STUDY AREA:

Gujarat forms an area that housed the regions of the Indus Valley civilization and Harappan sites. Around 50 Harappan sites are found in Gujarat. Lothal, Rangpur, Amri, Lakhabaval, Rozdi etc are some of these sites. This makes it an important territory that reveals the history of India. The Dravidian tribes were said to be the original inhabitants of this region. Even before the Aryan occupation of Gujarat it is said to have had trade contracts with Sumer, the Persian Gulf in about 1000-750 BC. Rock edicts in the Girnar hills indicate that Ashoka extended his domain into Gujarat. During the Mauryan rule Buddhism was promoted. The Mauryans also promoted trade which helped in spread of their culture. In about 150 BC the under Meander is said to have instilled their rule. After Mouryans, many rulers like Bactarian Greeks who are said to have had trade contracts with Rome, the Scythians, the Guptas, the Vallabhi have ruled over Gujarat for years. After the death of Harshvardhana, the Gujjars controlled it till 746 AD. The Solankis ruled over Gujarat till 1143. Gujarat attained its greatest territorial extend under the Solanki dynasty, from the 9th century. Muhammud of Ghazni attacked Somnath in Gujarat leading to the downfall of the Solankis. The conquest of Ala-ud-din Khilji king of Delhi in 1288 also influenced the conditions in Gujarat. The Sultans of Delhi had their sway over Gujarat from 1298-1392 AD. Ahemad Shah-I, the first independent Muslim ruler of Gujarat, founded Ahmadabad in 1411. Then the Mughals ruled for about 2 centuries till the Marathas terminated their rule in the mid 18th century. It was during the 18th century that Gujarat was divided among number of chiefs. From 1803-1827 the British set up their administration. The British East India companies first head quarters in India was at Surat. It was later moved to Bombay. Finally, in May 1st, 1960 the state of Gujarat was formed from the north and west portions of Bombay state, the remainder being renamed the state of Maharashtra. Population of Gujarat is 5.06 crores based on census of 2001.

Agriculture, industry and animal husbandry are the mainstays of Gujarat's economy. Gujarat is best known as an industrial state.

Geography and geology of the Gujarat State:

Gujarat is the Westernmost State of India located between 20° 1' and 24° 7' North latitudes and 68° 4' and 74° 4' East latitudes, with an area of 1,96,024 km^2 and a coastline of 1,600 km, the longest coastline in India. Its boundaries are defined by Arabian Sea on the west, the State of Rajasthan the north-east, Madhya Pradesh on the east and Maharashtra on the south-east and south. On the north-western fringe it shares the international border with Pakistan. Gujarat is one of the biodiversity rich states in India. In terms of ecosystem diversity, Gujarat ranks sixth among all the states in the country. Gujarat has parts of four major hill ranges of the country i.e. Aravallis, the Vindhyas, the Satpudas and the Sahyadris (Western Ghats) located in the same order from north to south, the state has four large rives i.e. Narmada, Tapi, Mahi and Sabarmati. The Tropics of Cancer passes through Gujarat, giving it a sub-tropical climate. There three distinct seasons viz. monsoon (June-September), winter (November-February) and summer (April-May) with transitions occurring in October, March and June between the respective seasons. Temperatures vary from the lowest 4^0C to highest 46^0C. Annual rainfall varies from 400 to 2000 mm (Anonymous, 2001). Over half of the State is covered by alluvial deposits of the Quaternary period (1.5 million years BP). The rest is made up of a large variety of exposed rock formations, ranging in age from the oldest Precambrian (more than 2,500 million years) to the recent. The geological evolution of Gujarat, initiated some time in the Triassic with the breaking up of Gondwanaland, is related to the northward drift of the Indian subcontinent. The Mesozoic and Cenozoic tectonism related to the breaking up of the western continental margin and the subsequent drift have mainly controlled to the geological evolution of Gujarat. The depositional history and Deccan volcanism are part and parcel of this major tectonic phenomenon. Predominant soil type of

the State is black cotton soil with more of clay, sandy soil, alluvial soil and the premature hilly soil. Various parts of the State have different combinations of soil types which can be broadly categorized as grey brown deltaic alluvium in Kuchchh region, deep black and coastal soils in South Gujarat, medium black in Central Gujarat, grey brown and coastal alluvial soil in North and Northwest and calcareous medium black and coastal alluvial soil in the Peninsular Saurashtra region. More than half of the state has soil depth above 150 cm. If we see the soil texture, loamy soils cover about 37% of the State while 40% is clayey and 7% is sandy (Anonymous, 2005).

