



BIODIVERSITY

Definition

Biodiversity is defined as “the variety and variability among all groups of living organisms and the ecosystem in which they occur”

Significance / Importance of Biodiversity

It is very important for human life, as we depend on plants, microorganisms, food, medicine, air, water, productive land, agriculture and industrial products.

Classification of Biodiversity

- **Genetic diversity** – It is the diversity within species Ex: rice varieties, Teak wood varieties (Indian teak, Burma teak, Malaysian teak etc.,
 - **Species diversity** – Sum of varieties of all the living organisms at the species level Ex: Plant species(Apple, Mango, Grapes), Animal species(Lion, Tiger, Deer, Elephant, Cow, etc.,)
 - **Ecosystem diversity** - Diversity at the ecological or habitat level is known as Ecosystem diversity. Ex: River ecosystem
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Levels/Classification of Biodiversity:

- 1) **Genetic diversity** → Diversity within the species is genetic diversity.(ex) teak wood varieties, Indian, Burma, malasian
- 2) **Species diversity**→ diversity between different species. (ex) plant species = apple, mango, grapes, animal species = lion, tiger, elephant etc.
- 3) **Community/Ecosystem diversity** → Diversity at the ecological or habitat level is ecosystem diversity. Ex. River ecosystem.

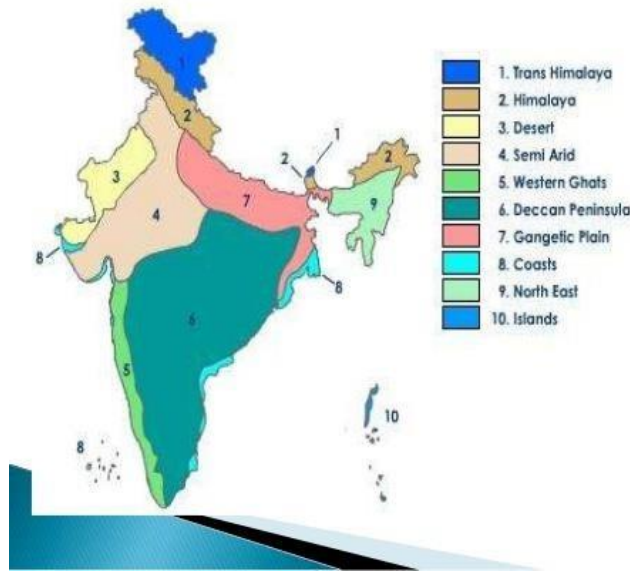
Biodiversity of India

- ❖ Total land area of India - **143 million.ha**
- ❖ India occupies **2.47%** of the World’s geographical area and has only **1%** of the forest
- ❖ India has **16.1%** of world human population and **15.1%** of cattle population
- ❖ Forest cover in India-**23.57%**





BIODIVERSITY IN INDIA



•With only 2.4 % of the world's area, India accounts for 7-8 % of the world's recorded plant and animal species.

• India's ten biogeographic zones possess an exemplary diversity of ecological habitats like alpine forests, grasslands, wetlands, coastal and marine ecosystems, and desert ecosystems.

•HENCE , we can conclude that INDIA HAS LARGE SPECIES AS WELL AS ECOSYSTEM DIVERSITY.

Value of Biodiversity (8 Marks)

- Biosphere is a life supporting system to the human beings. It is the combination of different organisms.
- Biodiversity is must for the stability and proper function of the biosphere.
- Various uses of biodiversity are classified as follows

1. Consumptive use value

- These are direct use values where the biodiversity products are harvested and consumed directly. Ex: **Food, Drug, Fuel**, etc.,
- **Food** – The large number of wild plants are consumed by human beings as food – nearly 80 – 90 % of our food crops have been domesticated only from the tropical wild plants. Ex: **Ceropegia Bulbosa** (Central India and Western Ghats)
- **Drugs** – Around 70 % of modern medicines are derived from plant and plant extract – 20,000 plant species are believed to be used medicinally, **unani, ayurveda and sidha**.
Ex: Life saving drugs like **Quinine** (Malaria), **Reserpine** (Hypertension), and **Pencillin** (Antibiotic)
- **Fuel** – Fossil fuels like **coal, petroleum and natural gas** are also the products of fossilized biodiversity.



2. Productive use value

- Biodiversity product may be derived from the **animals and plants**.

Animal Product	Animal
Silk	Silk - worm
Wool	Sheep
Musk	Musk Deer
Tusk	Elephant
Leather	All animals
Food	Fish and animals

Plant Product	Industry
Wood	Paper and pulp industry, Plywood industry
Cotton	Textile industry
Fruits and Vegetables	Food industry
Leather	Leather industry

3. Social value

- It refers to the manner in which the bio-resources are used to the **society**.
- These values are associated with the social life, religion and spiritual aspects of the people. Ex:

Holy Plants	Tulsi, Peepal, Lotus, Bael, etc
Holy Animals	Cow, Snake, Bull, Peacock, Rat

4. Ethical value

- It involves ethical issues like “**all life must be preserved**”.
- Our rich Heritage teaches us to worship plants, animals, rivers and mountains.
- It means that a species may or may not be used, but it’s extinct in natural gives as pleasure. Ex:

Holy River	Ganga, Cauvery, Krishna, Bramaputhira, Narmatha, etc.,
Holy Trees	Vembu, Vengai, Tulsi etc.,

5. Aesthetic value

- The **beautiful** nature of plant and animals insist us to protect the biodiversity.
- The most important aesthetic value of biodiversity is **Eco-tourism**.

6. Option values

- They are the potentials of biodiversity that are presently unknown and need to be known.
- It suggests that any species may be proved to be a valuable species after some day.



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Ex: 1. **Medicinal plant and Herbs** play a very important role in our Indian

Economical growth

2. The growing biotechnology field is searching a species for causing the diseases of **Cancer and AIDS**.