



# Introduction

This is a learning as well as an exam preparation video.

At the end of the video are practice assignments for you to attempt.

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# **Chapter 6: Management of Natural Resources**

# Chapter 6: Management of Natural Resources

## Introduction

- Any matter or energy, derived from the environment, which can be used by all living organisms, including man, for their welfare constitute our natural resources.
- Forests and wildlife, water, coal and petroleum are some of our important natural resources.
- A system of controlling the use of natural resources in such a way so as to avoid their wastage and allow their use in the most judicious way is called management of natural resources.

# Chapter 6: Management of Natural Resources

## Introduction

- We need to manage our resources to ensure that they are used judiciously, to prevent their exploitation for short-term gains, and to make equitable distribution of natural resources and deal with environmental problems.
- Sustainable development is development which meets the needs of the present generation as well as preserves the resources for future generations.

# Chapter 6: Management of Natural Resources

## Pollution in Ganga

- The river Ganga is used as a sewage dump for more than 100 cities stretching across Uttar Pradesh, Bihar and West Bengal.
- Dumping of untreated sewage, excreta and chemicals from industries increases the toxicity of the water.
- This makes it inhabitable for the flora and fauna in the river system.
- In 1985 the GAP (Ganga Action Plan) project was initialised to curb the poor quality of the water of river Ganges.

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The 5 R's to save the environment can be performed by each individual in our society:

- **Refuse:** This means to say No to things people offer you that you don't need. Refuse to buy products that can harm you and the environment, say No to single-use plastic carry bags.
- **Reduce:** This means that you use less. You save electricity by switching off unnecessary lights and fans. You save water by repairing leaky taps. Do not waste food. Can you think of other things that you can reduce the usage of ?

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The 5 R's to save the environment can be performed by each individual in our society:

- **Reuse:** This is actually even better than recycling because the process of recycling uses some energy. In the 'reuse' strategy, you simply use things again and again. Instead of throwing away used envelopes, you can reverse it and use it again. The plastic bottles in which you buy various food-items like jam or pickle can be used for storing things in the kitchen.



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The 5 R's to save the environment can be performed by each individual in our society:

- **Repurpose:** This means when a product can no more be used for the original purpose, think carefully and use it for some other useful purpose. For example, cracked crockery, or cups with broken handles can be used to grow small plants and as feeding vessels for birds.
- **Recycle:** This means that you collect plastic, paper, glass and metal items and recycle these materials to make required things instead of synthesising or extracting fresh plastic, paper, glass or metal. In order to recycle, we first need to segregate our wastes so that the material that can be recycled is not dumped along with other wastes

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## Why Do We Need to Manage Our Resources

- Because the resources available to us are limited and take millions of years to form.
- With the human population increasing at a tremendous rate the demand for resources is also increasing which increases the use of resources.
- Exploiting or reckless use of natural resources causes damage to the environment.

# Chapter 6: Management of Natural Resources

## Why Do We Need to Manage Our Resources

- The management of natural resources should be in a sustainable manner so that these will last for generations to come.
- And should be available to everyone i.e., should be equally distributed to everyone.

# Chapter 6: Management of Natural Resources

## Forests and Wildlife

- **Forests refer to a large piece of land covered with trees, shrubs and herbs growing naturally and sustaining a variety of life forms.**
- **Uncultivated plants and non-domesticated animals which live in their natural habitat collectively constitute the wildlife of an area.**
- **Naturally occurring plants and animals constitute the flora and fauna of the forest.**
- **The main aim of management of forests and wildlife is to conserve the vast inherited biodiversity, because loss of biodiversity leads to loss of ecological stability of the forest ecosystem.**

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## Stakeholders in the Management of Forests



# Chapter 6: Management of Natural Resources

## Sustainable Management of Forests

People's participation in the management of forests can help in increasing the forest produce as well as in their conservation.

