

Land Degradation through the lens of Environment Accounting

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Ministry of Statistics and Programme Implementation (MoSPI)

Government of India



Drylands in India

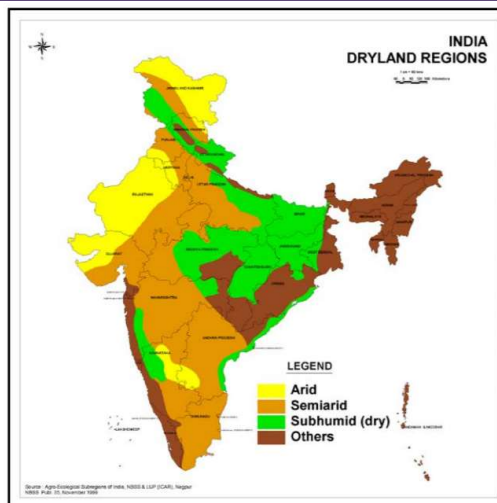


Figure 1. The concise dryland map based on the Agro-ecological sub-regions of India (NBSS&LUP, 1991).



Land Degradation in India

Process of Desertification / Land Degradation	2011-13		2003-05		Change (mha)
	Area (mha)	Area (%)	Area (mha)	Area (%)	(2011-13) - (2003-05)
Vegetation Degradation	29.30	8.91	28.28	8.60	1.02
Water Erosion	36.10	10.98	35.61	10.83	0.49
Wind Erosion	18.23	5.55	18.35	5.58	-0.12
Salinity	3.67	1.12	4.01	1.22	-0.34
Water Logging	0.65	0.20	0.60	0.18	0.05
Frost Shattering	3.34	1.02	3.11	0.95	0.23
Mass Movement	0.93	0.28	0.84	0.26	0.09
Manmade	0.41	0.12	0.37	0.11	0.04
Barren/Rocky	1.89	0.57	1.88	0.57	0.01
Settlement	1.88	0.57	1.48	0.45	0.40
Total Area under Desertification	96.40	29.32	94.53	28.76	1872523
No Apparent Degradation	226.73	68.97	228.68	69.57	-1954372
Total Geographical Area (mha)	328.72				



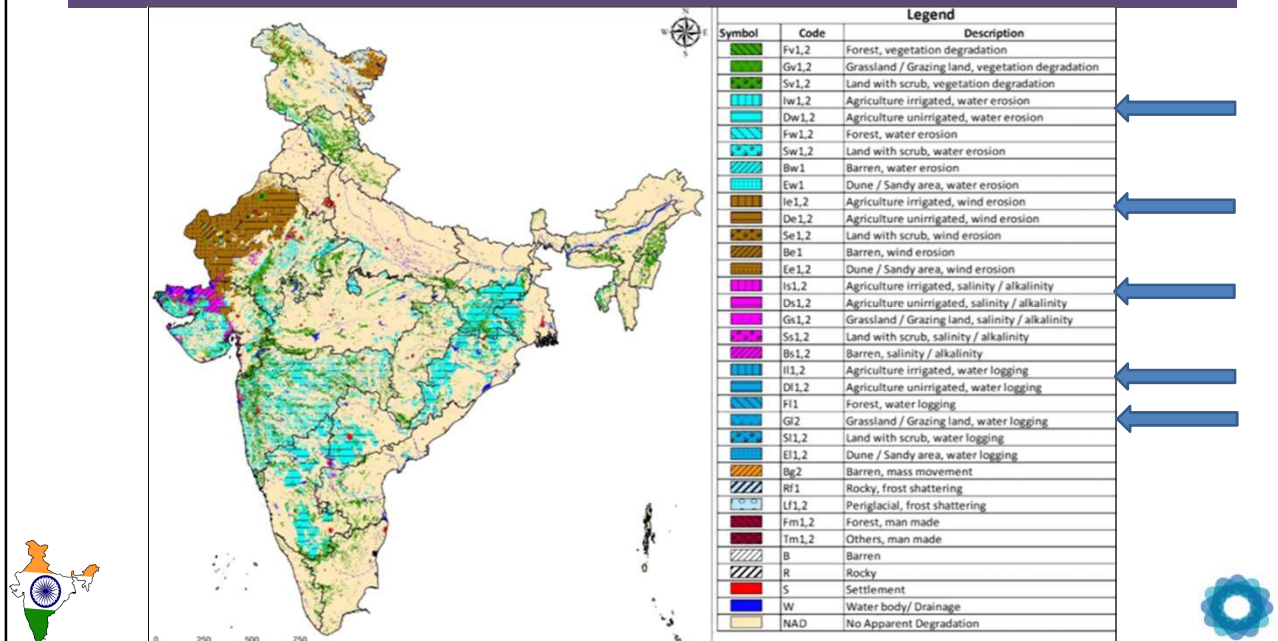
Classification System Used by SAC

Level-1: Land Use		Level-2: Process of Desertification		Level-3: Severity	
Agriculture irrigated	I	vegetation degradation	v	Slight	1
Agriculture unirrigated	D	water erosion	w	Moderate	2
Forest / Plantation	F	wind erosion	e	Severe	3
Grassland / Grazing land	G	salinity / alkalinity	s/a		
Land with scrub	S	water logging	l		
Barren	B	mass movement	g		
Rocky area	R	frost heaving	h		
Dune / Sandy area	E	frost shattering	f		
Glacial	C	man made	m		
Periglacial	L				
Others	T				

