India

SOIL DEGRADATION

HUMAN – INDUCED

– 3rd Approximation

Scale 1:4,400,000 1 cm = 44 kms

44 0 44 88 132 176 220 km

N

REFERENCES

- International boundary
- State boundary
- District boundary
- Unit boundary
- River
- Reservoir / Tank
- Glaciers / Ice caps

TAJIKISTAN · AFGHANISTAN · PAKISTAN · CHINA · TIBET · NEPAL · BHUTAN · BANGLADESH · MYANMAR

JAMMU AND KASHMIR · HIMACHAL PRADESH · PUNJAB · CHANDIGARH · HARYANA · DELHI · RAJASTHAN · UTTAR PRADESH · BIHAR · SIKKIM · ARUNACHAL PRADESH · ASSAM · NAGALAND · MEGHALAYA · MANIPUR · TRIPURA · MIZORAM · WEST BENGAL · GUJARAT · MADHYA PRADESH · ORISSA · MAHARASHTRA · ANDHRA PRADESH · GOA · KARNATAKA · TAMIL NADU · DIU (D & D) · DAMAN (D & D) · DADRA AND NAGAR HAVELI · PONDICHERRY (PUDUCHCHERI) · KARAIKAL (PONDICHERRY) · YANAM (PONDICHERRY) · MAHE (PONDICHERRY) · LAKSHADWEEP (INDIA) · ANDAMAN AND NICOBAR ISLANDS (INDIA)

Arabian Sea · Bay of Bengal · Andaman Sea · INDIAN OCEAN · Lakshadweep Sea

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Map unit symbol	Details map unit	Map unit symbol	Details map unit
1	Sn/Wt 1.3	34	Wt 1.3/Pw 2.2/ Cs 2.3 a
2	Wt 1.4 f/a	35	Wt 2.4/Pw 1.3/ Cs 1.2 a
3	Sn/Wt 1.2	36	Wt 3.3/Wt 2.4/ Pw 1.3/Cs 1.2 a
4	Sn/Wt 1.4	37	Wt 3.4/Pw 1.3/ Cs 1.2/Wt 2.3 a
5	Wt 2.4 a	38	Pw 1.3/Cs 1.2/ Wt 2.4 a
6	Wt 2.5 a	39	Cs 2.4/Wt 1.3/ Pw 1.3 a
7	Wt 3.4 f/g/a ↑	40	Wt 2.3/Et 2.4/ Cs 2.3 a
8	Wt 3.5 f/g ↑	41	Et 2.4/R f/g ↑
9	Wt 3.4/Wt 2.4 f/a ↑	42	Et 2.5 g/a ↑
10	Sn/Wt 1.4	43	Et/Ed 3.5 f/g ↑
11	Wt 2.4/Wd 2.3 f/g ↑	44	Ed/Eo 4.5 f/g ↑
12	Wd 2.4/Wt 2.4 f/g ↑	45	Et 2.4 g/a ↑
13	Wd 4.3/Wt 2.4	46	Et 2.4/Cs 2.4 g/a ↑
14	Wd 4.3/Wt 2.4 f/g/a ↑	47	Et 3.4/Wt 1.3 g/a ↑
15	Wd 4.4/Wt 2.4 f/g ↑	48	Et 1.2/M
16	Wt 1.4/Pw 2.3 a		
17	Wt 2.4/Pw 1.3 a		
18	Wt 2.4/Pw 1.4 a		
19	Wt 2.4/Pw 2.4 a		
20	Wt 2.4/Pw 2.3 a		
21	Wt 3.3/Wt 2.3/ Pw 2.4 a		
22	Wd 4.4/Wt 2.3/ Pw 2.3 f/g/a ↑		
23	Pw 1.3/Wt 1.4 a		
24	Pw 1.3/Wt 2.4 a		
25	Pw 2.4/Wt 2.4 a		
26	Wt 2.4/Cs 2.3 a		
27	Wt 2.4/Cs 2.4 a		
28	Wd 4.3/Wt 2.4/ Cs 2.3 f/g/a ↑		
29	Wd 4.4/Wt 2.3/ Cs 2.3 f/g/a ↑		
30	Cs 2.4/Wt 2.4 a		
31	Wt 2.4/Cn 2.4 f/a		
32	Wt 1.3/Cs 1.2/ Pw 1.2 f/g/a ↑		
33	Wt 1.4/Pw 1.3/ Cs 1.3 a		

