.

Q18. Name the first cereal growing wild & improved by man?

Ans. Corn

Q19. What is green revolution?

Ans. To produce high yielding varieties of cereals like wheat, rice & maize

Q20. What is Golden Rice?

Ans. Variety of Rice produced by biotechnology it has gene for carotene which is source of vitamin A.

Q21. From which plant the blue print of Aspirin was obtained?

Ans. From Salix (Willow tree)

Q22. Which plant is the source of quinine?

Ans. Bark of Cinchona.

Q23. Which common plant is in lime light these days due to anticancer drugs?

Ans. Periwinkle or Catharanthus roses. Its leaves contain alkaloid vincristin & vinblastine which cures leukemia or blood cancer

Q24. What is native place of periwinkle?

Ans. Madagascar but now it is naturalized in India also & is very common throughout India.

Q25. What is social value of biodiversity?

Ans. In village peoples meet under the shade of big tree to discuss the problem of villages. In South India coconut is considered as a symbol of well to do society as it provides food, fiber and Soil.

Q26. Which branch of forestry is connected with human society?

Ans. Social forestry

Q27. Why Ginkgo biloba tree is worshipped by Buddha People?

Ans. It is believed that lord Gautam Buddha got spiritual knowledge under this tree.

Q28. Name an ancient emperor who practiced exchange of plants as symbol of friendship between two countries

Ans. Emperor Ashoka

Q29. What are examples of aesthetic value of biodiversity?

Ans. Taming pets, gardening and Aquarium maintenance.

Q30. What is national flower of India?

Ans. Lotus

Q31. What is state flower of Sikkim?

Ans. Rhododendron

Q32. Which tree is state symbol of M.P. ?

Ans. Banyan tree

Q33. Which animal is state animal of MP?

Ans. Antelope

Q34. Name two most attractive flowers with aesthetic values?

Ans. 1.Parrot flower (Heliconia)

2.Bird of Paradise (Strelitzia)

Q35. Name the most common flower with its aesthetic value.

Ans. Rose.

Q36. Name two common flower used in bouquet by the ladies to adorn their hair style ?

Ans. 1.Jasminum 2 Chrysanthemum.

Q37. What is importance of Zoo ?

Ans. It gives an idea regarding the biodiversity of animals & animal behavior.

Q38. What is value of biodiversity in the opinion of a scientists?

Ans. Trillions of rupees