

Chapter - 2

THE REGION OF KUTCH

II. 1. HISTORICAL CONSIDERATION:

Kutch is an ancient land mass of great antiquity and receives its name from its geographical characteristics and topographical features resembling a tortoise. Kutch, the name by which it has been referred in the ancient literature, has been defined by Mallinath as a marshy region of waste land (in 'Sanjivani' his commentary on Amarkosh). It is also by this name that it has been referred to, in the Puranas; in the various notes on this region by foreign travelers, those visited this country in olden times; as also in stone inscriptions and copper plates; and in old writings and manuscripts. Prior to the dawn of Christianity, this region lying between Sindh and Saurashtra has been described as 'Abhir' by which name it has also been referred to in the 'Mahabharat'. A Greek traveler and military commander named this region as Abiria or Abir from its original name of Abhir during the second century before the Christ. Till the third and fourth A.D. and even thereafter; it used to be referred to by both the names Kutch as well as 'Abhir'. First known as 'Abhir' from its original inhabitants, the Ahirs, who resided in this area. It later on came to be known as Kutch because of its unique geographical set up. Considerable importance from the point of view of geological, archaeological and historical background is thus attached to the region of Kutch.

II. 2. GEOGRAPHICAL BACKGROUND:

The crescent shaped region called Kutch forms the North-western portion of the state of Gujarat, and roughly covers an area of about 44,203 square kilometers. It occupies an area between latitudes 22°44'11"N

to 24°41'25" N, and longitudes 68°09'46"E to 71°54'47"E. It is bounded on the North and Northwest by Sindh (Pakistan); on the Northeast by Rajasthan; on the East by the districts of Banaskantha and Mehsana; on the Southeast by Surendranager; on the South by the gulf of Kutch and the Rajkot district; and on the Southwest and West by the Arabian sea. It is separated from the mainland by Greater Rann in the Northeast and by Little Rann in the East (fig. 1).

The Kutch peninsula was an island till the great rann of Kutch was filled and became a part of the mainland. Deficient rainfall makes the terrain a semidesert area. Some part of it is below the sea level.

The terrain of Kutch peninsula can be broadly classified into three zones from North to South. The Rann; the Central hilly region and; the Southern coastal plain. The rann of Kutch is covered with a thick salt layer mixed with fine sand and clay, devoid of vegetation and habitation. The hills of Kutch spread widely in the west, and narrow towards the east, and contain the noticeable peak of Dhinodhar, about 387 meters high above the mean sea level reputed to have once been a legendary volcano. The hilly elevations of the rann contain their highest point in the Patcham ridge (458 meters).

The district of Kutch has a coastline of 352 km. The coast is generally flat and broken by small and big creeks. It can be divided into two stretches viz., one from Lakhpat to Mandvi called the Arabian sea and that from Mandvi to Shikarpur (Bhachau taluka) called the gulf of Kutch.

Kutch has a semi-arid climate of the "steppe-bush type". The steppe is a transitional belt, bordering a real desert and separating it from

a humid region beyond. The tropic of cancer is passing through Kutch region and hence the area records the extreme of temperatures, typical of an arid climatic zone. Winters are very cold and summers are scorchingly hot, often hot gusts blow during summers. The average maximum temperature in May is about 39°C, which sometime goes as high as 47°C, and average minimum temperature in January is 9°C, Which can go even lower as 1°C. Monsoon prevails for a very short period, and rain fall is very meager and erratic. The average rainfall is about 35 cm. Most of which falls from June to September, during the Northwest monsoon.

Special weather phenomenon that of the thunder storms occur during the monsoon season. Dust storms occur occasionally during the summer particularly in the interior of the district.

All the rivers of Kutch start from its central portion and flow towards the sea in the South and the great rann in the North. The South flowing important rivers are the Kankavati, the Kharod, the Khari, the Mithi, the Rukmavati and the Bhukhi rivers, which ultimately pours into gulf of Kutch and the Arabian sea. The north flowing important rivers are the Kāli, the Godhated, the Dhudud, the Nara and the Kaiki rivers which flow to north and ultimately merge into the Rann.

The meager rainfall in Kutch has resulted in a very poor natural vegetation. The vegetation in the major portion of the area is scanty and if present it is mostly xerophytic. The Kutch forests are characterised by thorny and non-thorny tree growth. Due to long continued maltreatment, the wild tree-growth these days has become almost entirely confined to thorny species of Baval, Kher etc.

Kutch lying as it does, in the poor rainfall area of India, “lacks fine forests with their richer mammalian life and is home of desert and

dry, scrap jungle loving animals, best suited to the climate or arid and open land.” The fauna of the area is varied but not plentiful except domestic animals like oxen, cows, camels, horses, asses, goats etc. Kutch is well known for its migratory flamingos and great Indian bustards, which arrive in the area during the winter months. Kutch is also famous for the rare species of “wild asses”, which are reported from only two localities in the world - the Middle East and the Kutch.

