

Desertification: Causes and Control

Unit 5

Topic 5



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Desertification

Why in the news?

- India is holding the 14th meeting of the Conference of Parties (COP14) to the United Nations Convention to combat desertification.
- Recently, the World Day to Combat Desertification and Drought was observed on June 17th. The theme for 2019 is '**Let's Grow the Future Together**' to encourage people against depleting the land of its inbuilt resources.

What is Desertification?

Desertification is the process by which the biological productivity of drylands (arid and semiarid lands) is reduced due to natural or manmade factors. It does not mean the expansion of existing deserts.

Causes for Desertification?

- **Man-Made Causes:**
 - **Overgrazing**
 - It reduces the usefulness, productivity, and biodiversity of the land.
 - India lost 31% of grasslands between 2005 and 2015.
 - **Deforestation**
 - A forest acts as a **carbon sink**.
 - Deforestation releases carbon dioxide back into the atmosphere contributing to the greenhouse effect.
 - **Farming Practices**
 - Slash and burn agriculture exposes state to soil erosion hazards
 - Heavy tilling and overirrigation disturbs mineral composition of the soil.
 - **Urbanization**
 - As urbanization increases, the demand for resources increases drawing more resources and leaving lands that easily succumb to desertification.
 - **Climate Change**
 - It may exacerbate desertification through alteration of spatial and temporal patterns in temperature, rainfall, solar radiation and winds.
 - **Overexploitation of Resources**
 - Increasing demand for land resources due to issues like overpopulation leaves land vulnerable to desertification.
- **Natural Causes:**
 - **Natural Disasters**
 - Natural Disasters like Floods, Droughts, landslides results into
 - Water Erosion
 - Displacement of fertile soil.
 - **Water erosion**
 - It results into Badland Topography which itself is an initial stage of desertification.

- **Wind Erosion**
 - Sand encroachment by wind reduces fertility of the soil making the land susceptible to desertification.

Impacts of Desertification

- Environmental impacts:
 - Destruction of Vegetation
 - Soil infertility
 - Increased soil erosion
 - Increased vulnerability to natural disasters
 - Land degradation
 - Water pollution
 - Loss of biodiversity & extinction of species
- Economical impacts:
 - Increased occurrences of natural hazards like,
 - Floods
 - Landslides
 - Draughts
 - Threatens agricultural productivity.
 - Repercussive impacts increase poverty.
 - Overall productivity of the economy decreases
- Social Impacts:
 - Rise of famine, poverty, social conflicts
 - Forces mass migrations i.e. environmental migration.
 - Food Security Issues
- Political Impacts:
 - Repercussive impacts also lead to political instability

Status of Desertification in India

- 96 million hectares or close to 29% of India's area is undergoing degradation.
- According to the Government's data recently presented to the United Nations Convention to Combat Desertification (UNCCD), India lost 31%, or 5.65 million hectares (mha), of grassland area in a decade.
- The extent of degraded land in India is over **105 million hectares or about 32%** of India's areas.
- India has witnessed an increase in the level of desertification in 26 of 29 states between 2003-05 and 2011-13.
- More than 80% of the country's degraded land lies in just nine states.

Measures taken by India to Curb Desertification

- **Command Area Development**
 - It was launched in **1974** to improve the irrigation potential utilization and to optimize agricultural production through efficient water management.

- The **Ministry of Water resources** coordinates the implementation of the program with respective state governments.
- **Integrated Watershed Management Programme**
 - It was launched in **1989-90**.
 - It aims to restore ecological balance by harnessing, conserving and developing degraded natural resources with the creation of Rural Employment.
 - It was named as “**Haryali Guidelines**” in **2003**.
 - Now it is **subsumed** under **Pradhan Mantri Krishi Sinchai Yojana (2015-16 to 2019-20)** which is being **implemented** by **NITI Ayog**.
- **Desert Development Programme**
 - It was launched in **1995** to minimize the adverse effect of drought and to rejuvenate the natural resource base of the identified desert areas.
 - It was launched for hot desert areas of **Rajasthan, Gujarat, Haryana** and cold desert areas of **Jammu & Kashmir and Himachal Pradesh**.
 - It is implemented by the **Ministry of Rural Development**.
- India became a signatory to the **United Nations Convention to Combat Desertification (UNCCD)** in 1994 and ratified in 1996.
- **Soil Conservation in the Catchment of River Valley Projects and Flood Prone Rivers**
 - Both the projects are clubbed and being implemented since **2000**.
 - The scheme aims at improving the physical conditions and productivity status of alkali soils for restoring optimum crop production.
 - It is being implemented by the **Ministry of Agriculture and Farmers Welfare**.
- **National Afforestation Programme**
 - It is being implemented since **2000** for the afforestation of degraded forest lands.
 - It is being implemented by the **Ministry of Environment, Forest and Climate Change**
- **National Action Programme to Combat Desertification**
 - It was prepared in **2001** to address issues of **increasing desertification and to take appropriate actions**.
 - It is implemented by the **Ministry of Environment, Forest and Climate Change**.
- **Fodder and Feed Development Scheme**
 - It was launched in **2010**.
 - It aims to improve **degraded grassland and also the vegetation cover of problematic soils like saline, acidic and heavy soil**.
 - It is being implemented by the **Ministry of Fisheries, Animal Husbandry, and Diaries**.
- **National Mission on Green India**
 - It is a part of the **National Action Plan on Climate Change (NAPCC)**.
 - It was approved in **2014** with the objective of protecting, restoring and enhancing India’s diminishing forest cover with a **deadline of 10 years**.
 - It is being implemented by the **Ministry of Environment, Forest and Climate Change**
- **Desertification and Land Degradation Atlas of India**
 - It was released by **ISRO** in **2016**.

- Combating desertification and land degradation is one of the thrust areas covered by it.

Global Efforts to Prevent Desertification

- **The Bonn Challenge:** To bring 150 million hectares of the world's deforested and degraded land into restoration by 2020, and 350 million hectares by 2030.
- **Goal 15 of Sustainable Development Goals (SDG), 2030:** It declares that “we are determined to protect the planet from degradation, including through sustainable consumption and production.”
- **United Nations Convention to Combat Desertification (UNCCD):** It was established in 1994, the **sole legally binding international agreement linking environment and development** to sustainable land management.
- The World Day to Combat Desertification and Drought is observed every year on **17th June.**
- **Great Green Wall:** Initiative by **Global Environment Facility (GEF)**, where eleven countries in **Sahel-Saharan Africa** have focused efforts to fight against land degradation and revive native plant life to the landscape.

Steps To Be Taken

- Sustainable Land Use
- Protection of vegetative cover which would prevent soil erosion
- Alternative Farming and Industrial Techniques
- Establish economic opportunities outside drylands
- The practice of Sustainable Agriculture
- The practice of Eco Forestry made to be regular
- Use of recycled paper
- Raise awareness about Desertification

Way Forward

Ending desertification is the best chance the world has to stabilize the effects of climate change, save wildlife species and protect our well-being. Protecting the forest is our mutual responsibility, which should be carried out by people and governments worldwide.