

Land Degradation Summit

June 28, 2019

India to host UN land degradation summit

Manifest pedagogy

Desertification is an important topic for mains. In the backdrop of India hosting the convention it assumes much more importance. Land degradation, desertification, droughts, poverty etc are highly interlinked topics. Emphasize on specific measures taken in India and action plans/central govt schemes which helps in prevention of land degradation.

In news

India for the first time, will host the 14th session of the Conference of Parties (COP-14) of the United Nations Convention to Combat Desertification (UNCCD) in September, 2019

Placing it in syllabus

- Environmental pollution and degradation

Static dimensions

- Concepts of land degradation and desertification

Current dimensions

- Status of land degradation and desertification in India
- UNCCD
- Measures taken by India to combat land degradation

Content

Land is a vital resource for producing food and other ecosystem goods and services including conserving biodiversity, regulating hydrological regimes, cycling soil

nutrients, and storing carbon, among others. Indeed, the most significant geo-resource or natural capital asset is productive land and fertile soil. For those communities that rely heavily on land as their main asset, especially the rural poor, human well-being and sustainable livelihoods are completely dependent upon and intricately linked to the health and productivity of the land.

What is land degradation

UNCCD defines land degradation as a “reduction or loss, in arid, semi-arid, and dry sub-humid areas, of the biological or economic productivity and complexity of rain-fed 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 (i) soil erosion caused by wind and/or water; (ii) deterioration of the physical, chemical, and biological or economic properties of soil; and (iii) long-term loss of natural vegetation”.

Land degradation (LD) can be broadly divided into physical, chemical & biological degradation

1. Physical degradation is erosion, soil organic carbon loss, change in soil's physical structure-e.g. compaction, waterlogging. Globally soil erosion is the most important LD process resulting in removal of topsoil. Soil productivity is depleted through reduced rooting depth, loss of plant nutrients and physical loss of topsoil
2. Chemical degradation refers to leaching, salinisation, fertility depletion, acidification, nutrient imbalances
3. Biological degradation implies the loss of vegetation, rangeland degradation and loss in biodiversity including soil organic matter

What is Desertification

According to Article 1 of the United Nations Convention to Combat Desertification (UNCCD, Paris, 1994), desertification means “land degradation in arid, semi-arid and dry sub-humid areas resulting from various factors, including climatic variations and human activities.”

Causes of land degradation and desertification in India

▪ *Overgrazing, Deforestation and Careless Forest Management*

Overgrazing and deforestation have caused degradation in eight Indian states which now have >20% wasteland. Loss of vegetation occurs due to cutting beyond the silviculturally permissible limit, unsustainable fuelwood and fodder extraction, encroachment by agriculture into forest lands, forest fires and overgrazing, all of which subject the land to degradation forces. High livestock density in arid regions causes overgrazing, resulting in decreased infiltration and accelerated runoff and soil erosion. Impoverishment of the natural woody cover of trees and shrubs is a major factor responsible for wind and water erosion.

▪ *Urban Growth, Industrialisation and Mining*

An increase in industrialisation, urbanisation and infrastructure development is progressively taking away considerable areas of land from agriculture, forestry, grassland and pasture, and unused lands with wild vegetation. Opencast mining disturbs the physical, chemical, and biological features of the soil and alters the socioeconomic features of a region. Negative effects of mining are water scarcity due to lowering of water table, soil contamination, part or total loss of flora and fauna, air and water pollution and acid mine drainage.

- *Natural causes*

Include earthquakes, tsunamis, droughts, avalanches, landslides, volcanic eruptions, floods, tornadoes, and wildfires.

- *Land Shortage, Land Fragmentation and Poor Economy*

In India, small land holdings are a prominent feature, particularly in rainfed regions. Small land holdings lead to severe economic pressures on farmers. Because of such pressure, labour, land and capital resources limit the use of green manuring or soil conservation structures. Therefore, land shortage and poverty, taken together, lead to non-sustainable land management practices as a direct source of degradation.

- *Population Increase*

Steady increases in human population, as well as livestock population and the widespread incidence of poverty are exerting heavy pressures on India's limited land resources. Urban sprawl is a consequence of increasing urban population. As urban population increases, infrastructure requirements including transportation, water and sewage facilities, housing, schools, commerce, health, and recreation all contribute to urban sprawl.

- *Agricultural activities and practices*

These causes include cultivation in fragile deserts and marginal sloping lands without any conservation measures, land clearing through clear cutting and deforestation, agricultural depletion of soil nutrients through poor farming practices, crop residue burning(e.g paddy straw burning in Punjab and Haryana), excessive tillage and use of machinery, overgrazing, over and imbalanced use of fertilisers, over-drafting (the process of extracting groundwater beyond the safe yield of the aquifer) and land pollution including industrial waste disposal to arable lands.