4. DEGRADATION SEVERITY

Main Types of Soil Degradation ↓ / SEVERITY →	LOW	MEDIUM	HIGH	V.HIGH
• WATER EROSION				
• WIND EROSION				
• CHEMICAL DETERIORATION				
○ Salinization				
○ Loss of Nutrient				
• PHYSICAL DETERIORATION				
○ Waterlogging				
• STABLE TERRAIN (WITH SLIGHT WATER EROSION)	SN			
• NOT-FIT FOR AGRICULTURE	Z	M	R	

Note : The types of soil degradation are shown by different colours in mapping units. If two equally-important degradation types occur in a unit, these are shown by colour strips of each soil degradation type.

NB: Degradation severity blocks showing no colour indicate that the classes do not exist.

1. SOIL DEGRADATION TYPES

WATER EROSION		WIND EROSION	
Wt	loss of top soil	Et	loss of top soil
Wd	terrain deformation mass movement	Ed	terrain deformation
		Eo	over blowing
CHEMICAL DETERIORATION		PHYSICAL DETERIORATION	
Cn	loss of nutrients/ organic matter	pw	waterlogging
Cs	salinization	NOT FIT FOR AGRICULTURE (SOCALLED WASTE-LAND)	
STABLE TERRAIN		D	active dunes
Sn	stable under natural conditions	Z	salt flats
Sh	stabilized by human intervention	R	rock outcrops
		I	ice caps
		M	arid mountain region

2. SOIL DEGRADATION STATUS

Degree of Degradation ★ / Severity of Degradation ★★ / Extent of Degradation →	PERCENTAGE OF MAPPING UNIT AREA AFFECTED (2nd numeral) .1	.2	.3	.4	.5
	5%	10%	25%	50%	100%
1. SLIGHT (l)	1.1	1.2	1.3	1.4	1.5
2. MODERATE (m)	2.1	2.2	2.3	2.4	2.5
3. STRONG (s)	3.1	3.2	3.3	3.4	3.5
4. EXTREME (e)	4.1	4.2	4.3	4.4	4.5

LOW · MEDIUM · HIGH · VERY HIGH

★ DEGREE OF DEGRADATION (*EXPLANATION*)

1. Slight : Somewhat reduced agricultural productivity
2. Moderate : Greatly reduced agricultural productivity
3. Strong : Unreclaimable at the farm level
4. Extreme : Unreclaimable and impossible to restore

★★ *The different levels of severity of degradation were obtained by the combination of degree of degradation and the percentage of the area affected.*

3. CAUSATIVE FACTORS

f	deforestation and removal of the natural vegetation
g	over grazing
a	agricultural-related activities unscientific
c	over exploitation of vegetation for domestic use

Wt 2.3 g ↑

Recent past rate: ↑ medium; ↕ rapid

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The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base-line.
The boundary of Meghalaya shown on this map is as interpreted from the North-Eastern Areas (Reorganisation) Act, 1971, but has yet to be verified.
The administrative headquarters of Chandigarh, Haryana and Punjab are at Chandigarh.

Prepared by :
NATIONAL BUREAU OF SOIL SURVEY & LAND USE PLANNING
(Indian Council of Agricultural Research – I C A R)
Nagpur – 440 010
Contributors : J Sehgal, R K Saxena & R M Pofali

Published by :
OXFORD & IBH PUBLISHING CO. PVT. LTD.
66 Janpath, New Delhi – 110 001

Cartographed and Printed by :
TTK PHARMA LIMITED – PRINTING DIVISION
328, G.S.T. Road, Chromepet, Madras 600 044, India

