Land Degradation and Desertification in India

Why in News

Recently, a document published by **ISRO (Indian Space Research Organisation)** named **Desertification and Land Degradation Atlas** shows that Land Degradation and Desertification has increased significantly in recent years.

- The Atlas **provides a state wise area of degraded lands for the time frame 2018-19.** It also provides the change analysis for the duration of 15 years, from 2003-05 to 2018-19.
- Earlier, the Prime Minister delivered a keynote address at the **United Nations' (UN)** **"High-Level** Dialogue on Desertification, Land Degradation and Drought" via video conference.

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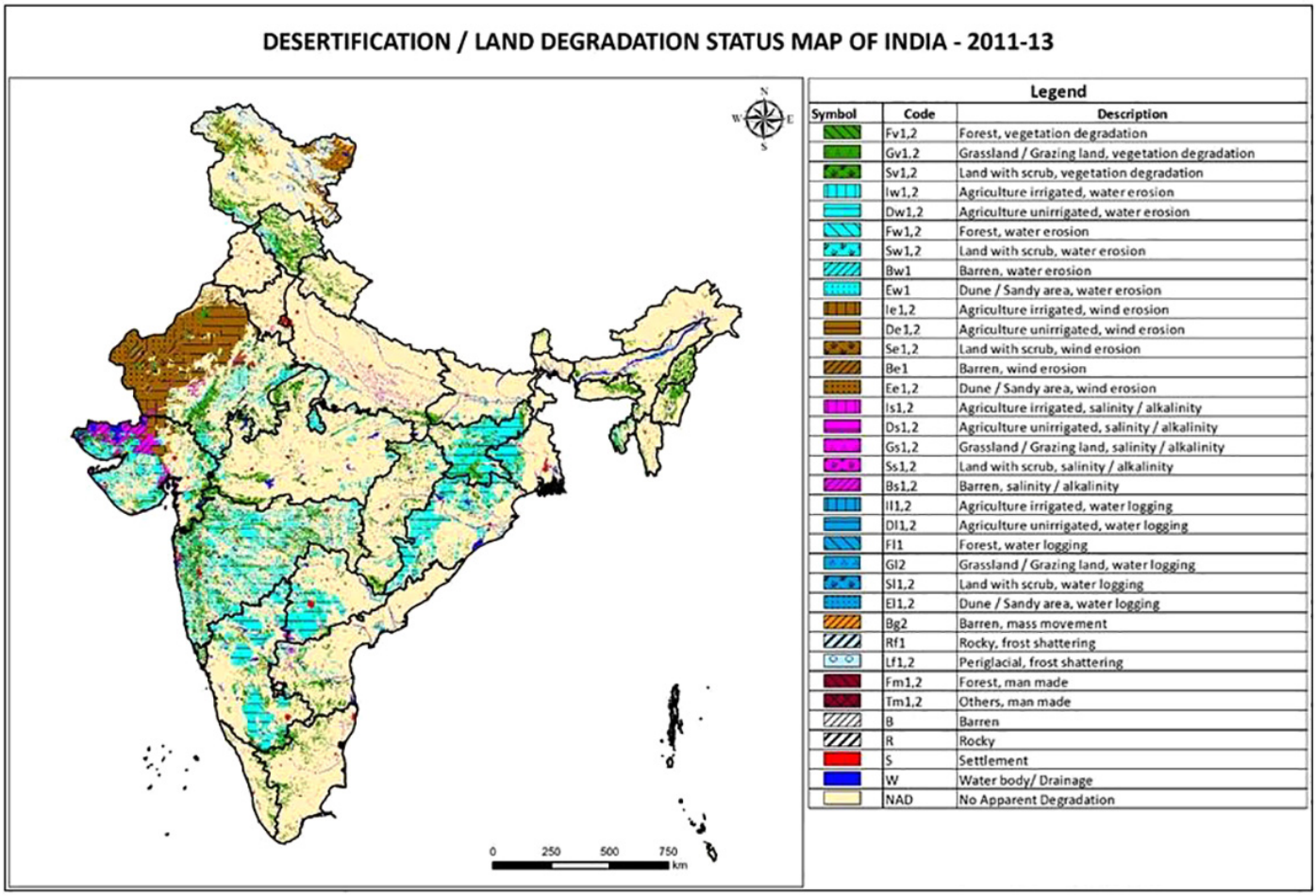

Key Points

- **About:**

- **Land Degradation:**
    - Land degradation is caused by multiple forces, including extreme weather conditions, particularly drought. It is also caused by human activities that pollute or degrade the quality of soils and land utility.
- **Desertification:**
    - Land degradation within dry land regions (arid, semi-arid and dry sub-humid regions) is termed as ‘desertification’.
    - Desertification is the process by which the biological productivity of drylands is reduced due to natural or manmade factors. It does not mean the expansion of existing deserts.

