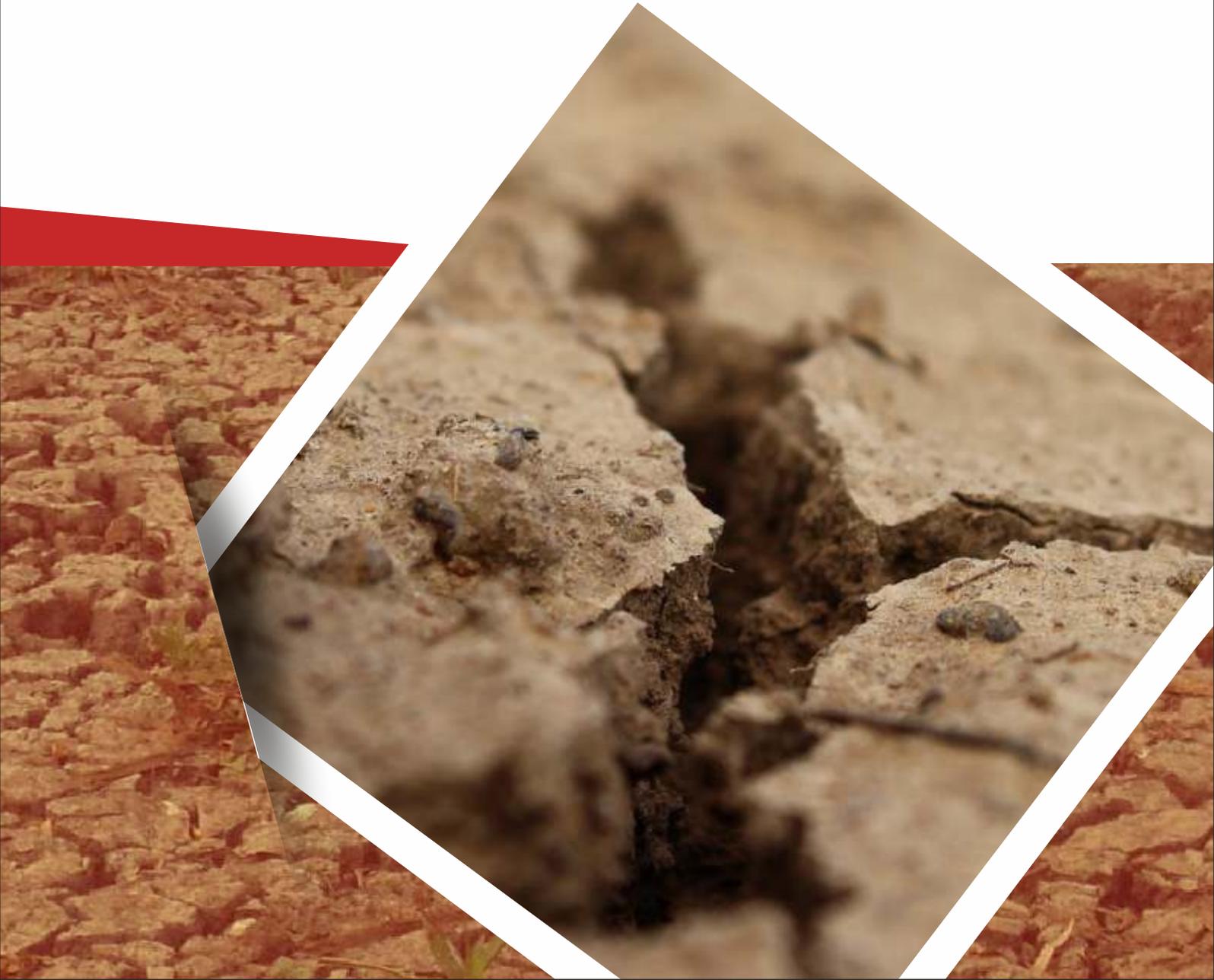




सत्यमेव जयते



Gujarat Ecology Commission  
Government of Gujarat



# LAND RESOURCES AND STATUS OF LAND DEGRADATION IN GUJARAT

(Product of ENVIS - April 2017)