- *Poor Irrigation and Water Management*

Improper planning and management of irrigation systems and extraction of ground water in excess of the recharge capacity have resulted in a rise of the water table in most canal command areas. Specific issues of concern are inefficient use of irrigation water, poor land development, seepage from unlined water courses and poor drainage. Expansion of canal irrigation (like the Indira Gandhi Nahar Project) has been associated with widespread waterlogging and salinity problems in areas, such as in the Indo-Gangetic Plains (IGP). In arid, semi-arid and sub-humid regions, large areas have been rendered barren due to the development of saline soils because of poor irrigation and drainage management. Cracking of soil from poor irrigation management leads to bypass flow of water and subsequent nitrate leaching.

- *Pesticide Overuse and Soil Pollution*

Indiscriminate use of pesticides together with sewage sludge and composted municipal wastes leads to contamination of soil and water with toxic substances and heavy metals. Heavy metal pollution is due to improper disposal of industrial effluents and use of domestic and municipal wastes and pesticides. Indiscriminate use of agro-chemicals, such as fertilizers and pesticides (Green revolution), is often responsible for land degradation.



Status of land degradation and desertification in India

According to recently released State of India's Environment 2017 report, nearly 30 per cent of India is degraded or facing desertification. Of India's total geographical area of 328.72 million hectares (MHA), 96.4 MHA is under desertification. In eight states—Rajasthan, Delhi, Goa, Maharashtra, Jharkhand, Nagaland, Tripura and Himachal Pradesh—around 40 to 70 per cent of land has undergone desertification. More to it, 26 of 29 Indian states have reported an increase in the area undergoing desertification in the past 10 years.

Loss of soil cover, mainly due to rainfall and surface runoff, is one of the biggest reasons for desertification. It is responsible for 10.98 per cent of desertification in the country. Water erosion is observed in both hot and cold desert areas, across various land covers and with varying levels of severity.

Measures for prevention of land degradation and desertification

- Integrating land and water management to protect soils from erosion, salinization, and other forms of degradation.
- Protecting the vegetative cover, which can be a major

instrument for soil conservation against wind and water erosion.

- Integrating the use of land for grazing and farming where conditions are favorable, allowing for a more efficient cycling of nutrients within the agricultural systems.
- Applying a combination of traditional practices with locally acceptable and locally adapted land use technologies.
- Giving local communities the capacity to prevent desertification and to manage dryland resources effectively.
- Turning to alternative livelihoods that do not depend on traditional land uses, such as dryland aquaculture, greenhouse agriculture and tourism-related activities, is less demanding on local land and natural resources, and yet provides sustainable income.
- Creating economic opportunities in dryland urban centers and in areas outside of drylands.

United Nations Convention to Combat Desertification (UNCCD)

Adopted as a direct recommendation of the 1992 Rio Summit, UNCCD is the only international legally binding instrument to effectively tackle desertification and the effects of drought. It was established in 1994. The Convention addresses specifically the arid, semi-arid and dry sub-humid areas, known as the drylands.

It aims to achieve a land degradation-neutral world consistent with the 2030 Agenda for Sustainable Development. The UNCCD is particularly committed to a bottom-up approach, encouraging the participation of local people in combating desertification and land degradation.

The new UNCCD 2018-2030 Strategic Framework is the most comprehensive global commitment to achieve Land Degradation Neutrality (LDN) in order to restore the productivity of vast

expanses of degraded land, improve the livelihoods of more than 1.3 billion people, and reduce the impacts of drought on vulnerable population. UNCCD collaborates closely with the other two Rio Conventions; the Convention on Biological Diversity (CBD) and the United Nations Framework Convention on Climate Change (UNFCCC), to meet these complex challenges with an integrated approach and the best possible use of natural resources.

India to host the 14th session of the CoP to UNCCD

The fourteenth session of the Conference of the Parties (COP-14) will take place from 2 to 13 September 2019 in New Delhi, India. The global Conference is expected to review the progress made, especially during the last two years, to control and reverse further loss of productive land from desertification, land degradation and drought. COP14 will take place exactly two years since the last Conference held on 6-16 September 2017 in Ordos in the People's Republic of China.

Ahead of the COP-14, Minister of Environment and Forests, launched a flagship project, part of a larger international initiative called the Bonn Challenge, to enhance India's capacity for forest landscape restoration (FLR). It will be implemented in partnership with The International Union for Conservation of Nature (IUCN).

The Bonn Challenge is a global effort to bring 150 million hectares of the world's deforested and degraded land under restoration by 2020, and 350 million hectares by 2030. At the UNFCCC COP, 2015 in Paris, India also joined the voluntary Bonn Challenge pledge to bring into restoration 13 million hectares of degraded and deforested land by the year 2020, and additional 8 million hectares by 2030. India's pledge is one of the largest in Asia. It will be implemented during a pilot phase of three-and-a-half years in Haryana, Madhya Pradesh, Maharashtra, Nagaland and Karnataka and later on will be implemented pan- India.

Some of the new and relevant issues that are on the radar of the governments include the interaction between climate and land, optimising the mix of food, energy and environment demands on land, the rural-urban link, the negative feedback of land degradation on poverty and human health, the tremendous opportunity sustainable value chains may provide, the role of the local communities and the rapidly growing global movement on land restoration.