

MODULE 24 - BIODIVERSITY AT GLOBAL, NATIONAL AND LOCAL LEVELS

OBJECTIVES

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

1. Know about the biodiversity at World level, National level and Local level and conclude that it is different at various levels.
2. The Places like Amazon, India and most of the Asian Countries have high level of biodiversity.
3. The distance of a country from the equator, its latitude and longitude are important factors to decide the biodiversity at National

SUMMARY

Biodiversity shows changes at global level, national and local level; has been described. It shows changes at all levels due to different climatic and geographical conditions.

TRANSCRIPTION

Introduction: - Biodiversity has been studied at world level, national level & local level. It is different at all these levels. (The places like Amazon & India as well as most of the Asian countries have very high biodiversity, actual distance of a country from the equator, its latitude and longitude are important factors to decide biodiversity at National & local level.) All these aspects have been discussed in this film. Various organization connected with biodiversity at various levels have also been given.

1. Global level: - This includes the study of biodiversity at world level, Biosphere of globe has about 30 million species, out of which only 1.4 millions have been named. Species found in remote areas where man could not reach have not been studied. Biodiversity is governed by distance from equator, latitude and longitude of a place.

In general the global biodiversity is classified in the following regions:-

(A) Oriental region: - This includes India Myanmar, Srilanka, Borneo, Sumatra, Java Bali & some parts of China, it is mostly covered by Monsoon Climate. Important animals are:

(i) Gibbon Crocodile : Snakes, Tortoise, Elephant, Rhesus Monkey, Tiger, Squirrel, Fishes, Nilgai, Bear.

(B) Ethiopian Region: - It includes Africa & Madgaskar Important animals are: Wolf, flying lizard, Snakes, gourilla, ostrich Zebra, King Fisher, vulture & chimpanzee.

(C) Australian Region: - It includes Australia, Tasmania, Newzeland. Important animals are anteater, sphenodon, kangaroo, owl and pigeon with crown.

(D) Neotropic Region: - It includes Mexico Greenland South America, Central America South Mexico & West Indies: Important animals are: Guinea Pig, Anteater, Armadillo and Vampire Bat

(E) Neoarctic Region: - This includes Mexico & green land. Important animals are:- Armadillo, flying squirrel, wildgoat, Antelope, swan, Vulture, Rattle Snake, coral Snake, Parrot & Pitviper.

Tropical rain forest parts of the globe have rich biodiversity. In 1983 international union of biological science organised a programme “Decade of tropics”. In this programme a seminar was held on “Species diversity & its significance” In 1988 a work shop was organized at Washington (USA) on “Ecosystem Functions of the biological diversity” .In 1991 one more work shop was organized on the topic “From genes to Ecosystem, a reserve agenda for biodiversity” .At Amsterdam International Union of Biological Science (IUBS) organized a symposium on “Biological diversity & global Change”.

First Earth summit was organized at Reo de Janerio Brazil in 1992 in which 168 countries including India participated. All these counties signed the agenda regarding Biodiversity conservation.

Thus efforts to conserve biodiversity at global level, which were started in 1983, continue even today.

2. National Level: - This biodiversity is a part of global biodiversity but it has political boundaries Amazon, Malaysia basin, congo basin and Indonesia and Malaysia are the areas of rich national biodiversity. Monsoon countries are also rich countries of national biodiversity but biodiversity of India, China & Indochina are different. India is a developing country and occupies tenth rank amongst the industrial countries of the world. Here Agriculture animal husbandry, fishery forest education and cultivation of medicinal plants are given due weight age.

Cultural diversity and indigenous system of medicine are helpful to maintain biodiversity .Biodiversity of India is changeable due to different geology, Latitude longitude & climate of different states of this nation.

Geographical area of India is 320 million hectares out of which 7000 kms is occupied by sea coast. Climate of India has huge range from hot climate of desert to cold climate of Himalayas.

The average rainfall of the desert is 10 cms per year while that of cherapunji is 500 cms per year.

The area of India is 2% of the global area but 5% of the plants and animals are found in this nation.

India has 45000 species of plants & 68371 species of animals.