## LAND RESOURCES AND STATUS OF LAND DEGRADATION IN GUJARAT

In India, land resources have enormous economic ecological and social relevance. Land, water and forests are the main life support systems of rural people. Gujarat continues to occupy a distinctive position in the Indian economy. With about 5 percent of the country's population and about 6 percent of the country's geographical area, Gujarat accounts for 7.2 percent of India's GDP due to its rapid industrialisation and tremendous growth rate in the service sector (Directorate of Economic & Statistic, 2013, GoG). The agricultural sector of Gujarat, compared to the rest of India, is also on an upward trajectory far greater than any other state. Gujarat has the second highest per capita income among the major states of India. It contributes to about 16 percent of the country's industrial production. The state has witnessed an annual average growth of 9 percent in the last three years and an average industrial growth of 15 percent for the same period. This high growth rate and increased urbanisation is due to the fast industrial growth and the growth of the tertiary sector. At present, the urban population in Gujarat is 42.58 percent (Directorate of Economic & Statistic, 2013, GoG).

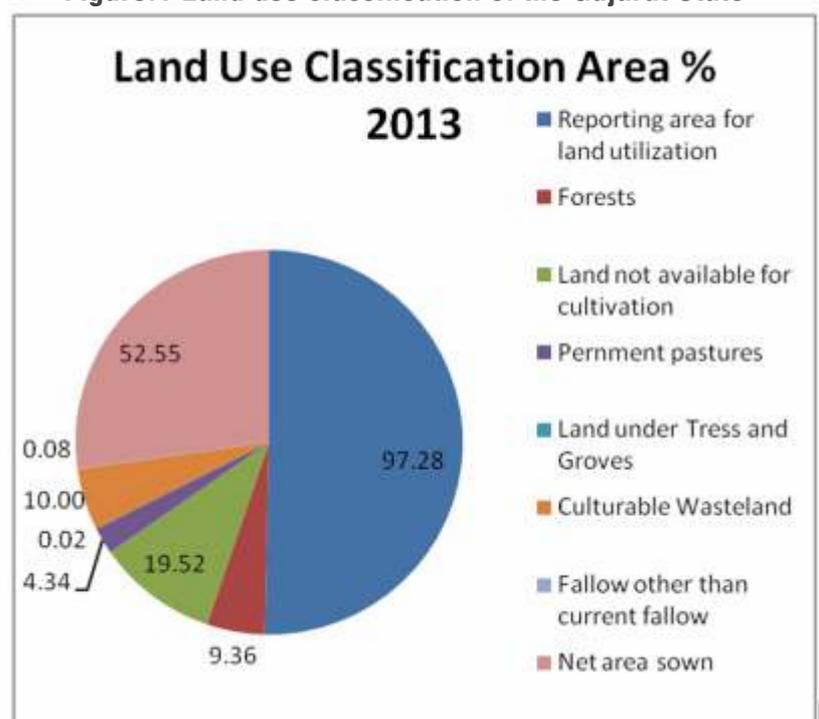
Factors like a growing population, rapid industrialisation and urbanisation, and insistent demands from the agricultural sector are all exerting pressure on land that is already scarce. It is important to utilise natural resources in a sustainable manner. Proper management of land, water, forests and wildlife is very crucial for sustainable development. There is a distinct link between industrialisation and urbanisation. Industrialisation contributes to urbanisation and has increased the urban sprawl in Gujarat adding pressure to land. Urbanisation industrialisation and increase in population has also led to increased per capita waste generated and its unscientific disposal. Increase in waste generated areas is being untreated and dumped on land, degrading its quality. Industrialisation and population are not the only issues that degrade land resources. Agricultural practices in Gujarat have also led to the degradation of its soil quality. High cropping intensity and modernisation of agricultural practices through the increased use of chemical fertilisers, mono-cropping and groundwater exploitation are degrading land resources.