Ecology:

Gujarat has a range of natural habitat such as the dry saline Ranns of Kuchchh, grasslands, rivers wetlands and reservoirs, coastal area with mangroves and coral reefs and thorn forests, dry deciduous and semi-moist forests. Richness in species diversity comes natural to areas rich which are rich in ecosystem and geomorphological diversity. Gujarat is rich due to climatic and geological variation. Terrestrial ecosystem diversity gradually changes from semi-moist forests in Dangs and Valsad in high rain fall zone, which is 2500 mm, to desert thorn forest or desert biome - I north Kachchh in low rain fall zone which is 250 mm. Ten times variation in rainfall places Gujarat as a unique State in the country, and this uniqueness is enriched by the longest coastline and diverse marine habitats.

Table - 8 : Biogeographic zones and five biotic provinces of Gujarat

Sr. No.	Biogeographic zone	Biotic province
1	The Indian desert (3)	Kachchh (3A)
2	Semi Arid (4)	Gujarat – Rajwara (4 B)
3	Western Ghats (5)	Malabar Coast (5 A)
		Western Ghat mountains (5 B)
4	The Coasts (10)	West Coast (10 A)

(Singh *et al*, 2005)

Forests in Gujarat:

The notified forest area in Gujarat is 19,113 km^2 which is 10% of the total geographical area of the state. The actual forest cover in the state as reported by Forest Survey of India (FSI, 2001) using remote sensing methods is around 15,152 km^2 which is about 7.73% of the total geographical area of the state and about 79% of the total notified forest area.

The diversity of natural habitat ranges from deserts, semi-deserts, mangroves, coral reef coasts and forests. The forest types are dry deciduous, moist deciduous to thorny forests and grasslands. Due to significant variation in the climate and topography, Gujarat state recorded quite diverse terrestrial vegetation types. The forests can be divided into 6 main types with a clear distribution pattern (Anonymous, 1996). According to the classification system of Champian and Sheth (1968), 32 forest types could be identified from Gujarat (Table-9).

Table- 9: Types of Forests Found in Gujarat

No.	Types	Distribution
1.	Most Deciduous Forest	The Dangs and Valsad
2.	Slightly Moist Teak Forest	Surat and Bharuch
3.	Dry Deciduous (Teak) Forest	Vadodara, Panchmahal and Bharuch
4.	Very Dry Deciduous (Teak) Forest	Gir and Girnar Area of Junagadh
5.	Dry Deciduous Scrub forest	Eastern Gir Area of Junagadh, Rajkot, Amreli, Bhavnagar, Banaskantha, Sabarkantha and Kutch.
6.	Savannah Forest	Saurashtra and Kutch.

(Anonymous, 1996)

Indian subcontinent is very rich in bio-diversity. The variety of tropical forests eco-systems are found across the country. According to the Forest Survey of India (1999), the forest cover of the country is 63.73 million ha which constitutes 19.39

% of 328.23 million hectares of its geographical area. Madhya Pradesh accounts for the largest forest area of the country (20.68 %), followed by Arunachal Pradesh (10.00%) then Orissa (7.30%), Maharashtra (7.32%) and Andhra Pradesh (6.94%). The seven north eastern states together comprise 25.70% of the total forest cover. Gujarat comprises only 2.03% of the country's total forest cover. India is very rich not only in terms of species diversity but is blessed with an enormous variety of variability within the species along with the presence of a large number of endemic species. It is estimated that India occupies merely 2% of the geographical area of the world but supports about 8% of the world's living organisms. India has about 48,000 species of plants and 80,000 species of animals with high level of endemism. Around 1,27,000 species of plants, animals, and micro organisms have already reported from the country.