5. SOFA 2025 Report – Reports & Indices

India among countries with highest yield loss due to human-induced land degradation. The FAO's SOFA 2025 report highlights that human-induced land degradation has become a "silent crisis," with 1.7 billion people in low-yield areas. In India, this is driven by unsustainable agriculture and water mismanagement, prompting policy responses like the Land Degradation Neutrality (LDN) 2030 target and schemes like the Soil Health Card and MGNREGS.

The SOFA 2025 Report

Report - The State of Food and Agriculture (SOFA) 2025 Report.
Publishing Body - The Food and Agriculture Organization (FAO).
Key Finding - The report highlights a growing global crisis of human-induced land degradation.

State of Food and Agriculture (SOFA) Report

Nature of Report - SOFA is the annual flagship publication of the FAO.
Purpose - It provides evidence-based analysis on critical issues that affect global food and agricultural systems.
2025 Edition Focus - The 2025 edition specifically focuses on how human activities accelerate land degradation.
Scope - The report maps the comprehensive economic, social, and environmental consequences of this degradation.
Global Impact - It notes that around 1.7 billion people globally live in areas where crop yields are at least 10% lower due to human-induced degradation.

Land Degradation

Formal Definition - Land degradation is defined as the long-term decline or loss of the biological or economic productivity and complexity of land resources.
Resources Affected - This decline impacts soil, vegetation, and water.
Characterization - It is widely considered a pervasive and "silent crisis".
Primary Driver - It is driven predominantly by human activities, although natural factors can also contribute.

Causes and Effects of Land Degradation

Category	Causes	Effects
Environmental	* Deforestation, overgrazing * Unsustainable farming practices * Inappropriate irrigation * Overuse of agrochemicals * Land conversion for urban/industrial use	* Reduced agricultural productivity * Biodiversity loss, water scarcity * Increased vulnerability to floods and droughts * Release of greenhouse gases (from soil)
Socio-economic	* Population pressure, poverty * Insecure land tenure (lack of ownership) * Lack of awareness/appropriate policies	* Food insecurity, poverty, malnutrition * Economic losses (est. up to $23 trillion globally by 2050) * Social/political instability * Forced migration

Reasons for Land Degradation in India

Unsustainable Agriculture - Soil health is degraded by - excessive tillage, monocropping, unbalanced fertilizer use, over-irrigation, heavy pesticide application, and poor management of crop residues.
Deforestation and Overgrazing - Increased demand for cultivation and fodder leads to overgrazing and deforestation. This removes the protective vegetation cover, exposing topsoil to severe erosion from wind and rain.
Water Mismanagement - Over-irrigation in semi-arid regions (e.g., Punjab, Haryana) causes waterlogging and soil salinity. Unsustainable groundwater extraction reduces water availability, which in turn worsens land stress and degradation.

Urbanization and Industrial Pollution - Rapid and often unplanned urban expansion has sealed fertile agricultural land under concrete and infrastructure. Industrial activity pollutes nearby soils and water bodies through the discharge of untreated effluents.
Population and Poverty Pressure - A fast-growing population pushes cultivation into fragile, marginal areas (like steep slopes). Poverty often forces farmers to prioritize short-term survival (over-exploiting land) rather than investing in long-term sustainable land use.
Climate Change - Climate change amplifies the effects of degradation, particularly in regions that are already stressed. Key factors include rising temperatures, erratic rainfall patterns, and an increase in the frequency of floods and droughts.

Repercussions consequences of Land Degradation

Falling Productivity - Degraded soils yield less food, which directly cuts into the national food output and significantly reduces farmers' incomes.
Nutrient Loss - Erosion (by wind and water) and salinity strip the topsoil of vital nutrients, leading to a widespread decline in soil fertility.
Food Insecurity - Lower domestic yields contribute to higher food prices, a greater dependence on food imports, and worsening malnutrition and hidden hunger.
Livelihood Risks - Farmers who are dependent on rainfed crops (the majority in India) face the greatest threat, experiencing declining returns and rising vulnerability to crop failure.
Environmental Damage - Degraded land loses its ability to absorb and store carbon. It supports fewer species, leading to biodiversity loss. This weakens the land's natural resilience against climate shocks.

Case Studies in India

Himalayan Foothills (Uttarakhand and Himachal Pradesh) - Unchecked deforestation combined with cultivation on steep slopes leads to frequent landslides and severe soil erosion during monsoon seasons.
Gangetic Plains (Uttar Pradesh and Bihar) - The continuous, intensive rice–wheat monoculture rotation with limited organic inputs (like manure) has caused widespread soil fatigue and declining fertility.
Rajasthan and Gujarat - Wind erosion in these arid and semi-arid zones continues to expand desert areas (desertification), stripping the land of its productive topsoil.
Policy Responses and Restoration Efforts by Indian Government - India has formally committed to achieving Land Degradation Neutrality (LDN) by 2030, which aims to ensure that any new degradation is offset by an equivalent area of restoration.

Major National Programs

National Action Plan to Combat Desertification (NAP) - Provides the overarching national framework for tackling desertification through sustainable land use and afforestation.
MGNREGS (Mahatma Gandhi National Rural Employment Guarantee Scheme) - Funds numerous local-level soil and water conservation works (like check dams and bunds), improving community participation in land restoration.
Green India Mission (GIM) & Forest Fire Protection & Management Scheme - These programs aim to increase forest cover and protect existing ecosystems from fire and degradation.
CAMPA Fund (Compensatory Afforestation Fund Management and Planning Authority) - Supports compensatory afforestation activities in areas where forest land has been diverted for industrial or infrastructure projects.
Soil Health Card Scheme - Promotes balanced fertilizer use by providing farmers with detailed soil testing and nutrient recommendations.
Integrated Watershed Management Programme (IWMP) - Encourages comprehensive soil and water conservation in rainfed areas to boost agricultural productivity.

State-Level Examples

Green Tamil Nadu Mission - Focuses on restoring coastal habitats using salt-tolerant species like mangroves and Casuarina, which also act as natural bioshields against coastal erosion and storms.
Karnataka's Jala Sanjeevini Initiative - This initiative skillfully uses GIS mapping and remote sensing

data to identify critical areas for intervention. It then uses community participation under MGNREGA to improve groundwater recharge and reduce land degradation.

Way Forward

Holistic Planning - Requires aligning agricultural, forestry, and water policies to prevent contradictory goals and overlapping efforts.

Technology Integration - Must leverage modern tools like remote sensing and GIS for real-time monitoring of land health and for precision planning of restoration projects.

Support for Smallholders - Provide small-scale farmers with crucial credit access, technical training, and targeted incentives to help them transition to sustainable farming practices.

Community-Led Restoration - Empower local institutions (like Panchayats and farmer groups) to co-manage resources and take ownership of monitoring restoration progress.

True Cost Accounting - Agricultural decision-making must begin to factor in the environmental and social costs of degradation (e.g., pollution, carbon loss) to properly promote long-term sustainability.

Policy Tools Suggested by FAO

Regulations - Implementing clear rules such as land zoning, anti-deforestation laws, and mandatory soil conservation measures.

Incentives - Providing Payments for Ecosystem Services (PES) to reward farmers for sustainable practices, and offering financial support for adopting them.

Cross-Compliance - A policy tool that links government subsidies or credit access to the requirement that farmers adhere to environmentally sound practices.

FAO Analysis - The report concludes that restoring just 10% of the world's degraded cropland could produce enough food to feed an additional 154 million people annually.

Source - https - //www.downtoearth.org.in/agriculture/india-among-countries-with-highest-yield-loss-due-to-human-induced-land-degradation