Considering increasing in land demands, land use in the state keeps changing. Glimpse of the land use in Gujarat is describes as following:

### STATUS OF LANDUSE IN GUJARAT:

Land use is the manner and extent to which land is put to use. It may also be referred to as the human use of land. Land use is the modification of the natural environment into, settlements, road, rail networks, other infrastructure, agriculture, forests, wetlands, wastelands, etc. It has also been defined as the arrangements, activities and inputs people undertake in a certain land cover type to produce, change or maintain it (Gregorio & Jansen 1998). The reporting area of Gujarat for land utilisation is 1, 90,690 sq. km which is 97.2 percent of the total geographical area (1, 96,024 sq. km). Under all the land use categories net sown area has dominance; its share is 52percent with an area covering 1, 03,020 sq. Km following figure shows the various land use classifications (Land use Statistic, Ministry of Agriculture, Gol)

Figure:1 Land use classification of the Gujarat State



Source: Landuse statistic, Ministry of Agriculture, Gol, 2015

Land is a limited resource and yet an indispensable resource for meeting the social, economic and environmental demands and targets. The growing development associated with the growing population, urbanization and industrialization is increasing pressure on the land. Due to unplanned and haphazard use of land, it increasingly gets affected by the conflicting land uses and competition of mutually exclusive uses, besides posing serious concerns and negative impacts. The concerns can become more serious in a developing country like India which has at present over 17% of world's population living on 2.6% of the world's geographical area and it would be a challenging task to cater optimum land resources to all sectors. At present, various pressures over the land resources creates the unbeaten issue of land degradation in the country as well as in the State.

## LAND DEGRADATION

Land degradation is a critical issue that adversely affects agronomic productivity. It has multiple and complex impacts on the local environment through a range of direct and indirect impacts on ecosystem functions and services. It also affects food security and quality of life.

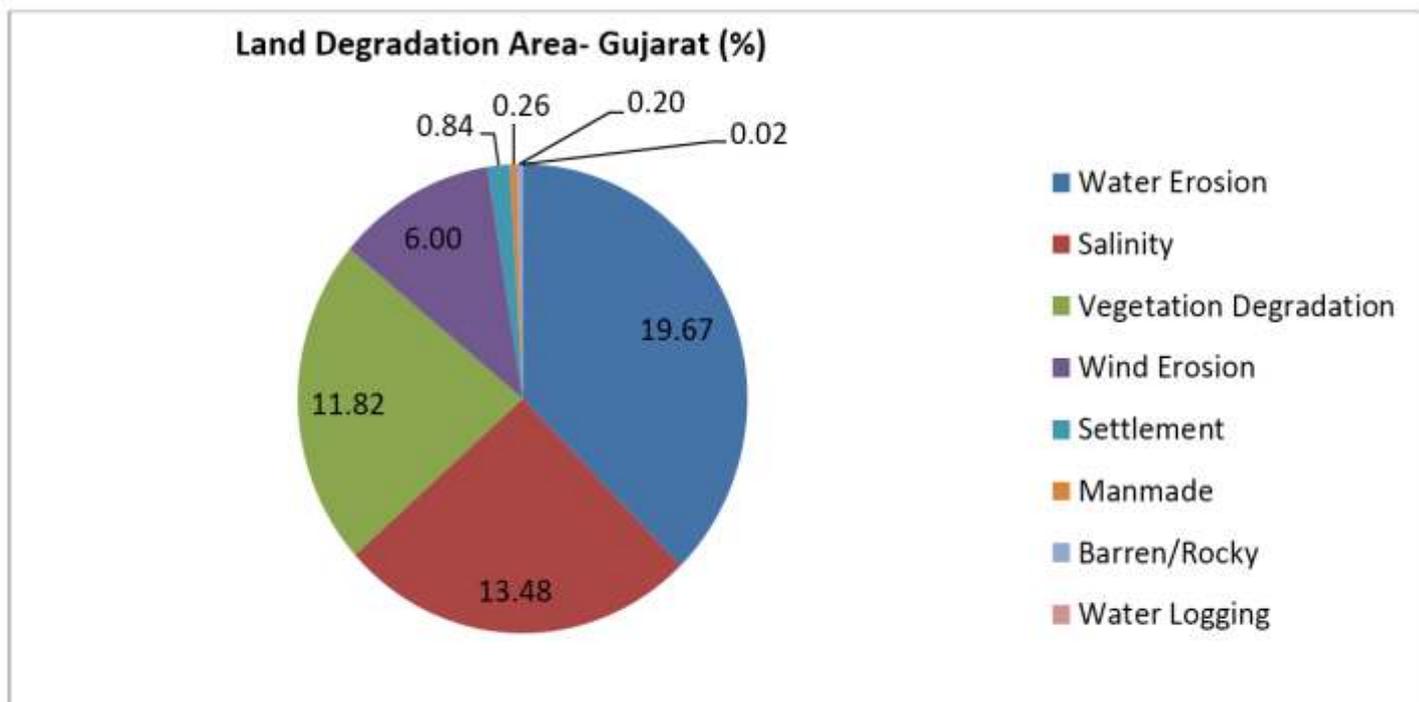
There are two general categories of land degradation processes; one is the degradation by displacement of soil material caused by wind and water. The other type of degradation is the soil deterioration resulting from the accumulation of chemical substances like salts, loss of nutrients and also due to water logging (Desertification & Land degradation Atlas of India, SAC, 2016).

