

## **CHAPTER-3**

### **STUDY AREA AT A GLANCE**

### **3.1 Geographical Location**

Gujarat state lies at the western most end of India, the west coast. The State spreads over 1, 95, 984 km<sup>2</sup> area and is situated on the west coast of India between 20<sup>0</sup>1' N to 24<sup>0</sup>7' N latitude and 68<sup>0</sup>4' E and 74<sup>0</sup>4' E longitude. It is bounded by the Arabian Sea on the West, the state of Maharashtra on the South, Madhya Pradesh on the East, Rajasthan on the North and Pakistan on the North West.

Administratively, Gujarat state has been delineated into a total of 25 districts (Ahmedabad, Amreli, Banaskantha, Bharuch, Bhavnagar, Dangs, Gandhinagar, Jamnagar, Junagadh, Kheda, Kutch, Mehsana, Panchmahal, Rajkot, Sabarkantha, Surat, Surendranagar, Vadodara and Valsad). The study was mainly conducted around Vadodara.

### **3.2 Agro climatic zones of Gujarat:**

The state is divided into the seven agro climatic zones mainly based on amount of rainfall and soil types (**Map 1**). Vadodara district falls under sub zone of middle Gujarat. Ecologically, Gujarat state has been divided in to three Zones *viz.* arid zone, semi arid zone and wet dry zone. Vadodara falls under a semi-arid zone.

### **Middle Gujarat**

It consist of Panchmahal, Vadodara and Bharuch districts. Major crops of this area are Cotton, tobacco, bajra, pulses, wheat, Castor, paddy, maize, jowar and sugarcane. This zone has rainfall ranging between 800-1000 mm.

All sites of agricultural fields of selected crops were present around Vadodara viz. in North direction Savli, East direction Dabhoi, South direction Karjan and West direction Padra (**Map 2**).

### **3.3 Climate:**

Indian Meteorological Department conveniently divided the year into four principal seasons:-

- i) Cold weather or winter season: Mid-December-February
- ii) Hot weather or summer season: March-May, and
- iii) South-West monsoon season: June-September and
- iv) Retreating south-west monsoon: October-Mid December.

### **3.4 Soils**

Soils are one of the most valuable life supporting natural resources for the society since they produce food, fibre and fodder, which are basic to our existence. Gujarat is endowed with a wide range of soil type. The soils of Gujarat can be broadly classified into nine groups namely, black soils, mixed

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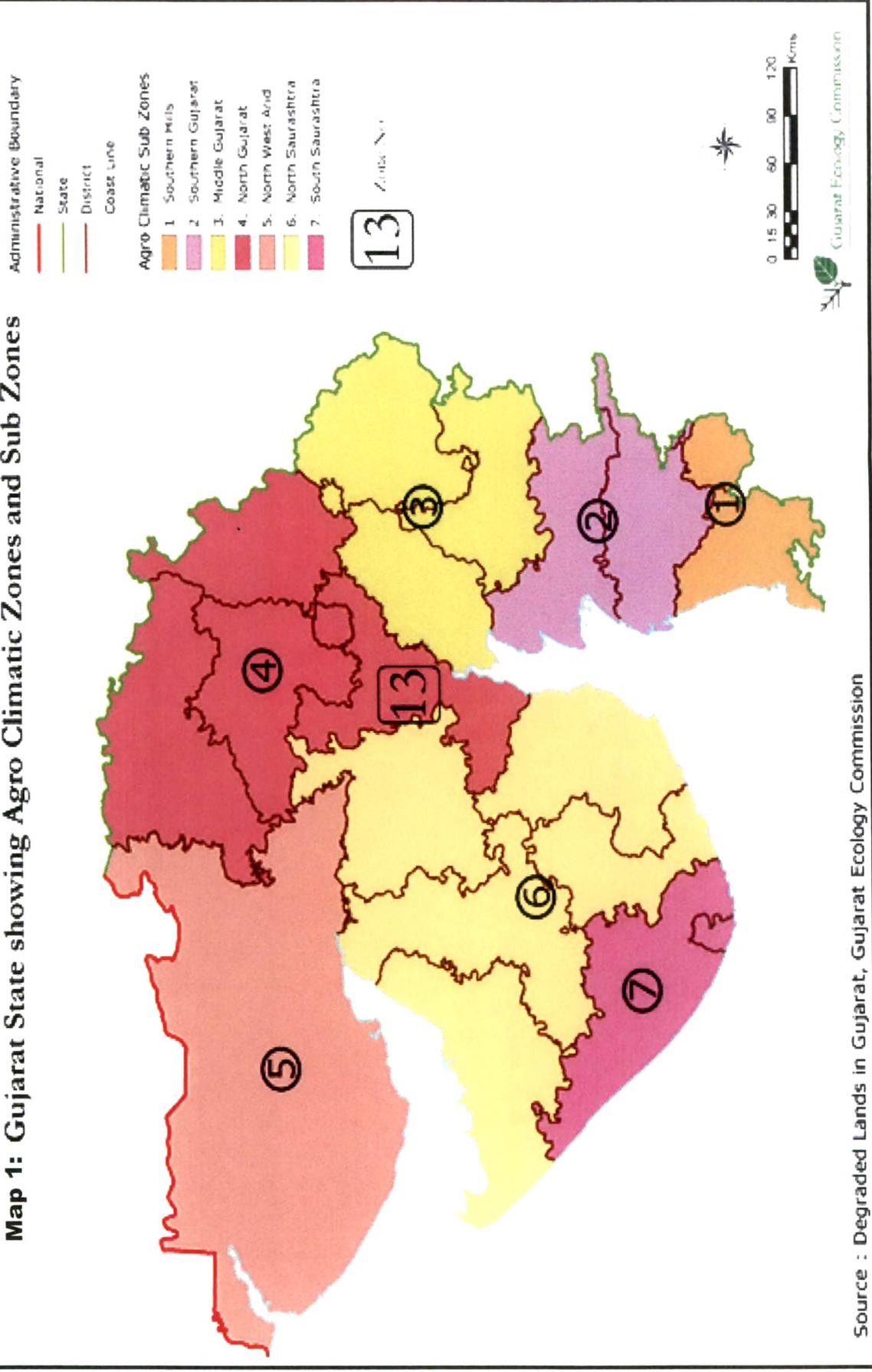
red and black soils, residual sandy soils, alluvial soils, saline/alkali soils, lateritic soils, hilly soils, desert soils and forest soils.

Among the selected study sites, Padra, Savli and Dabhoi are composed of sandy loam soil (locally called as Goradu) while Karjan is composed of deep black soil. Water holding capacity of the soil is poor in Padra, Savli and Dabhoi areas as compared to Karjan.

#### **3.5 Temperature**

During winters average temperature is between 12°C to 27°C. In the summers temperature ranges between 25°C to 43°C and reaches as high as 48°C.

**Map 1: Gujarat State showing Agro Climatic Zones and Sub Zones**



Source : Degraded Lands in Gujarat, Gujarat Ecology Commission

Map 2: Showing Study Sites in Vadodara District, Gujarat State

