Study Area

4.0 Study Area

The Aravali hills of Rajasthan are considered to be the oldest Precambrian mountain chain of India. It traverses the State in a NNE-SSW direction almost from end to end dividing Rajasthan into two unequal parts, three-fifths of which constitutes the western Rajasthan occurring to the north-west leaving two-fifths on the south-east constituting the eastern Rajasthan. Physiographically Rajasthan is divided into four regions bearing a close relationship with the geological history of the State, namely, (i) Western desert plains, (ii) Aravali mountain range, (iii) Eastern plains, and (iv) Vindhyan plateau to the south-east.

Nagaur district is located between latitude 26°25’ and 27°40’ N and longitude 73°18’ and 75°15’ E. Because of its central situation in Rajasthan, it
shares its border with several other district of the state. On the north, it is bounded by Bikaner and Churu district, on the east by Sikar and Jaipur district on the south by Ajmer and Pali district and on the west by Jodhpur district. The district has its general slope towards the west. Its elevation is about 300 meters; ranging below 250 meters in the south and 640 meters in the north. Nagaur is the fifth largest district in Rajasthan with a vast terrain spreading over 17,718 sq. K.M. Its geographical spread is a good combine of plain, hills, sand mounds & as such it is a part of the great Indian Thar Desert.

There are 1,396 villages in district Nagaur, Rajasthan in which 1,374 or 98.42% inhabited and the remaining 1.58% (22 villages) uninhabited. Total geomorphological area of the state is 342,274 sq km.

4.1 GEOLOGY OF THE AREA

Geologically, the State of Rajasthan is made up of diverse rock types ranging from the oldest Archaean metamorphites to sub-recent to recent alluvium and wind-blown sand. Even though three fourth the State is covered by blown sand and alluvium, the remaining area exposes a wide variety of rocks comprising crystalline and sedimentary rocks. The crystalline include various types of metamorphic schists, quartzites, marbles and gneisses of Precambrian age with associated acid and basic intrusive rocks. The sedimentaries include the rocks of Upper Precambrian Vindhyan Supergroup and of Permo-Carboniferous to Jurassic, Cretaceous and Tertiary ages. The southeastern extremity of the State is occupied by a pile of basaltic flows of Deccan Traps of Cretaceous (Eocene) age.

In Nagour district the basis for the classification of the hydrogeological units was the occurrence of groundwater in different litho-unit. Crystalline aquifers include schist, gneisses phyllites and older metamorphics. The consolidated sediments and sedimentary rocks include Jodhpur sandstone, Nagaur sandstone, Bilara and dolomites of the Mawar supergroup. The third category unconsolidated sediments include sand, clay, gravelm and Kanka of the quaternary period. These have been classified as single unit the alluvium. In general the Bilara
limestone and dolomites, Jodhpur sandstone, Nagour sandstone and older alluvium are the chief source of ground water in the district.

4.2 CLIMATE AND RAINFALL

The climate of Rajasthan is arid to semi-arid. It is dry for most part of the year with wide variation in temperature. June is the hottest month. In western Rajasthan, the temperature sometimes shoots up to 52°C while during winter the temperature goes even below freezing. The high temperatures in summer are frequently followed by severe dust storms.

Nagaur has a dry climate with a hot summer. Sand storms are common in summer. The climate of the district is conspicuous by extreme dryness, large variations of temperature & highly variable rainfall. The mercury keeps on rising intensely from March till June. These are the hottest months. The maximum temperature recorded in district is 47°C with 0°C as the lowest recorded temperature. The average temperature of the district is 23.5°C. The winter season in the district extends from mid November till the beginning of March. Rainy season is of a short duration from July to mid September. There are ten raingage stations, namely - Nagaur, Khinvsar, Didwana, Merta, Parbatsar, Makarana, Nawa, Jayal, Degana and Ladnun in the district. The average rainfall in the district is 36.16 cm & 51.5 percentage humidity.

4.3 POPULATION AND AREA

The district comprises of 1588 Revenue Estates (Villages), out of which Merta, Deedwana, Makarana, Parbatsar and Kuchaman are the major towns of the district. The total area of the district is 17,718 sq. K.M., out of which 17,448.5 sq. K.M. is rural and 269.5 sq. K.M. is urban. As per the 2001 census, the population of the district is 27,75,058 (4,77,337 urban and 22,97,721 rural population) which is 4.91% of the total population of the State. The density of population in the district is 157, as against 165 of Rajasthan as a whole. 12,87,921 persons of the district are literate, out of which 10,21,314 are rural and 2,66,607 are urban, which makes it 58.26% of the total population. Out of this literate population 75.33% are males and 40.45% are females.