## STATUS OF LAND DEGRADATION IN GUJARAT:

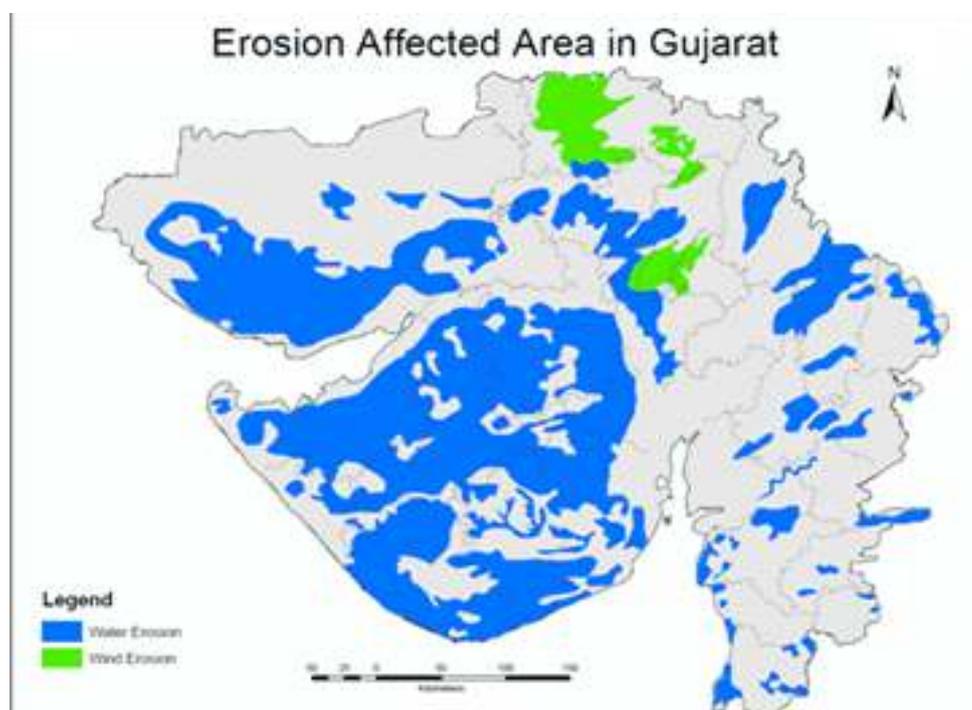
Gujarat is the state with fourth highest area under desertification/land degradation with respect to the county's TGA (Desertification & Land degradation Atlas of India, SAC, 2016).