LEGEND

Map Unit symbol	Description	Area of mapped unit (million ha)	Area actually affected by degradation (million ha)
1	Stable terrain (Sn) showing water erosion (Wt) with slight loss of top soil, affecting 11-25% area; low severity.	5.1	0.9
2	Water erosion with slight loss of top soil, affecting 26-50% area; medium severity.	8.8	3.3
3	Stable terrain showing water erosion with slight loss of top soil affecting 6-10% area; low severity.	0.8	0.1
4	Stable terrain showing water erosion with slight loss of top soil, affecting 26-50% area; low severity.	31.7	11.9
5	Water erosion with moderate loss of top soil, affecting 26-50% area; high severity.	25.0	9.4
6	Water erosion with moderate loss of top soil, affecting 51-100% area; high severity.	74.4	55.8
7	Water erosion with strong loss of top soil, affecting 26-50% area; high severity.	2.7	1.0
8	Water erosion with strong loss of top soil, affecting 51-100% area; very high severity.	1.4	1.0
9	Water erosion with strong loss of top soil, affecting 26-50% area; and moderate loss of top soil, affecting 26-50% area; high severity.	3.2	2.4
10	Stable terrain showing water erosion with slight loss of top soil, affecting 26-50% area in hills.	13.5	3.3
11	Water erosion with moderate loss of top soil, affecting 26-50% area; and moderate terrain deformation, affecting 11-25% area; high severity.	6.8	3.7
12	Water erosion with moderate terrain deformation, affecting 26-50% area; and moderate loss of top soil, affecting 26-50% area; high severity.	25.6	19.2
13	Water erosion with extreme terrain deformation, affecting 11-25% area; and moderate loss of top soil, affecting 26-50% area in hills high severity.	1.6	0.9
14	Water erosion with extreme terrain deformation, affecting 11-25% area; and moderate loss of top soil, affecting 26-50% area in plains high severity.	1.7	0.9
15	Water erosion with extreme terrain deformation, affecting 26-50% area; and moderate loss of top soil, affecting 26-50% area; very high severity.	5.6	4.2
16	Water erosion with slight loss of top soil, affecting 26-50% area; medium severity; and moderate physical deterioration due to waterlogging, affecting 11-25% area; medium severity.	2.4	1.3
17	Water erosion with moderate loss of top soil, affecting 26-50% area; high severity; and slight physical deterioration due to waterlogging, affecting 11-25% area; low severity.	1.0	0.5
18	Water erosion with moderate loss of top soil, affecting 26-50% area; high severity; and slight physical deterioration due to waterlogging, affecting 26-50% area; medium severity.	0.6	0.4
19	Water erosion with moderate loss of top soil, affecting 26-50% area; high severity; and moderate physical deterioration due to waterlogging affecting 26-50% area; high severity.	4.4	3.3
20	Water erosion with moderate loss of top soil, affecting 26-50% area; high severity; and moderate physical deterioration due to waterlogging, affecting 11-25% area; medium severity.	3.5	1.9
21	Water erosion with strong loss of top soil, affecting 11-25% area; high severity; and moderate physical deterioration due to waterlogging, affecting 26-50% area; high severity	4.1	2.9
22	Water erosion with extreme terrain deformation, affecting 26-50% area; and moderate loss of top soil, affecting 11-25% area; very high severity and moderate physical deterioration due to waterlogging, affecting 11-25% area; medium severity.	3.1	2.3
23	Slight physical deterioration due to waterlogging, affecting 11-25% area; low severity; and water erosion with slight loss of top soil, affecting 26-50% area; medium severity.	6.4	3.5
24	Slight physical deterioration due to waterlogging, affecting 11-25% area; low severity; and water erosion with moderate loss of top soil, affecting 26-50% area; high severity.	0.2	0.1
25	Moderate physical deterioration due to waterlogging, affecting 26-50% area; high severity; and water erosion with moderate loss of top soil, affecting 26-50% area; high severity.	0.5	0.4
26	Water erosion with moderate loss of top soil, affecting 26-50% area; high severity; and moderate chemical deterioration due to salinization, affecting 11-25% area; medium severity.	3.7	2.0
27	Water erosion with moderate loss of top soil, affecting 26-50% area; high severity; and moderate chemical deterioration, affecting 26-50% area; high severity.	5.6	4.2
28	Water erosion with extreme terrain deformation affecting 11-25% area; moderate loss of top soil, affecting 26-50% area; high severity; and moderate chemical deterioration due to salinization, affecting 11-25% area; medium severity.	0.5	0.3
