Introduction

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.

Reduce, recycle and reuse

The 3 R's to save the environment can be performed by each individual in our society:

- Reduce: Reducing our usage and wasteful habits. Eg. not wasting food, turning off the switches to save electricity, repairing leaky taps, reducing the amount of water used for bathing etc.
- Reuse: Using things again instead of discarding them. For example, reusing plastic utensils and bottles. Many things cannot be recycled or require a lot of energy, instead, we can utilize them for other purposes.
- Recycle: Collecting discarded paper, plastic, glass or metal objects to manufacture different products rather than synthesizing them from scratch. Must have a mechanism to segregate and dispose of each type of waste separately.

Why Do We Need to Manage Our Resources?

Need to manage natural resources

- Due to the ever-increasing population and rising demands of changing lifestyles, natural resources are being depleted at an alarming rate. To ensure sustainable, equal distribution of resources and reduction of damage to the environment, management of resources must be an integral part of our society.
- We must ensure judicious use of our natural resources as it is not unlimited and management of such requires long-term planning in order to last generations.

Increase in demand for natural resources

- Increasing population is increasing demand for more resources that are getting depleted at an exponential rate.
- Changing lifestyles and advancements in technology is compelling industries to exploit our natural reserves to meet the demands.

Forests and Wildlife

Forests and wildlife

- Forests are termed as biodiversity hotspots.
- Biodiversity is the variety and range of plant and animal life in a particular habitat.
- Loss of biodiversity may result in loss of ecological balance and damage to the ecosystem.

Stakeholders of forest

When we consider conservation of forests we must consider the following stakeholders:

- People who habituate around forests and are dependent on forest produce.
- Forest Department of the Government that own the land and resources.
- Industrialists: who use the forest to produce certain products e.g leaves of Tendu for *bidis* and paper mills.
- Conservationists and wildlife enthusiasts who want to conserve nature in its pristine form.

Monoculture

- Monoculture is the cultivation of a single crop in a given area.
- Excessive monoculture destroys the biodiversity of the area.
- Various needs of the people local to forest areas are neglected such as leaves for fodder, herbs, and fruits for consumption.

Industrialist's mentality and influence

- Industrialists consider forest as a source of raw materials.
- Industries have more political power than the locals and only bother about meeting their demands. They do not care about sustainability and will move on from one habitat to another in search of raw materials.

People intervention in forests

- Human intervention is a necessity in the management of forest resources and landscapes.
- Resources must be utilised to ensure development while preserving the environment.
- Benefits must go to the local people to ensure economic growth and conservation takes place simultaneously.
- Examples: Bishnoi community in Rajasthan for saving Khejri trees in Jodhpur Rajasthan.

Damage to forests and wildlife

- Excessive and lawless utilisation of forests will deplete the resources quicker then they can be restored.
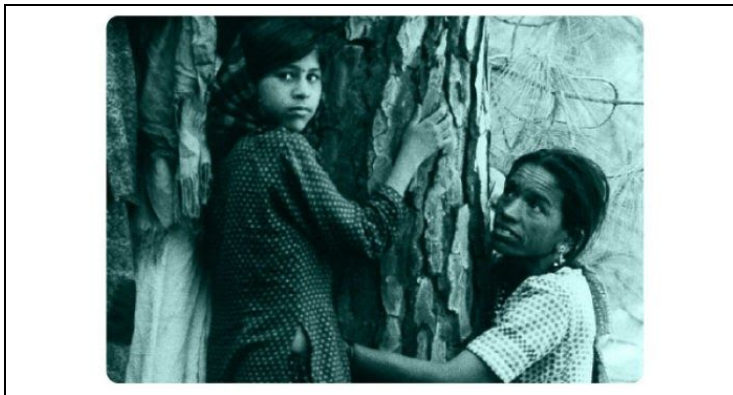
- Destroys the ecological balance and may damage the habitats for various species of flora and fauna.

Sustainable development

- Sustainable development needs all stakeholders of forest resources to be satisfied.
- In reality, industries use forests at rates far below the market rates which causes conflict between local dwellers and industrialists.

Chipko movement

- The Chipko Andolan ('Hug the Trees Movement') is one such case of conflict between the industrialist and local dwellers in the 1970s.

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- Chipko Movement
- Originated in Reni Garhwal, high up in the Himalayas.
- The conflict between local villagers and logging contractor → Women of the village stopped felling of trees by hugging them → Contractor had to reverse the action.

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- Women protecting the trees by hugging them
- The movement quickly gained popularity and media attention and forced the government to rethink the management of forest resources.
- Involvement of local people is equally important in the management of forest resources.

Water for All

Water

- Water is a necessity for all terrestrial forms of life.
- In India places having water scarcity are also the places experiencing acute poverty.
- Despite the monsoon, there exists failure to retain groundwater due to loss of vegetation and release of effluents from industries.
- Decrease in fresh usable water due to the destruction of water table and disruption in water cycle.

Rains and irrigation practices

- Intervention of government to pursue mega projects neglected the local irrigation methods
- Strict regulations on usage of stored water and building tanks, dams, and canals
- Optimum cropping patterns must be followed based on water availability.

Involvement of local people (ex: kulhs)

- Himachal Pradesh had a canal irrigation system called as kulhs where flowing stream water was diverted to man-made channels which took it to villages down the hillside.
- The water was used first by the village farthest from the origin of the kulh. This helped water percolate in the soil.
- It was made defunct after government irrigation system took over.

Dams

- Dams can store large amounts of water and generate electricity.
- Mismanagement of dams causes exploitation and there is no equitable distribution of this resource.
- Criticism about large dams address:
  (i) Displacement of tribals without compensation
  (ii) Corruption and consumption of money without generation of benefits
  (iii) Environmental problems like deforestation.

Coal and Petroleum

Water harvesting

- Water harvesting encourages soil and water conservation in order to sustain and increase biomass.
- Increases income for the local community but also alleviates floods and droughts.

- Examples: Rajasthan's tanks, Khadins, and Nadis, Maharashtra's Tals and Bandharas, Madhya Pradesh's and Uttar Pradesh's Bundhis, Bihar's Pynes and Ahars, Himachal Pradesh's Kulhs, Kattas in Karnataka, ponds in the Kandi belt of Jammu region, and Eris (tanks) in Tamil Nadu, Kerala's Surangams.
- Water harvesting constructions are crescent-shaped earthen embankments/concrete check dams built in areas that are seasonally flooded
- The main purpose is to recharge groundwater.

Groundwater

Advantages:

- does not evaporate
- recharges wells and groundwater
- when flowing does not allow mosquitoes to breed
- does not come in contact with human contamination

Coal and petroleum

- Coal and petroleum are derived from fossil fuels which are non-renewable. They will get depleted in due time. Hence proper management for consumption of fossil fuels is important.
- Their combustion pollutes our environment due to the production of oxides of carbon, sulfur and nitrogen. Therefore, we need to use these resources judiciously.

Why should fossil fuels be used judiciously?

- Fossil fuels are formed over millions of years of degrading biomass and have a huge amount of carbon.
- When combusted in a limited supply of oxygen they form harmful gases that pollute the atmosphere which leads to global warming.
- Judicious use of fossil fuels addresses the efficiency of our machines and ensures sustainability of our resources for the future.