DEPARTMENT OF PHYSICS

23CHT103-Environmental Science and Sustainability
Threats to biodiversity

3.12 THREATS TO BIODIVERSITY

- ❑ Any disturbance in an natural ecosystem tend to reduce its biodiversity.

- ❑ The waste generated due to increase in human population and industrialisation, spoils the environment and leads to more diversity in biological species.

- ❑ Any change in the system leads to a major imbalance and threatens the normal ecological cycle.
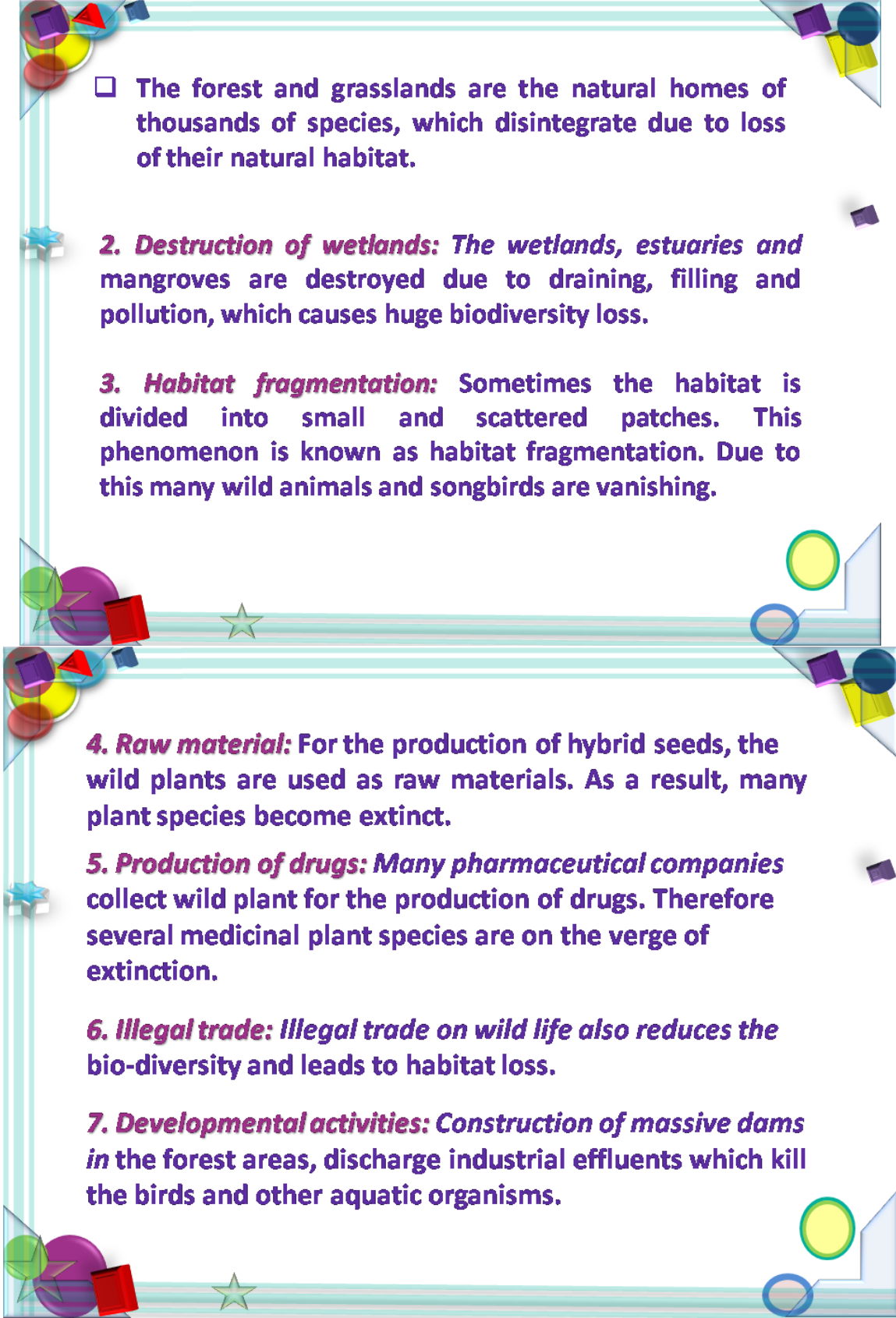
CAUSES FOR LOSS OF BIODIVERSITY (OR) VARIOUS THREATS TO INDIAN BIODIVERSITY

3.12.1 Habitat loss

➢ The loss of populations of interbreeding organisms is caused by habitat loss. Habitat loss threatened a wide range of animals and plants.

Factors influencing Habitat Loss

1. Deforestation: The loss of habitat is mainly caused by deforestation activities. Forests and grasslands have been cleared for conversion into agricultural lands, or settlement areas or developmental project.

❑ The forest and grasslands are the natural homes of thousands of species, which disintegrate due to loss of their natural habitat.

2. *Destruction of wetlands:* *The wetlands, estuaries and* mangroves are destroyed due to draining, filling and pollution, which causes huge biodiversity loss.

3. *Habitat fragmentation:* Sometimes the habitat is divided into small and scattered patches. This phenomenon is known as habitat fragmentation. Due to this many wild animals and songbirds are vanishing.