29	Water erosion with extreme terrain deformation, affecting 26-50% area; moderate loss of top soil, affecting 11-25% area; very high severity; and moderate chemical deterioration due to salinization, affecting 11-25% area; medium severity.	1.8	1.3
30	Moderate chemical deterioration due to salinization, affecting 26-50% area; high severity; and water erosion with moderate loss of top soil, affecting 26-50% area; high severity.	1.6	1.2
31	Water erosion with moderate loss of top soil, affecting 26-50% area; high severity; and moderate chemical deterioration due to loss of nutrients, affecting 26-50% area; high severity.	9.9	7.4
32	Water erosion with slight loss of top soil, affecting 11-25% area; low severity, slight chemical deterioration due to salinization affecting 6-10% area; low severity; and slight physical deterioration due to waterlogging, affecting 6-10% area; low severity.	1.3	0.7
33	Water erosion with slight loss of top soil, affecting 26-50% area; medium severity, slight physical deterioration due to waterlogging, affecting 11-25% area; low severity; and slight chemical deterioration due to salinization, affecting 11-25% area; low severity.	10.3	7.4
34	Water erosion with slight loss of top soil, affecting 11-25% area; low severity, moderate physical deterioration due to waterlogging, affecting 6-10% area; medium severity; and moderate chemical deterioration due to salinization, affecting 11-25% area; medium severity.	2.7	1.7
35	Water erosion with moderate loss of top soil, affecting 26-50% area; high severity; slight physical deterioration due to waterlogging, affecting 11-25% area; low severity; and slight chemical deterioration due to salinization, affecting 6-10% area; low severity.	1.4	0.9
36	Water erosion with strong loss of top soil, affecting 11-25% area; and moderate loss of top soil, affecting 26-50% area; high severity; slight physical deterioration due to waterlogging, affecting 11-25% area; low severity ; and slight chemical deterioration due to salinization, affecting 6-10% area; low severity.	3.2	2.5
37	Water erosion with strong loss of top soil, affecting 26-50% area; and moderate loss of top soil, affecting 11-25% area; high severity; slight physical deterioration due to waterlogging, affecting 11-25% area; low severity and chemical deterioration due to salinization, affecting 6-10% area; low severity.	2.3	1.8
38	Slight physical deterioration due to waterlogging, affecting 11-25% area; low severity; slight chemical deterioration due to salinization, affecting 6-10% area; low severity; and water erosion with moderate loss of topsoil, affecting 26-50% area; high severity.	5.0	3.1
39	Moderate chemical deterioration due to salinization, affecting 26-50% area; high severity; water erosion with slight loss of topsoil, affecting 11-25% area; low severity; and slight physical deterioration due to waterlogging, affecting 11-25% area; low severity.	4.5	3.3
40	Water erosion with moderate loss of top soil, affecting 11-25% area; medium severity; wind erosion with moderate loss of top soil, affecting 26-50% area; high severity; and moderate chemical deterioration due to salinization, affecting 11-25% area; medium severity.	2.8	2.0
41	Wind erosion with moderate loss of top soil, affecting 26-50% area; high severity associated with rock outcrops	1.1	0.4
42	Wind erosion with moderate loss of top soil, affecting 51-100% area; high severity.	2.5	1.8
43	Wind erosion with strong loss of topsoil and terrain deformation, affecting 51-100% area; very high severity.	6.1	4.6
44	Wind erosion with extreme terrain deformation and over blowing with active sand dunes, affecting 51-100% area; very high severity.	3.6	2.7
45	Wind erosion with moderate loss of top soil, affecting 26-50% area; high severity.	3,5	1.3
46	Wind erosion with moderate loss of top soil, affecting 26-50% area; high severity; and moderate chemical deterioration, affecting 26-50% area; high severity.	2.3	1.7
47	Wind erosion with strong loss of top soil, affecting 26-50% area; high severity ; and water erosion with slight loss of top soil, affecting 11-25% area; low severity.	1.0	0.5
48	Wind erosion with slight loss of top soil in arid mountains, affecting 6-10% area; low severity.	3.8	0.3*
	Total:	314.6	187.7
	Percentage of total geog. area:		(57%)
	● Area not fit for agriculture (so called wasteland), including R – Rock outcrops 0.7; I – Ice caps 4.1; Z – Salt flats 2.2; and M – Arid mountains 11.1 m.ha.		18.2
	● Stable terrain		32.2
	● Good soils with nil to very slight degradation		90.7
	Total area:		328.7

*Balance area of unit 48 is considered under M (arid mountain)