

# ABSTRACT / सारांश

1. Survey area : Gandhinagar district, Gujarat  
*सर्वेक्षण क्षेत्र* जिला-गांधीनगर, गुजरात
2. Geographical Extent : 72.3° to 73.7° East Longitude पूर्व देशांतर  
*भौगोलिक सीमा* 23.0° to 23.6° –North Latitude उत्तर अक्षांश
3. Agro- climatic Zone : Gujarat Plains and Hills region (Zone - XIII )  
*कृषि जलवायु क्षेत्र* गुजरात मैदानी और पहाड़ी क्षेत्र (जोन-XIII)
4. Total area mapped : 1,90,184 ha हेक्टेयर  
*कुल क्षेत्रफल*
5. Kind of Survey : Soil Resource Mapping (SRM) using Remote Sensing & GIS Techniques  
*सर्वेक्षण की प्रकार* मृदा संसाधन मानचित्रण (एस.आर.एम.), सुदूर संवेदन और भौगोलिक सूचना प्रणाली तकनीक का उपयोग से
6. Base Map : a) IRS-1D Geo-coded Satellite Imagery (1:50,000 Scale)  
*आधार नक्शा* : आईआरएस -1 डी जिओ-कोड उपग्रह चित्रण (1: 50,000 स्केल)  
b) SOI Toposheets (1: 50,000 scale)  
*सर्वे ऑफ इंडिया टोपोशीट (1: 50,000 पैमाने पर)*
7. Scale of Mapping : 1: 50,000  
*मानचित्रण के स्केल*
8. Period of Survey : December 2010 to January 2011  
*सर्वेक्षण की अवधि* दिसम्बर २०१० से जनवरी २०११

## A. Distribution of area under different soil series association mapped

मिट्टी श्रृंखला एसोसिएशन के तहत मैप किया क्षेत्र का वितरण

Sr. No.	Mapping Unit	Mapping Symbol	Soil Association	Area (ha)	Area (%)
1	ALi5d1	A10	Malitha-Rumalpura	6263	3.29
2	ALb2a6	A11	Thasra-Latipura	845	0.44
3	ALb3a1	A12	Bariya-Latipura	1796	0.94
4	ALb2a7	A22	Chandkheda-Sanand-Sajod	11365	5.98
5	ALb2a4	A23	Chandkheda-Dholka-Borsad	104641	55.02
6	ALb2a5	A24	Chandkheda-Sajod	35666	18.75
7	ALh4d1	A25	Derol-Kabirgaon	6824	3.59
8	ALb3a2	A26	Chiloda-Dhola	5159	2.71
9	ALb2a8	A42	Borsad-Latipura	1913	1.01
10	ALb2a9	A43	Latipura-Borsad	1837	0.97
11.	BAG4d1	B13	Chandeliya	117	0.06
12.	Misc.		Build-up area	10087	5.30
			Water bodies	3671	1.93
<b>Total</b>				<b>1,90,184</b>	<b>100.00</b>

**B. Distribution of Area under different Physiography Classes**

विभिन्न प्राकृतिक भूगोलवर्गों के तहत क्षेत्र का वितरण

Sl. No.	Landscape	Physiography	Area(ha)	Area(%)
1.	Alluvium(AL)	Alluvial plains	163222	85.82
		Dissected stream banks	6824	3.59
		Ravenous lands (i)	6263	3.29
2.	Basalt (BA)	Narrow mountain valleys	117	0.06
3.	Misc.	Build-up area	10087	5.30
		Water bodies	3671	1.93
<b>Total</b>			<b>1,90,184</b>	<b>100.00</b>

**C. Distribution of area under different depth classes**

विभिन्न गहराई वर्गों के तहत क्षेत्र का वितरण

Sl. No.	Depth Classes	Area(ha)	Area (%)	
1.	Very deep (d5)	176426	92.77	
2.	Misc.	Build-up area	10087	5.30
		Water bodies	3671	1.93
<b>Total</b>		<b>1,90,184</b>	<b>100.00</b>	

**D. Distribution of area under different Erosion classes**

विभिन्न कटाव वर्गों के तहत क्षेत्र का वितरण

Sl. No.	Erosion Classes	Area (ha)	Area (%)	
1.	Slight to moderate erosion (e1- e2)	164887	86.70	
2.	Moderate to severe erosion (e2 - e3)	6263	3.29	
3.	Severe to very severe erosion (e3 - e4)	5276	2.77	
4.	Misc.	Build-up area	10087	5.30
		Water bodies	3671	1.93
<b>Total</b>		<b>1,90,184</b>	<b>100.00</b>	

**E. Distribution of area under different management classes**

विभिन्न प्रबंधन वर्गों के तहत क्षेत्र का वितरण

Sr. No.	Management	Area(ha)	Area (%)
1	Poorly managed (PB) to moderately managed (MB)	5824	3.30
2	Unmanaged (UB)	118663	67.32
3	Unmanaged (UB) to poorly managed (PB)	38742	21.98
4	Well managed(WB)	5287	3.00
5	Misc.	7751	4.40
<b>Grand Total</b>		<b>1,90,184</b>	<b>100.00</b>