INSTANCES OF PEOPLE'S PARTICIPATION IN THE MANAGEMENT OF FORESTS
<b>The Case of Khejri trees</b>
<ul style="list-style-type: none"><li>• In 1731, Amrita Devi Bishnoi led a group of 363 people who sacrificed their lives for the protection of Khejri trees in Khejrli village near Jodhpur in Rajasthan.</li></ul>
<b>The Chipko Andolan</b>
<ul style="list-style-type: none"><li>• The Chipko Andolan also called the 'Hug the trees movement' was organised under the leadership of Sunderlal Bahuguna to stop the destruction of forests.</li><li>• The movement began in 1970s in a remote village called Reni in Garhwal in the Himalayas.</li></ul>
<b>Revival of Sal forests</b>
<ul style="list-style-type: none"><li>• A forest officer, A. K. Banerjee got the villagers involved in protecting 1.272 hectares of badly degraded Sal forests of West Bengal.</li><li>• In return, the villagers were given employment in silviculture and harvesting operations.</li><li>• They were also given 25% of the final harvest and were allowed to collect fuel wood and fodder on the payment of a nominal fee.</li></ul>

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## Conservation of Wildlife

Large-scale poaching of wild animals disturbs the food chains in which these animals occur. This results in undesirable consequences for the entire ecosystem.

### Measures to be Taken for the Conservation of Wildlife

Breeding of wild animals in captivity and then releasing them into their original natural habitat.

Enacting and enforcing strict laws, action plans and projects started by non-government organisations.

Ban on hunting and killing of endangered animals.

Establishment of national parks, wildlife sanctuaries and biosphere reserves.

Educating the public about the importance of wildlife conservation by observing 'Wildlife Week'.

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## Water

- **Water is an important constituent of the body. Nearly 75% of our body weight is due to the presence of water.**
- **Rains, rivers, lakes, ponds, wells, tube wells, dams, oceans and glaciers are the important sources of water.**



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## Dams

<b>What are dams?</b>	<ul style="list-style-type: none"><li>• The large reservoir of a dam stores a huge amount of water which is allowed to flow downstream at the desired rate.</li><li>• The Dharoi dam on the river Sabarmati, the Ukai dam on the River Tapi and the Machhu dam on the river Machhu are some famous dams.</li></ul>
<b>Uses of dams</b>	<ul style="list-style-type: none"><li>• They regulate the flow of water.</li><li>• They also ensure the storage of water for irrigation and for generating electricity.</li></ul>
<b>Problems faced in the construction of dams</b>	<ul style="list-style-type: none"><li>• Social problems arise because construction of dams causes the displacement of a large number of tribals and peasants who are then rendered homeless.</li><li>• Construction of dams leads to several environmental problems such as deforestation and loss of biodiversity leading to ecological imbalance.</li><li>• Economic problems arise because the construction of dams involves spending of large amounts of public money without generating proportionate funds.</li></ul>

# Chapter 6: Management of Natural Resources

## Rainwater Harvesting

### What is rainwater harvesting?

- Rainwater which falls on roofs and terraces of buildings can be collected through pipes and stored in underground tanks or can be allowed to percolate into the soil and used to recharge the groundwater table. This is called water harvesting or rainwater harvesting.

### Advantages of rainwater harvesting

- The main aim of rainwater harvesting is to check the runoff water.
- It also prevents flooding of living areas and streets in cities.
- It can also reduce topsoil loss or soil erosion and improve plant growth.

### Method of rainwater harvesting

- In rainwater harvesting, tanks are fitted with motors for lifting water for use.
- Water from the open space around buildings can also be recharged into the ground by simple, effective methods.

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## Rainwater Harvesting

### Traditional methods of rainwater harvesting

- In traditional methods of rainwater harvesting, water is not only stored but also used to recharge the groundwater.