As per data given by Botanical Survey of India the number of species of Bacteria, fungi plants & animals described from India is 1,08,276 as shown in the table:

S.No	Taxon	Number of Species	Percentage
1.	Bacteria	850	0.8
2.	Fungi	23000	21.2
3.	Algae	2500	2.3
4.	Bryophyta	2564	2.4

5.	Pteridophyta	1022	0.9
6.	Gymnosperms	64	0.1
7.	Angiosperms	15000	13.9
8.	Insecta	53430	49.3
9.	Mollusca	5050	4.7
10.	Pisces	2546	2.4
11.	Amphibia	204	0.2
12.	Reptile	446	0.4
13.	Aves	1228	1.1
14.	Mammalia	272	0.3
Total		108276	100

From this chart it is clear that amongst plants Gymnosperms are the least in number. Actually this group dominated in Mesozoic era about 6 million years back because climate at that time was suitable for them. This shows that climate is an important factor to decide biodiversity of species. Amongst animals reptiles account to the extent of 4%. This group also dominated in Mesozoic era in the form of Dinosaurs. Due to change in climate all Dinosaurs were fossilized. At present the climate is proper for flowering plants and insects hence these two groups are widely spread.

Some important crop plants of the world which have originated in India & have got naturalized in the world are:

1. Rice
2. Sugar Cane
3. Jute
4. Mango
5. Plantain
6. Lemon
7. Bajra
8. Jawar

At national level the following organization are working in India to protect biodiversity:-

1. Council of Scientific & Industrial Research New Delhi.
2. Botanical Survey of India.
3. Zoological survey of India.
4. Wild life Institute of India.
5. G. B. Pant Institute of Himalayan Environment & development.
6. Indian Council of Agriculture Research, New Delhi.

Local Biodiversity: Living plants & animals of a particular locality are included Under Local biodiversity wcal biodiversity. Under different climate condition it is different. Thus vegetation and animals of Thar Desert are different from those of Himalayan Region. Sunderban and Andaman are well known for mangrove vegetation. Mangrove plants show vivipary that is germination of seed on parent plants, itself so that several baby plants are seen attached to parent tree. This is a thrilling sight. Thus biodiversity at global level, national level & local level is different. The differences are due to different geographical conditions & different climate.

GLOSSARY

1. Global = Worldwide.
2. Biosphere = Earth along with atmosphere.
3. Equator = Imaginary line round the Earth.
4. Latitude = angular distance north or south of equator.
5. Longitude = Angular distance East or west of meridian.
6. Biodiversity = Varieties of Living organism.
7. Marsupial = Mammals like kangaroo caring young ones in the pouch.
8. Decade = Period of ten years.
9. Mesozoic = Geological era marked by dominance of dinosaurs.
10. Thrilling = Existing.

F.A.Q.s

Q1. What is the meaning of biodiversity at global level.

A. Study of the variety of plants and animals as well as microbes found at world.

Q2. Have all the species of plants and animals of the world been studied.

A. No, out of about million 30 species expended to exist in the world only 1.4 million species have been studied and named by man. Man has not able to reach the remote areas.

Q3. Which geographical factors determine the biodiversity of the globe?

A. The following geographical factors determine the biodiversity of the globe are

- (i) Distance from equator,
- (ii) latitude
- (iii) longitude.

Q4. What are the different regions of the globe on the basis of biodiversity?

A. On the basis of biodiversity the globe has been divided in the following regions:-

Oriental region, Ethiopian region, Australian region, Neotropic region, Neoarctic region.

Q5. In which region India is included?

A. Oriental region.

Q6. Which type of climate is common in Oriental region?

A. Monsoon climate.

Q7. What are the important animals of Oriental region?

A. Gibbon, Rhesus monkey, Tiger, Nilgai.

Q8. Which countries are included in Ethiopian region?

A. Africa and Madagaskar.

Q9. What are important animals of Ethiopian region?

A. Gourilla, Ostrich, Zebra, Chimpanzee.

Q10. What is the national biodiversity?

A. Biodiversity at national level e.g., Biodiversity of India or biodiversity of Brazil.

Q11. How many plant species are known in India?

A. 45000.

Q12. How many animals' species are known in India?

A. 68371.

Q13. What is geographical area of India?

A. 320 million hectares.

Q14. What is percentage area occupied by India on the globe?

A. Only 2%.

Q15. At the level of local biodiversity which areas are poor?

A. Deserts.