

# **“Economics of Desertification, Land Degradation and Drought (DLDD) in India”**

Study Methodology  
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# What is land degradation?

- UNCCD definition of land degradation focuses on both biological and economic productivity:  
*“ the loss of biological or economic productivity and complexity of croplands, pastures or forests resulting from land uses or processes including those arising from human activities. These processes include things like soil erosion, deterioration of the quality of the soil and long-term loss of natural vegetation.*
- Land use change figures in the nine areas identified by scientists as straining planetary boundaries (Rockstorm et al. 2009)

# Land Use Change, Desertification and Degradation

- Land use undergoes change over time but when this change goes beyond a certain limit or makes productivity low/ unacceptable.
- It covers “*croplands, pastures or forests*”
- Drivers could be “*natural or human*”
- Degradation could be reversible or irreversible
- Methodology for assessing costs would depend on the above, (whether reversible or not)

# Objectives of the Project

- In view of the above I focus on some aspects of the project objectives
- Assess scale of land degradation (*on croplands, pastures and forests?*) in the country with the economic impacts ( on what? Today's agricultural output, tomorrow's: sustainability issues will bring in quality of land under agriculture, pastures and forests?)
- Assess the quantum, along with the sources, of investment required for undertaking preventive and restorative measures which can help achieve the aspirational goal of land degradation neutral India by 2030 ( neutral of human induced land degradation? And ways to move towards it)

# Two step Methodology

1. A macro-economic assessment for the entire country and scenario development (till 2030).
2. Select 6 case study sites for *micro-economic assessment* in **arid, semi-arid and dry sub-humid regions** of the country, identify the data requirements and sources of information.

# Methodology for cost assessment: preventive or restorative measures

- Cost of Prevention of land degradation is indicated when change is irreversible: extreme desertification or deforestation of ecologically fragile regions
- Cost of restoration when technologies are available for the same : salinity or alkalinity waterlogging on agricultural land or loss of organic matter (?)
- Measures relevant and likely to be successful depend critically on land ownership and institutional structures.

# Land systems or Landscapes

- Sensitivity and resilience of land systems help in identifying whether to prevent or restore degradation
- Sensitivity: degree to which a land system undergoes change due to natural forces or human intervention: steep slopes very sensitive
- Resilience is the property that allows a land system to absorb and utilize change. Natural resilience may be enhanced or depleted by human interventions and technology used

# Land system characteristics and strategies

	High Sensitivity	Low Sensitivity	
High Resilience	Easy to degrade Easy to restore  Strategy :Restore	Hard to degrade Easy to restore  Strategy: Restore	
Low resilience	Easy to degrade Hard to restore Strategy: Prevent degradation	Hard to degrade Hard to restore Strategy: Prevention	
Ownership	Individual: Mainly restoration with technology, cultivation practices	Government: Preventive and restorative	Commons: Preventive and restorative



# Choice of sites: Criteria

- Note that Degradation/ desertification is identified as a system characteristic
- Choice would have to be of a land system/ landscape with a predominant land-use: agriculture, pastureland and forests
- Select states and sites where these are dominant
- From the maps indicating extent in arid semiarid and sub-humid parts of India: Rajasthan, Gujarat, Upper Gangetic region ( Uttarakhand) UP(?).