Region	Traditional water harvesting structures
Rajasthan	Tanks, Khadins, Nadis
Maharashtra	Tals, Bandharas
Bihar	Ahars, Pynes
Uttar Pradesh and Madhya Pradesh	Bundhis
Himachal Pradesh	Kuhls
Kerala	Surangams
Kandi belt of Jammu region	Ponds
Karnataka	Kattas

### Bawris

- Bawris or step-wells are wells or ponds constructed in the ground. The water in bawris can be reached by descending a set of steps.
- With acute shortage of water, people began to revive these traditional bawris. As a result, despite scanty rains, these places are managing their water needs well.

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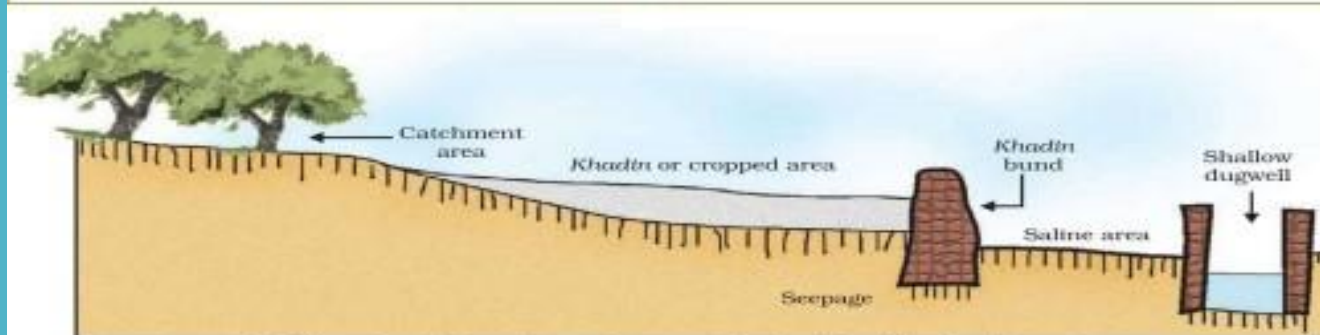
## Rainwater Harvesting

### Khadin

- Khadin consists of a 100–300-m long embankment called bund made of Earth.
- Rainwater from the catchment area flows down the slope and collects in front of the bund forming a reservoir.
- Sluiceways or pathways through the bund allow excess water to flow through and collect in shallow wells dug behind the bund.
- The water which collects in both the reservoir and the wells seeps into the land and recharges the groundwater. Later, crops can be grown on the water-saturated soil.

### Water harvesting structures on the level terrain

- The water harvesting structures on the level terrain are mostly crescent-shaped, earthen embankments or straight, low concrete and rubble check dams.
- The main purpose of these water harvesting structures is to recharge the groundwater beneath the surface so as to provide moisture for vegetation.
- The water does not evaporate, does not form breeding grounds for mosquitoes and is also protected from human and animal waste.



Traditional water harvesting system — an ideal setting of the khadin system

# Chapter 6: Management of Natural Resources

## Coal and Petroleum

- Fossil fuels such as coal and petroleum are non-renewable resources of energy and exist on the Earth in a limited amount.
- On burning in air, coal produces mainly carbon dioxide as well as oxides of nitrogen and sulphur as products. Increased quantities of carbon dioxide in the atmosphere can cause climatic changes and lead to global warming.

# Chapter 6: Management of Natural Resources

## Coal and Petroleum

- **Burning of coal in the absence of air produces carbon monoxide gas. High concentrations of carbon monoxide and oxides of nitrogen and sulphur are poisonous and pollute the environment.**
- **Acid rain is caused because of sulphur particles present in coal.**
- **Burning of coal also generates waste products which contain arsenic, mercury, uranium, thorium and other heavy metals which are harmful to human health and the environment.**
- **Burning of coal produces dust nuisance and contaminates land and water.**

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## Alternatives to Reduce the Consumption of Coal and Petroleum