Forest, vegetation degradation, Severe → Fv3



Desertification/ Land Degradation Map of India 2011-13



Land Degradation and the Indian Economy

Situation Assessment Survey of Agricultural Households, 2013

- 90.2 million agricultural households
- 58% of rural or 40% of total households
- Rajasthan has 78.4% of agricultural households
- Avg gross cropped area per agricultural household of 0.9 hectare

“Provisioning of Crops”

- Ecosystem service - The contribution of the ecosystem to crop production
- Depends on supporting services, such as
 - nutrient and water cycling, i.e., infiltration of water, holding capacity of soil, absorption and resupply of plant nutrients by soil particles
 - pest regulation, and
 - maintenance of soil quality and biodiversity
- Influences regulating services that provide benefits external to the farm
 - Regulating water and air quality,
 - Storing soil carbon (C) and supporting biodiversity



Measuring “Provisioning of Crops”

- SEEA prescribes the use of ‘resource rent method’
- Appropriation method - Actual payments made to owners in terms of rental value of owned land or rent paid for leased-in land

Sources of information in India:

- Cost of Cultivation Studies
- Information on Area, Production and Yield (APY) of major crops
- Land Use Statistics



Measuring “Provisioning of Crops”

- **Cost of Cultivation Studies**
 - Crop-wise and State-wise Information compiled on cost of cultivation and production in respect of principal crops
 - Costs include value of hired labour, hired machinery charges, material inputs used, depreciation charges, irrigation charges, cesses and taxes, rent paid on leased-in land, rental value of owned land, imputed values of family labour
 - Scheme implemented through 16 Agricultural/Central Universities/ Colleges
 - Implemented in 20 States

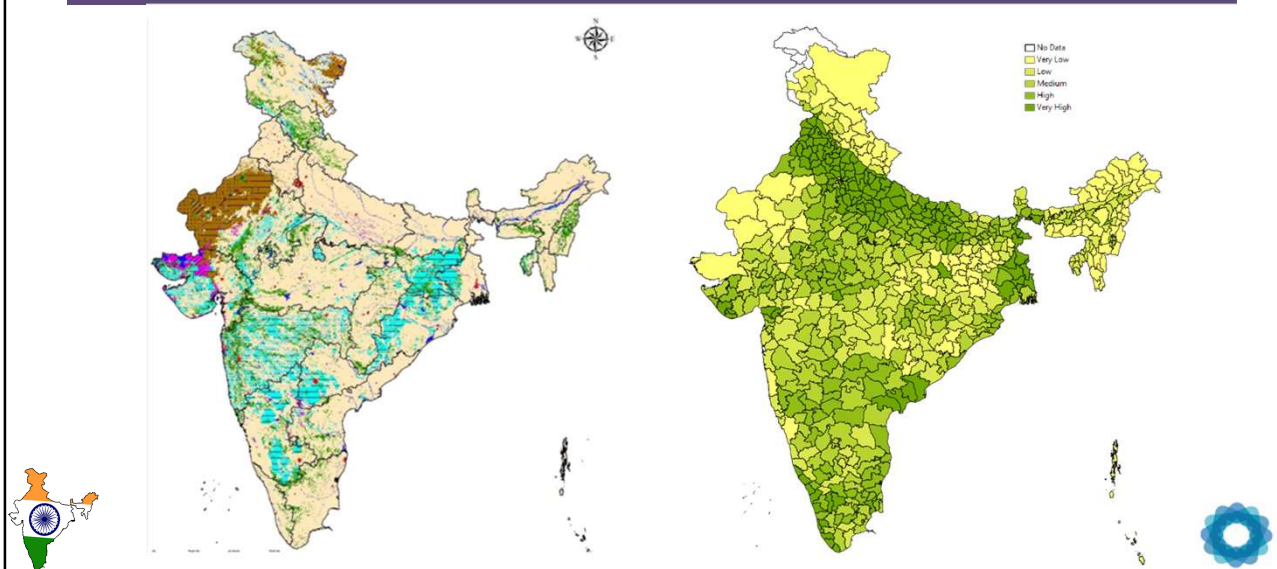


Measuring “Provisioning of Crops”

- **Special Data Dissemination Division of M/o Agriculture**
- **Land Use Statistics** – District-wise information on land use giving nine-fold classification of land, irrigated area (source-wise and crop-wise) and total area under crops
- **District-wise Information on Area, Production and Yield (APY) of major crops**
- **Data available from 1998-99 onwards on <http://aps.dac.gov.in>**
- **Value of Ecosystem Service = “Rent per unit quantity of crop” X “Production”**



Effect of Land Degradation?



THANKS