Total 96400 Sq.Kms area of the country is undergoing land degradation i.e., 29.32% of the Total Geographic Area (TGA) of the country during 2011-13, while during 2003-05 the area respect to state TGA. The state is observed with 52.29% of the total geographical area under desertification/land degradation for the period of 2011-13, which is the highest percentage area in any state in the country has (Desertification & Land degradation Atlas of India, SAC, 2016)

Process of Desertification / Land Degradation	2011-13		2003-05		Change (ha)	Change in (%)
	Area(ha)	Area(%)	Area(ha)	Area(%)		
<b>Vegetation Degradation</b>	2319826	11.82	2255417	11.49	64409	0.32
<b>Water Erosion</b>	3859497	19.67	3788099	19.30	71398	0.36
<b>Wind Erosion</b>	1177105	6.00	1179548	6.01	-2443	-0.01
<b>Salinity</b>	2645405	13.48	2643828	13.47	1578	0.01
<b>Water Logging</b>	3375	0.02	3375	0.02	0	0.00
<b>Manmade</b>	51637	0.26	50524	0.26	1113	0.01
<b>Barren/Rocky</b>	39218	0.20	39218	0.20	0	0.00
<b>Settlement</b>	165578	0.84	117447	0.60	48131	0.25
<b>Total Area under Desertification</b>	10261641	52.29	10077455	51.35	184186	0.94
<b>No Apparent Degradation</b>	8533439	43.48	8718876	44.43	-185437	-0.94
<b>Total Geographical Area (ha)</b>	19624400					



There is a cumulative increase of 1854 Sq.Kms (0.94% increase) area undergoing process of land degradation in the State between the time periods of 2003-05 to 2011-13. The most significant process of land degradation observed in the State is due to water erosion (19.67 % recorded in 2011-13 and 19.30% in 2003-05) followed by salinity (13.48 % recorded in 2011-13 and 13.47 % in 2003-05), Vegetation degradation (11.82% in 2011-13 and 11.49% in 2003-05) and Wind erosion (6.00 % in 2011-13 and 6.01% in 2003-05).



Soil erosion is one of the most destructive phenomena of land degradation. It results not only in the loss of water and plant nutrients but ultimately the soil itself is lost, which, in turn, affects crop productivity. Soil erosion is one of the most serious degradation problems faced by the state. Fertility status of the soil may be reduced due to the loss of top soil. Water erosion affects 6.79 million ha of land, while wind erosion affects nearly 0.5 million ha of land. Bhumla and Khare (1988) estimated that 5.24 million ha area of Gujarat was under the

influence of water erosion and 0.7 million ha of under the influence of wind erosion. The current (2007) value shows that the area affected by water erosion has increased whereas the area under wind erosion has decreased. The current value shows that the area affected by water erosion has increased whereas the area under wind erosion has decreased.

## General impacts of Degradation

Land degradation and desertification lowers the productive capacity of land. The need for land development in response to economic growth needs to be weighed up against its protection for maintaining healthy ecosystems and natural resources. Land degradation is a widespread and major problem linked to urbanisation and industrialisation pressures as well as inappropriate land uses, poor agricultural practices, poor land management and drought. The livelihood security of the majority of Indians relies on land and water based occupations such as crop and animal husbandry, forestry, and fisheries. There is a competing and conflicting demand of land for different uses. Declining productivity, increasing input costs, and degradation are posing severe threats to the livelihoods of small and marginal communities.



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