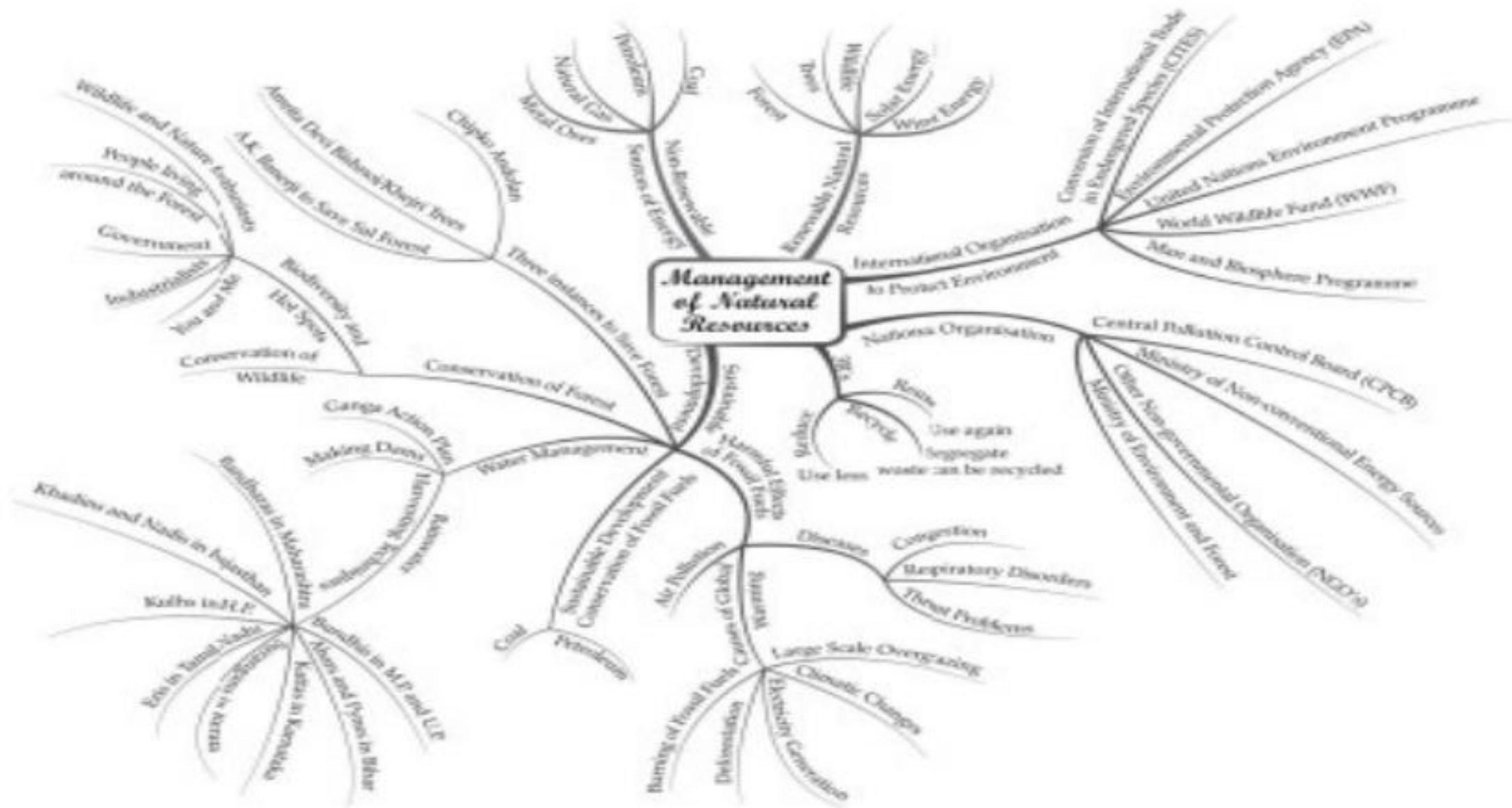
Switch off electrical appliances when not required.

Use energy-efficient electrical appliances like CFL.

Use pressure cookers or solar cookers for cooking food.

Use of biogas as a domestic fuel should be encouraged.

Bicycles should be used instead of cars and scooters to travel short distances.





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