



LAND DEGRADATION AND RESTORATION - GS II MAINS

Q. What are the causes of land degradation and desertification and why is land restoration significant at the current juncture of climate change and global warming? (15 marks, 250 words)

News: *Desertification, Land Degradation and Drought, and the Role of Geneva*

What's in the news?

- On June 5, 2024, World Environment Day was celebrated, with the Kingdom of Saudi Arabia hosting the event.

Key takeaways:

- The focus of World Environment Day 2024 is on land restoration, desertification, and drought resilience.
- Land restoration plays a vital role in the UN Decade on Ecosystem Restoration (2021-2030) and is essential for achieving the Sustainable Development Goals.

Land Degradation:

- Land degradation means reduction or loss in arid, semi-arid and dry sub-humid areas of the biological or economic productivity and complexity of rainfed cropland, irrigated cropland, or range, pasture, forest and woodlands resulting from land uses or from a process or combination of processes, including processes arising from human activities and habitation patterns such as: soil erosion caused by wind and/or water; deterioration of the physical, chemical and biological or economic properties of the soil; long-term loss of natural vegetation.

Major Causes of Land Degradation and Desertification:

1. Unsustainable Agricultural Practices:

- Extensive cropping of agricultural land
- Shifting cultivation without adequate recovery
- Excessive fertilizer use.

2. Conversion of Land for Various Uses:

- Cutting forests for using lands for various purposes
- Unplanned urbanisation.

3. Deforestation & Loss of Vegetative Cover:

- Overgrazing
- Excessive fuelwood collection
- Unsustainable forest management practices
- Forest fires.

4. Frequent Droughts and Land Degradation :



- Due to the absence of vegetative cover drought effects can be exacerbated and impact the hydrological regime.

5. Unsustainable Water Management:

- Poor and inefficient irrigation practices
- Over-abstraction of groundwater.

Impact of Land Degradation and Desertification:

1. Impact on Climate Change:

- Forests, trees and vegetation cover are important sinks of carbon dioxide.
- Land degradation, therefore, reduces the amount of carbon dioxide that is absorbed, and consequently leads to a rise in emissions.

2. Threat to Food & Water Security:

- Land degradation and desertification have effects on food and water security.
- Changes in food habits and international trade have altered cropping patterns in many areas.
- Large-scale migration to urban centres and industrial hubs has seen a heavy concentration of populations in small areas, putting unsustainable pressure on land and water resources.

3. Impact on Biodiversity:

- Land degradation caused by factors such as extensive agriculture, deforestation, and unmanaged urbanisation and sprawl, are reducing the biodiversity of many land ecosystems.

Land Restoration:

- Land restoration is the ecological process to restore a natural and safe landscape for humans, wildlife, and plant communities.
- This process paves the way to protect our ecosystems, create economic development, help prevent natural disasters such as floods, and increase soil productivity and food supplies.
- In short, land restoration is vital if we are to protect the environment, build resilience to drought, and help feed a growing global population.

Significance of Land Restoration:

1. Environmental Benefits:

- Land Restoration offers numerous benefits, such as preventing land degradation, improving soil fertility, and increasing water retention.
- It also helps conserve biodiversity by providing habitat for plants, animals, and microorganisms, supporting overall ecosystem health.
- Healthy soils serve as carbon sinks, absorbing and storing large amounts of carbon dioxide from the atmosphere.
 - Almost 80% of the carbon stored in terrestrial ecosystems is located in soils.
- Rehabilitating degraded lands can aid in carbon sequestration, reduce greenhouse gas emissions, and support global initiatives for climate change mitigation.



2. Economic Benefits:

- A UNEP study revealed that half of the world's GDP is dependent on nature, and every dollar invested in restoration generates up to USD 30 in benefits.
- Land restoration is also at the core of the UNCCD's mission, as actions that protect and revitalise land resources such as soil, water and biodiversity are critical to achieving Land Degradation Neutrality by 2030 and constitute a proactive way to build resilience to drought.

Global Initiatives on Land Restoration:

1. UN Convention to Combat Desertification (UNCCD):

- A major global agreement on issues related to land, the convention (UNCCD) was established in 1994 to protect and restore land and to address the phenomenon of desertification, the process through which fertile and productive land becomes degraded and unfit for useful activities like agriculture.

2. Land Degradation Neutrality (LDN) Fund:

- Set up in 2018, the LDN Fund is an impact investment fund that invests in profit-generating sustainable land management and land restoration projects globally.

3. UN Decade on Ecosystem Restoration:

- It aims to prevent, halt, and reverse the degradation of ecosystems on every continent and in every ocean.

4. International Drought Resilience Alliance (IDRA):

- It is a global alliance for a drought-resilient future.
- IDRA mobilises political, technical, and financial capital to enhance drought resilience in countries, cities, and communities.

Indian Initiatives:

- Desertification and Land Degradation Atlas of India
- National Action Programme to Combat Desertification
- Integrated Afforestation and Eco-development Project Scheme (IAEPS)
- Integrated Wastelands Development Programme (IWDP)
- Desert Development Programme (DDP)
- Centre of Excellence at the Indian Council for Forestry Research and Education (ICFRE)

Way Forward:

1. Including Local Stakeholders in Restoring Land:

- It is important to involve local stakeholders in land restoration efforts.
- This ensures their participation, helps them gain sustainable livelihoods, and strengthens their connection to the land, leading to long-term success and resilience in land restoration projects.



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2. Diverse Land Restoring Approaches:

- Depending on the type and extent of land degradation, land restoration techniques can vary.
- As there is no one-size-fits-all approach, it is crucial to apply diverse approaches to achieve the common goal.
- These approaches can involve measures such as implementing sustainable land management practices, planting native vegetation, establishing protected areas, and adopting agroforestry systems to restore soil health and productivity.

Land is an essential part of ecosystems. Ensuring healthy and productive land is vital for maintaining natural balance. Land restoration is also at the core of the UNCCD's mission, as actions that protect and revitalise land resources such as soil, water and biodiversity are critical to achieving Land Degradation Neutrality by 2030 and constitute a proactive way to build resilience to drought.