**F. Distribution of area under different slope classes**

विभिन्न ढलान वर्गों के तहत क्षेत्र का वितरण

Sl. No.	Slope Classes	Area(ha)	Area (%)	
1.	Nearly level to very gently sloping (0-3%)	156267	82.17	
2.	Very gently sloping to gently sloping (1-5%)	6955	3.66	
3.	Gently sloping to moderately sloping (3-10%)	6941	3.65	
4.	Moderately sloping to strongly sloping (5-15%)	6263	3.29	
5.	Misc.	Build-up area	10087	5.30
		Water bodies	3671	1.93
<b>Total</b>		<b>1,90,184</b>	<b>100.00</b>	

**G. Distribution of area under different land use**

अलग भूमि उपयोग के तहत क्षेत्र का वितरण

Sl. No.	Land use	Area (ha)	Area (%)	
1.	Agriculture (a)	163222	85.82	
2.	Open scrub (d)	13204	6.94	
3.	Misc.	Build-up area	10087	5.30
		Water bodies	3671	1.93
<b>Total</b>		<b>1,90,184</b>	<b>100.00</b>	

**H. Distribution of Area under different Land Capability Classes**

Sr. No.	Class	Land Capability Classes	Area(ha)	Area (%)
1.	II-III	Land Suitable For Cultivation, Moderately Good To Good Land With Moderate Limitations	158063	83.11
2.	III	Land Suitable For Cultivation, Moderately Good Land With Major Limitations	5159	2.71
3.	IV	Land Suitable For Cultivation, Fairly Good Land With Occasional Cultivation And Major Limitations	13204	6.94
4.	Misc.	Build-up area	10087	5.30
		Water bodies	3671	1.93
<b>Total</b>			<b>1,90,184</b>	<b>100.00</b>

**I. Salient features मुख्य विशेषताएं:**

- Fifteen soil series have been mapped in Gandhinagar district of Gujarat.
- Major part of survey area covered under alluvial landscape 92.77 % of total geographical area of district followed by basaltic landscape 0.06% (**Table-B**).
- Physiography of Gandhinagar district having mainly four physiographic units as alluvium plains covering 1, 63,222 ha. (85.82%) area, dissected stream bank 6,824 ha. (3.59%), ravenous lands 6263 ha. (3.29%) and narrow mountain valleys are covering 117 ha. (0.06%) of area (**Table-B**).

- Soils of Gandhinagar district are very deep covering 1,76,426 ha. (92.77%) area and miscellaneous 13,758 ha. (7.23%) of total area (**Table-C**).
- Soils of Gandhinagar district found in four slope classes such as nearly level to very gently sloping covering 1,56,267 ha. (82.17%) of area, very gently sloping to gently sloping as 6955ha. (3.66%), very gently sloping to moderately sloping as 6,941 ha. (3.65%), moderately sloping to strongly sloping as 6263 ha. (3.29 %) of area as depicted in the **table-F**.
- Majority of the area in Gandhinagar district is cultivated land covering 1, 63,222 ha. (85.82 %) of area followed by open scrub as 13,204 ha. (6.94%) as depicted in the **table-G**.
- Soils of Gandhinagar district falls under different erosion classes as slight to moderate erosion covering 1,64,887 ha. (86.70%) of area, followed by moderate to severe erosion with 6,263 ha. (3.29%) of area and severe to very severe erosion covers 5,276 ha. (2.77%) of area as depicted in the **table-D**.
- Soil of Gandhinagar district under different land capability classes are classifies in class II-III covering an area of 1, 58,063 ha. (83.11%), followed by class IV with an area of 13,204 ha. (6.94%) and class III covers an area of 5,159 ha. (2.71%), as shown in the **table-H**.
- Soil of the area are taxonomically classified in to three orders are Entisols, Inceptisols, and Vertisols. All the fifteen soil series identified in the area are further classified in to 3 suborders, 3 great groups, 3 sub groups and 5 families.

## HOW TO USE SOIL RESOURCE MAPPING REPORT

This report embodies the results of the soil resource mapping of Gandhinagar 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 irrigability 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**.

Gandhinagar district of Gujarat is spread over an area 190187ha. The district is covered by ten 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. ALb2a4 (Alluvium, alluvial plain; 0-3% slope; agriculture land use; soil series association, describing Chandkheda – as dominant series in association with Dholka & Borsad 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.

**Alb2a1** may be referred as follow:

AL	-	Alluvium	-	Landscape
b	-	Alluvium plain	-	Physiography
2	-	0-3 %	-	Slope class
a	-	Agriculture land	-	Land use
1	-	Association of soil series with erosion and management soil unit.		

For any clarification and comments, correspondence may be made to

### Chief Soil Survey Officer

Soil and Land use Survey of India  
(Department of Agriculture, Cooperation  
& farmers' welfare)  
I.A.R.I. Buildings, New Delhi – 110012  
Phone: 011 25843811, 25841263  
E- mail: csso-slusi@nic.in

### Soil Survey Officer,

Soil & Land Use Survey of India,  
Opp. Godavari Flats, Vasna,  
Ahmedabad – 380 007.  
Phone: 079 – 26621135, 26603590  
Fax: 079 - 26610161.  
e-mail: ssoahmedabad-slusi@nic.in

**Website- <http://slusi.dacnet.nic.in>**