- **Status:**
    - **Land Degradation:**
        - Some 97.85 million hectares (29.7%) of India’s total geographical area (TGA) of 328.72 mha underwent land degradation during 2018-19.
        - In 2003-05, 94.53 mha (28.76% of the TGA) underwent land degradation. The number increased to 96.40 mha (29.32% of the TGA) in 2011-13.
    - **Desertification:**
        - Some 83.69 mha underwent desertification in 2018-19. This was greater than the 81.48 mha in 2003-2005 and 82.64 mha in 2011-13 that underwent desertification.
    - **State wise Data:**
        - Around 23.79% of the area undergoing desertification / land degradation with respect to TGA of the country was contributed by Rajasthan, Maharashtra, Gujarat, Karnataka, Ladakh, Jharkhand, Odisha, Madhya Pradesh and Telangana.
        - India witnessed an increase in the level of desertification in 28 of 31 states and Union territories between 2011-13 and 2018-19, a closer look at data in the atlas showed.
- **Causes:**
    - **Loss of Soil Cover:**
        - Loss of soil cover, mainly due to rainfall and surface runoff, is one of the biggest reasons for desertification. It is responsible for 11.01% of the desertification in the country.
        - **Cutting forests** adversely affect the soil and cause degradation. As **urbanization** increases, the demand for resources is also increasing.
    - **Vegetation Degradation:**
        - Vegetation degradation is defined as, "the temporary or permanent reduction in the density, structure, species composition or productivity of vegetation cover".
        - It is found to be responsible for **9.15% of desertification in the country.**
    - **Water Erosion:**
        - It **results in Badland Topography** which itself is an initial stage of desertification.
            - **Badlands** are a type of dry terrain where softer sedimentary rocks and clay-rich soils have been extensively eroded.
        - In 2011-13, water erosion was responsible for 10.98% of desertification in the country.
    - **Wind Erosion:**
        - Sand encroachment by wind reduces fertility of the soil making the land susceptible to desertification.
        - It was found to be responsible for 5.46% of the desertification in India.

- **Climate Change:**
    - It may exacerbate desertification **through alteration of spatial and temporal patterns** in temperature, rainfall, solar radiation and winds.

- **Impact:**
    - **Economic Impact:**
        - Land degradation **threatens agricultural productivity.** It reduces soil health, thus in turn **impacting the livelihood of rural people.**
    - **Climate Change:**
        - It is exacerbating climate change events, which in turn, are causing even greater degradation.
            - For e.g. degraded land loses its capacity to absorb carbon-dioxide (CO_2), a greenhouse gas (GHG) that is the biggest factor in worsening global warming.
    - **Water Scarcity:**
        - Land degradation has resulted in a deterioration in the quantity and quality of both surface and groundwater resources.
        - The dryland population vulnerable to water stress and drought intensity is projected to reach 178 million under the most ideal conditions of 1.5 deg-C warming by 2050.
    - **Rights of Indigenous People:**
        - Insecure land tenure affects the ability of people and communities to fight climate change, which is further endangered by land degradation.
- **Measures taken by India to Curb Desertification/Land Degradation:**
    - Integrated Watershed Management Programme**:**
        - It aims to restore ecological balance by harnessing, conserving and developing degraded natural resources with the creation of Rural Employment. Now it is subsumed under Pradhan Mantri Krishi Sinchai Yojana 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.
    - United Nations Convention to Combat Desertification (UNCCD)**:**
        - India became a signatory to the UNCCD in 1994 and ratified in 1996. India is working to restore 26 million hectares of degraded land by 2030.
        - India is working hard to achieve its national commitment on **Land Degradation Neutrality (LDN)** (Sustainable Development Goal target 15.3).
            - LDN is a state whereby the amount and quality of land resources, necessary to support ecosystem functions and services and enhance food security, remains stable or increases within specified temporal and spatial scales and Ecosystems.
    - **National Afforestation Programme:**
        - It has been 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.

- National Mission on Green India**:**

    - It was approved in 2014 with the objective of protecting, restoring and enhancing India's diminishing forest cover with a deadline of 10 years.

Source: DTE