The region of Kutch has been greatly affected by many earthquakes and the recent ones are of 1819, 1844, 1845, 1864, 1882, 1898, 1903, 1940 and 1956. The earthquakes have been responsible for the change of the course of the river Indus, creation of Allah Band, changes in Sindhdi lake, devastation of Lakhpat and Anjar and change in other physical features in the region.

Economically and culturally the area is quite backward and underdeveloped. Acute water shortage and lack of communications have affected population and has left them in poverty. The local residents of Kutch probably represent a mixed race between Arabs and Hindus and follow both Hindu and Muslim faiths. Good harmony exists among the local people. The main occupation is cattle breeding and farming. The common language is ‘Kutchi’ with no script. People are religious and highly superstitious. Literacy is very low.

“Narayan Sarovar” one of the five holiest lakes in the country is situated in Kutch. The temples of Trivikramrai, Mata no madh (Ashapurimata) and Koteshwar attract many pilgrims through out the year.

II. 3. GEOMORPHOLOGY:

A fairly good account on the geomorphology of Kutch can be traced in the report by Biswas (1977). According to him topography of

Kutch is comparatively very young, and points to the fact that, there must have been a very late uplift. He suggested four plains of erosion in the landscape of Kutch; viz., Palaeocene, Post-Palaeocene, Post-Miocene, and early Quaternary.

A unique geomorphic terrain of Indian Subcontinent in Kutch is the Great Rann of Kutch. It consists of a monotonously flat belt of salt. The flatness, extreme salinity, and the annual inundation of the sea water through the Kori creek have rendered the Great Rann desolate and barren. This remarkably flat terrain is at places dotted with island like elevated regions known as 'bets'. The rocky islands of Patcham, Khadir, Bela and Chorar rise abruptly, above the Rann surface and form very striking geomorphic features.

Kutch is uniquely featured by rugged highland topography standing amidst vast plains of the Great and Little Ranns of Kutch, which are extensive playas with local salines (Biswas et. al. 1983).

II. 4. GENERAL GEOLOGY:

Geologically the peninsula of Kutch occupies one of the most important and unique, sedimentary basins of India. The stratigraphy of Kutch comprises the rocks ranging in age from Jurassic to Recent. These are deposited in various environmental set ups like marine, brackish and estuarine waters. The stratigraphic boundaries include the Precambrian and Middle Jurassic; Upper Jurassic and Lower Cretaceous; Lower Cretaceous and Supratrappean and Lower Eocene, Middle Eocene and Lower Oligocene; Miocene and Pliocene; and Pliocene and Pleistocene and Recent.

The basal granitic boulder conglomerate and the rocks overlying it in Cheriya bet and Khadir are thought to be the oldest Mesozoic sediments laid down on a Pre-Cambrian basement, exposed as syenitic rocks in Meruda hill, which are believed to be equivalent to Erinpura Granites (Biswas, 1971). A total thickness of about 2400 meters of the Mesozoic succession is claimed by him to have been deposited in various parts of Kutch including the following six disconnected uplift zones viz. (1) Kutch Mainland, (2) Patcham Island, (3) Khadir Island, (4) Bela Island, (5) Chorar hill and (6) Wagad region.

The rocks are mainly clastic in nature include gypseous shales, micaceous and felspathic silty to gritty sandstones, siltstones along with few thin bands of limestones of varied nature. Few beds are containing abundant fossils of *Cephalopods*, *Brachiopods*, *Pelecypods*, *Gastropods*, *Bryozoa*, *Corals*, *Foraminifera* and many other varieties of microfossils, vertebrate remains and trace fossils. Numerous basic dykes and sills are known to have intruded these sediments at various localities.

The Tertiary rocks on the other hand are exposed along the Western and Southern parts of Kutch and along the areas bordering the South of the Islands of Patcham, Khadir, Bela and Wagad highlands.

