Inventory of Soil Resources of Anand District, Gujarat Using Remote Sensing and GIS Techniques

ABSTRACT

1.	Survey Area	Anand district, Gujarat
2.	Geographical Extent	72˚-45′ to 73˚15′ East longitude and 22˚15′ to 23˚ 15′ –north latitude
3.	Agro Climate Region	XIII- Gujarat Plain & hills region
4.	Total area of the district	348624.07
5.	Kind of Survey	Soil resource mapping using remote sensing techniques.
6.	Base map	(a) IRS-`1D Geocoded Satellite Imagery (1:50000 Scale) (b) SOI –Toposheet (1:50000 scale)
7.	Scale of mapping	1: 50000
8.	Period of survey	April, 2009 to May 2009

9. Soil Series association mapped and their respective area.

Mapping Unit	**Mapping Symbol**	**Soil Association**	**Area (ha)**	**Area%**
Alb2a1	A04	Sajod-Varnol-Latipura	6641.05	2.00
Alb2d1	A05	Sojod- Thasra- Kawa	902.12	0.25
Alb2d2	A06	Sojod-Kawa	541.049	0.15
Alb2a2	A08	Sajod- Latipura	3810.18	1.09
ALh4d1	A09	Mulad- Rumalpura	2596.39	0.74
Ali5d1	A10	Derol-Rumalpura	9312.28	2.60
Alb2a3	A11	Latipura-Rumalpura -Thasra	95401.84	27.30
Alb3a1	A12	Bariya – Borsad -Rumalpura	69294.62	20.00
Alb3a2	A13	Borsad- Bariya	11692.68	3.30
Alb3d1	A14	Borsad-Rumalpura	1926.96	0.55
Alb2a4	A15	Varnol-Thasra	38872.24	11.15
CAb2e1	CA01	Hansot-Sarod	9274.48	2.66
CAb2d1	CA02	Sarod -Vansali	1507.79	0.43
CAk1e1	CA03	Vansali-Nadiyad	28455.39	8.16
CAk1c1	CA04	Hansot	651.34	0.20
CAb2a2	CA05	Vansali-Nadiyad	13405.83	3.84
CAb2d2	CA06	Nadiyad- Vansali	10451.51	3.00
CAb2d2	CA07	Lakhigaon- Nadiyad	3735.18	1.07
	H	-	9880.56	2.83
	R	-	28676.96	8.22
	SP	-	323.40	0.10
	T	-	1269.78	0.361
	Total		**348624.07**	**100 .00**

10. Salient Features:

- Total 15 soil series have been mapped in Anand district of Gujarat.
- Soils of the district are mostly very deep.
- Soils of Anand district , Gujarat mainly under five physiography
    - Ravinous lands – 9312.28 ha. (2.67%)
    - Dissected stream banks – 2596.39 ha (0.75 %)
    - Alluvial plains – 229083.18 ha. (65.71 %)
    - Coastal alluvium plains -38374.79 (11.01 %)
    - Marshy lands – 29106.73 (8.34 %)
- Soils of the district falls in five slope classes
    - Nearly level – 29106.75 ha. (8.34)
    - Nearly level to very gently sloping – 184543.72 ha. (53.93 %)
    - Very gently to gently sloping - 82914.26 ha. (23.80 %)
    - Gently to moderate sloping – 2596.40 ha. (0.75 %)
    - Moderately to strong sloping – 9312.30 ha. (2.67%)
- Various land use / Land cover classes of the district are as under.
    - Cultivated lands – 239118.44 ha. (68.58 %)
    - Forest lands – 651.34 ha. (0.20%)
    - Open scrub and waste land -30973.72 ha. (8.88%)
    - Waste land -37729.87 ha. (10.80%)
    - Miscellaneous lands 40150.70 ha. (11.52%)
- Soils of the area are taxonomically classified in to five orders that are Alfisols, Aridisols, Entisols, Inceptisols and Vertisols. All the 15 soils series identified in the area are further classified in to 6 suborders 7 great groups 10 sub groups and 11 families
- Soils of the district have

None to slight water erosion	130562.42	37.45
Slight to moderate erosion	39901.69	11.44
Severe erosion	99137.02	28.43
Very severe erosion	38872.24	11.15
Misc.	40150.70	11.52
Total	**348624.07**	**100 .00**

- Soil under different Land capability classes.

II	50876.93	14.59
II-III	236413.30	67.81
III	9274.48	2.66
IV	2596.39	0.75
VI	9312.28	2.67
Misc.	40150.70	11.52
Total	**348624.07**	**100 .00**

HOW TO USE SOIL RESOURCE MAPPING REPORT

This report embodies the results of the soil resource mapping of Anand district of Gujarat providing information on the geographical setting of the district, such as location, extent, physiography, relief, drainage, climate, geology, natural vegetation, agriculture, land use & soils.

The report contains other information on interpretative grouping of soils such as land capability classes; land irritability classes, soil suitability grouping and hydrological grouping and also recommendation for crops ; horticulture development; forest , forage and grasslands development; water harvesting, water storage and water management that are essential for soil land resource management. The genesis and classification of the soils are also discussed in chapter-5.

Anand district of Gujarat is spread over an area of 348624.07 ha. The district is covered by seven SOI topographical sheets on the scale of 1:50,000 which are used as base material along with satellite imageries.

Each soil mapping unit is marked by mapping unit i.e. Alb1a1 (Alluvium, alluvial plain; 0-3% slope; agriculture land use; soil series Association, describing Sajod–as dominant series in association with Varnol & Latipura series). Each soil association is restricted to maximum of three soil series.

For the use of the Soil Resource Mapping report, first locate the area of your interest on the map. For the detailed information on soil mapping unit in respect of soil series of the area of interest, its extent, present and proposed land uses, and reference may be made to chapter-4, appendix I and II.

The mapping unit used in soil mapping represents the five levels of mapping i.e.
Alb1a1 may be referred as follow:

AL	- Alluvium	-	Landscape
b	- Alluvium plain	-	Physiography
1	- 0-3 %	-	Slope class
a	- Agriculture land	-	Land use
1	- Association of soil series with erosion and management soil unit.		

Any comment and suggestion on the report would be welcome. For any further enquiry / or clarification, correspondence or personal contact may be established, with the

Chief soil survey officer,
Soil & Land Use Survey of India
IARI Buildings, Pusa,
New Delhi – 110012
Email – csso- slusi@ nic.in.
Ph -01125841263
Website: http://slusi.dacnet.nic.in

Soil Survey officer,
Soil & Land Use Survey of India
Behind Godavari Flats, Vasna
Ahehmdabad centre
Pin -380007
Email: ssoahmedabad-slusi@nic.in