4. *Raw material:* For the production of hybrid seeds, the wild plants are used as raw materials. As a result, many plant species become extinct.

5. *Production of drugs:* *Many pharmaceutical companies* collect wild plant for the production of drugs. Therefore several medicinal plant species are on the verge of extinction.

6. *Illegal trade:* *Illegal trade on wild life also reduces the* bio-diversity and leads to habitat loss.

7. *Developmental activities:* *Construction of massive dams in* the forest areas, discharge industrial effluents which kill the birds and other aquatic organisms.

3.12.2. Poaching (over harvesting) of wildlife

❖ Poaching means killing of animals (or) commercial hunting. It leads to loss of animal biodiversity.

1. Subsistence poaching: Killing animals to provide enoughfood for their survival is called subsistence poaching.

2. Commercial poaching: Hunting and killing animals to sell their products is called commercial poaching.

Factors Influencing Poaching

1. Human population: Increased human population in our country has led to pressure on forest resources, whichultimately causes degradation of wildlife habitats.

2. Commercial activities: Though international ban ontrading the products of endangered species, smuggling of wildlife products continues. Since the trading of such wildlife products is highly profit, poaching makes the poachers to just hunt these prohibital wildlife and smuggle it to other countries.

Wild life products: Furs, horns, tasks, live specimens, herbal products.

Wealth of wildlife: *The developing nations in Asia, Latin*America and Africa have richest source of biodiversity.

Importers of wild life: The rich countries in Europe and North America, Japan, Taiwan, Hong Kong are the major importers of wildlife products (or) wildlife itself.

Examples

1. Male gorilla: *In Rwanda and Zaire, it is hunted for its* body parts, head and hands.

2. Blue morpho butterfly: *In Brazil, it is poached for making*attractive trays and other objects.

3. Snowy large egret: *In U.S, it is poached for its white* plumes, so as to keep it in ladies hats.

4. Blubber: *It is used to prepare lamp oils and lubricating* oils.

5. Baleen: *It is used to prepare combs and other similar*articles.

6. Elephant feet: It is used to make Ash trays.

7. Elephant: It is killed for ivory.

8. Bengal tigers: Its fur sell is more than $1,00,000 in the foreign market.

9. Bush meat: It is an important source of protein for many local people in west and central Africa.

10. Dynamite fishing: It is "high - tech fishing", which have exhausted the ocean marine life.

11. Seahorses, Star turtles: These valuable species are alsoillegally sold into the foreign market for want of money.

Remedy measures

1. Illegal hunting and trade of animals and animal products should be stopped immediately.

2. We should not purchase fur coat, purse or bag or items made of crocodile skin or python skin.

3. Bio-diversity laws should be strengthened.

3.12.3. Man - wildlife conflicts

➢ Man - wildlife conflicts arise, when wildlife starts causing immense damage and danger to the man.

➢ Under such condition it is very difficult for the forest department to compromise the affected villagers and to gain the villagers support for wildlife conservation.

Examples for man - wildlife conflicts

1. In Sambalpur, Orissa, 195 humans were killed in the last 5 years by elephants. In retaliation, the villagers have killed 98 elephants and badly injured 30 elephants.

2. In the border of Kote - Chamarajanagar, Mysore,several elephants was killed because of the massive damage done by the elephants to the farmer's cotton and sugarcane crops.

3. The agonized villagers sometimes hide explosives inThe sugarcane fields, which explode when the elephants enter into their fields.

4. It has been reported that a man - eating tiger killed 16 Nepalese people and one 4 - years old child inside the Royal Chitwan National Park, athmandu. Now the park has became a zone of terror for the locals.

5. Very recently, two men were killed by leopards in Powai, Mumbai.

6. A total of 14 persons were killed during 19 attacks by the leopards in Sanjay Gandhi National Park,Mumbai.

Factors influencing (or causes) man - animal conflicts

1. Shrinking of forest cover compels wildlife to move outside the forest and attack the fields and humans.

2. Human encroachment into the forest area induces a conflict between man and the wildlife.

3. Injured animals have a tendency to attack man. Usually the female wildlife attacks the human if she feels that her newborn cubs are in danger.

4. Earlier, forest departments used to cultivate sugarcane paddy, coconut trees, in the sanctuaries. When the favourite food of elephants (i.e., bamboo leaves) were not available, they feed them to the elephants. But, now due to lack of such practices the wild animals move out of the forest for searching

5. Often the villagers put electric wiring around their crop fields. The elephants get injured, suffer in pain and start violence.

6. The cash compensation paid by the government for the damage caused by the wild animals, is not enough. Therefore the agonized farmers gets revengeful and kill the wild animals.

Examples → *A farmer, in Mysore, gets a compensation of Rs.400/- per quintal, but the market price is Rs.2400/- per quintal.*

7. Garbage near human settlements or food crops near forest areas attracts wild animals.

Remedial measures (or) Conservation of biodiversity

1. Adequate crop and cattle compensation schemes must be started.

2. Solar powered fencing must be provided along with electric current proof trenches to prevent the animals from entering into the fields.

3. Cropping pattern should be changed near the forest borders.

4. Adequate food, and water should be made available for the wild animals within forest zones.

5. The development and constructional work in and around forest region must be stopped.