

INVENTORY OF DEGRADED LANDS OF TUTICORIN DISTRICT OF TAMILNADU USING REMOTE SENSING TECHNIQUES

ABSTRACT

1. Details of Survey

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| i) Kind of survey | : Land degradation mapping |
| ii) Level of mapping | : Reconnaissance |
| iii) Scale | : 1:50,000 |

2. Period of survey

: December 2000 & March 2001

3. Base material

: IRS-I C & D LISS II false
Colour composite (1999)
Survey of India toposheets
on 1:50,000 scale

4. Details of area

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| i) Total area of the district | : 4, 59,054 ha |
| ii) Agro-climatic zone | : 12 the west coast plain and hill region |
| iii) Geographical extent | : 8°19'19" to 9°22'21" N latitude
77°40'33" to 78°32'48" E longitude |

5. Nature and extent of degraded lands (in ha.)

Mapping symbol	Description	Extent	Percentage for total geographical area
We	Water erosion		
We1	Severe Water erosion		
We1a1	Severe Water erosion, plain, agriculture land.	6418	1.40
We1a2	Severe Water erosion, plain, forest lands.	200	0.04
We1a4	Severe Water erosion, plain, other lands.	2027	0.44
We1b1	Severe Water erosion, undulating, agriculture lands.	381	0.08
We1b2	Severe Water erosion, undulating, forest lands.	53	0.01
We1b4	Severe Water erosion, undulating, other lands.	376	0.08
We1c4	Severe Water erosion, rolling, other land.	194	0.04
We1d2	Severe Water erosion, hilly, forest lands.	295	0.06
Sub total		9944	2.17
We2	Very Severe Water erosion		
We2a1	Very Severe Water erosion, plain, agriculture lands.	288	0.06
We2a2	Very Severe Water erosion, plain, forestlands.	410	0.09
We2a4	Very Severe Water erosion, plain, other lands.	285	0.06
We2b1	Very Severe Water erosion, undulating, agriculture lands.	650	0.14
We2b4	Very Severe Water erosion, undulating, other lands.	567	0.12
We2d4	Very Severe Water erosion, hilly, other lands.	68	0.01
Sub total		2268	0.49

Wa	Wind activity	Area	Percentage
Wa1a4	Severe (active plain & dune), plain, other lands.	977	0.21
Wa1a4/1	Severe (active plain & dune), plain, other lands changed to agriculture lands.	300	0.07
Wa1a4/3	Severe (active plain & dune), plain, other lands changed to plantation lands.	160	0.03
Wa1b2	Severe (active plain & dune), undulating, forest lands.	4546	0.99
Wa1b2/3	Severe (active plain & dune), undulating, forest lands changed to plantation lands	806	0.18
Wa1b4	Severe (active plain & dune), undulating, other lands.	1562	0.34
Wa1b4/3	Severe (active plain & dune), undulating, other lands changed to plantation lands.	123	0.03
Wa1c2	Severe (active plain & dune), rolling, forest lands.	54	0.01
Wa1c4	Severe (active plain & dune), rolling, other lands.	1533	0.33
Wa1c4/3	Severe (active plain & dune), rolling, other lands changed to plantation lands.	166	0.04
Wa2a1	Very severe (active & shifting dunes & sand casting), plain, agriculture lands.	17281	3.76
Wa2a1/3	Very severe (active & shifting dunes & sand casting), plain, agriculture lands changed to plantation lands.	6819	1.49
Wa2a3	Very severe (active & shifting dunes & sand casting), plain, plantation lands.	706	0.15
Wa2a4	Very severe (active & shifting dunes & sand casting), plain, other lands.	6918	1.51
Wa2a4/1	Very severe (active & shifting dunes & sand casting), plain, other lands changed to agriculture lands.	2009	0.44
Wa2a4/3	Very severe (active & shifting dunes & sand casting), plain, other lands changed to plantation lands.	2322	0.51
Wa2b2	Very severe (active & shifting dunes & sand casting), undulating, forest lands	52	0.01
Wa2b4	Very severe (active & shifting dunes & sand casting), undulating, other lands.	215	0.05
Wa2b4/1	Very severe (active & shifting dunes & sand casting), undulating, other lands changed to agriculture lands.	174	0.04
Wa2b4/3	Very severe (active & shifting dunes & sand casting), undulating, other lands changed to plantation lands.	406	0.09
Wa3a4	Coastal sand casting, plain, other lands.	7666	1.67
Wa3a4/1	Coastal sand casting, plain, other lands changed to agriculture lands.	203	0.04
Wa3a4/3	Coastal sand casting, plain, other lands changed to plantation lands.	1260	0.27
Wa3b1	Coastal sand casting, undulating, agriculture lands.	81	0.02
Wa3b4/3	Coastal sand casting, undulating, other lands changed to plantation lands.	75	0.02
Sub total		56414	12.29
Mf	Mudflat		
Mf1a4	Mud flat, plain, other lands.	677	0.15
Sub total		677	0.15
Sa	Salt affliction		
Sa1a1	Moderately saline sodic, plain, agriculture lands.	75	0.02
Sa1a4	Moderately saline sodic, plain, other lands.	58	0.01
Sub total		133	0.03

Sw	Stony waste		0.00
Sw1a4	Stony waste, plain, other lands.	212	0.05
Sw1b4	Stony waste, undulating, other lands.	229	0.05
	Sub total	441	0.10
Sp/Sf	Saltpan		0.00
Sp/Sf1a4	Salt Pan/Salt Flat, plain, other lands.	7789	1.70
	Sub total	7789	1.70
Rq	Rock quarry		
Rq1a4	Rock quarry, plain , other lands.	178	0.04
Rq1b1	Rock quarry ,undulating , agriculture lands.	85	0.02
Rq1b4	Rock quarry ,undulating ,other lands.	50	0.01
Rq1d2	Rock quarry, hilly, forest lands.	135	0.03
	Sub total	448	0.10
Rw	Rocky waste		0.00
Rw1b1	Rocky waste, undulating, agriculture lands.	24	0.01
Rw1b4	Rocky waste ,undulating, other lands.	44	0.01
Rw1d4	Rocky waste ,hilly ,other lands.	31	0.01
	Sub total	99	0.02
	Grand Total	78213	17.04
N	NORMAL LANDS		
N1	Agriculture lands.	233348	50.83
N1/3	Agriculture lands changed to plantation.	11955	2.60
N1/4	Agriculture lands changed to Other lands.	65441	14.26
N2	Forest lands.	4016	0.87
N2/3	Forest lands changed to plantation.	113	0.02
N3	Plantation lands.	161	0.04
N4	Other lands.	21225	4.62
N4/1	Other lands changed to agriculture lands.	3303	0.72
N4/3	Other lands changed to plantation lands.	1334	0.29
	Sub Total	340896	74.25
	Miscellaneous		
	HABITATION	12348	2.69
	RIVER	6755	1.47
	SEA INUNDATION AREA	1611	0.35
	TANK	19231	4.19
	SUB TOTAL	39945	8.70
	Grand total	459054	100.00

6. Salient features

- 1) All the 8 taluks of Tuticorin district are affected by one or the other type of degradations.
- 2) All the taluks are affected by water erosion.
- 3) All the taluks except Ettaiyapuram and Kovilpatti are prone for land degradation because of wind activity.
- 4) 78213 ha constituting 17.04% of total area are affected by land degradation.
- 5) Degraded lands because of wind activity (56414 ha) and because of action of water (12212 ha) constitute the major types.
- 6) Out of 78213 ha degraded lands, 65238 ha degraded lands are on plain land scape.
- 7) Degraded lands are quite extensive in other lands (31656 ha) and in Agricultural lands (27969 ha).
- 8) Extentwise, the taluks which are greatly affected are Tiruchendur (26462 ha), Sattankulam (14089 ha) and Ottapidaram (10, 638 ha).

Land use wise distribution of degraded lands.

S.NO	Land use	Extent of degraded lands (ha)	% for total geographical area
1	Agriculture	27969	6.09
2	Forest	5745	1.25
3	Plantation	12843	2.80
4	Other lands	31656	6.90
	Total	78213	17.04

Landscape wise distribution of area degraded lands.

S.NO	Landscape	Extent of degraded lands (ha)	% for total geographical area
1	Plain	65238	14.21
2	Undulating	10499	2.29
3	Rolling	1947	0.42
4	Hilly	529	0.12
	Total	78213	17.04

Distribution of area under different kinds of land degradation.

S.No.	Kinds of land degradation	Area(ha)	Percentage for total degraded lands	Percentage*
1	Severe Water erosion	9944	12.71	2.17
2	Very Severe Water erosion	2268	2.90	0.49
3	Wind activity	56414	72.13	12.29
4	Mudflat	677	0.87	0.15
5	Salt affliction	133	0.17	0.03
6	Stony waste	441	0.56	0.10
7	Saltpan	7789	9.96	1.70
8	Rock quarry	448	0.57	0.10
9	Rocky waste	99	0.13	0.02
	Total degraded lands	78213	100.00	17.04
	Total geographical area	459054		

* of degraded lands for total area

Land use wise landscape wise distribution of degraded area. (in ha.)

S.NO	LANDSCAPE	LAND USE				TOTAL	Percentage*
		Agriculture	Forest	Plantation	Other lands		
1	Plain	26574	610	11267	26787	65238	14.21
2	Undulating	1395	4651	1410	3043	10499	2.29
3	Rolling	0	54	166	1727	1947	0.42
4	Hilly	0	430	0	99	529	0.12
	Total	27969	5745	12843	31656	78213	17.04
	Percentage	35.76	7.35	16.42	40.47	100.00	

* for total geographical area