The Tertiary succession of Kutch attains a thickness of about 1000.0 meters and overlies approximately 600.0 meters of Deccan Traps, 900.0 meters of Cretaceous and 1800.0 meters of Jurassic strata. These rocks broadly include variegated to silty clay, foraminiferal limestone, argillaceous limestones, siltstone, gypseous shale and micaceous sandstones. Very often these rocks are highly fossiliferous and contain fossils of *Pelecypods*, *Gastropods*, *Echinoids*, *Bryozoa*, *Corals*, *Foraminifera*,

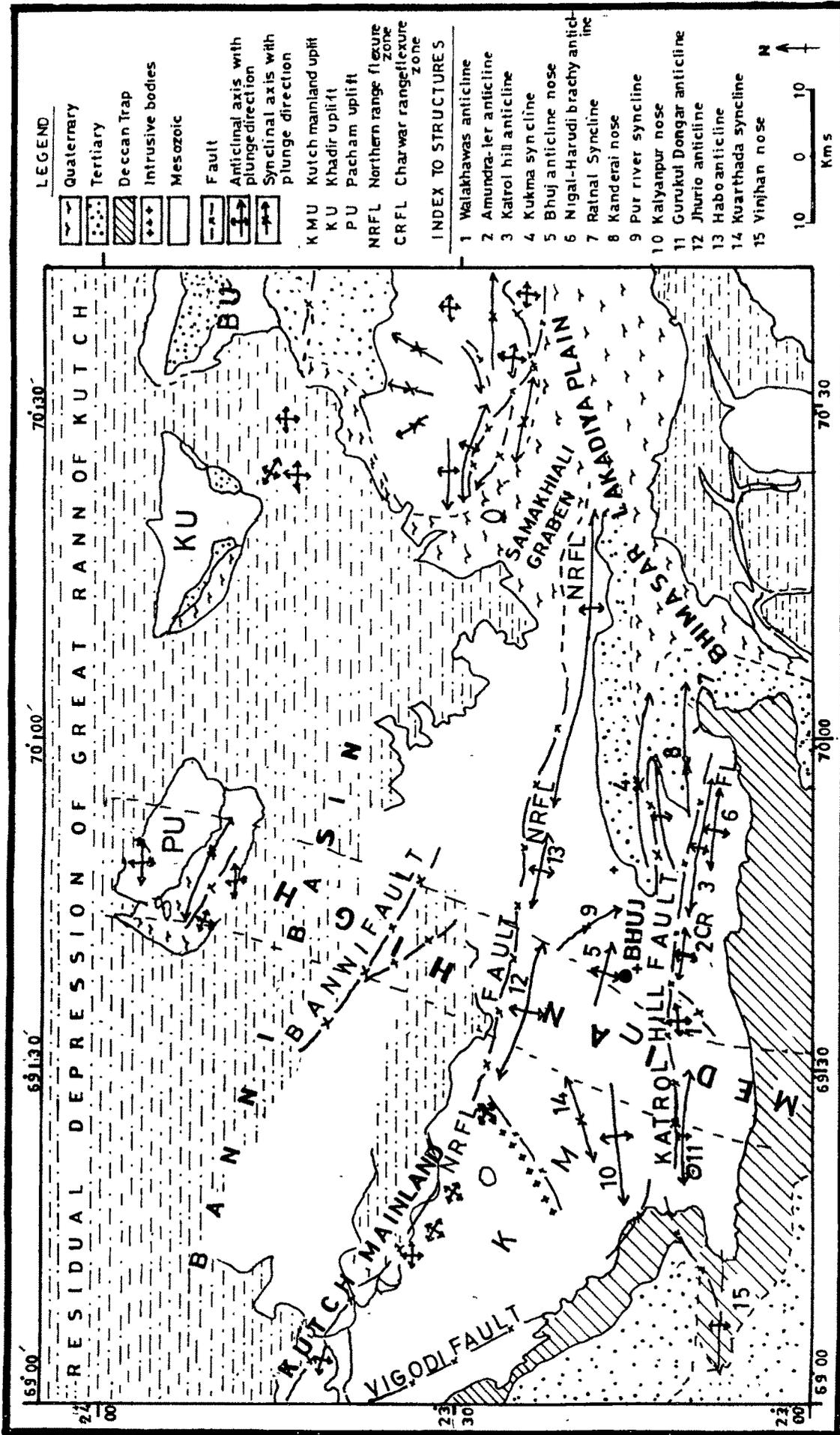
Ostracoda and many other varieties of microfossils, vertebrate remains and trace fossils.

All types of soils viz., lateritic red, black, alluvial marshy, saline, alkaline and desertic are noticed in parts of Kutch. Sand dunes are common features on the Southern coastal plains.

II. 5. STRUCTURE AND TECTONICS:

Important contributions to the study of structure and tectonics of the region of Kutch are made by Biswas and Deshpande (1970), and Biswas (1980, 1982). According to these authors the Kutch basin is a pericratonic embayment, bordered by the NagarParkar uplift on the North, Radhanpur Barmer arch on the East and Kathiawar uplift on the South. The main structure include six major uplift zones running East-West including the areas of mainland Kutch, Wagad block, Patcham, Khadir, Bela and Chorar island regions. Few small uplifts also exist in Great and Little Rann. These uplifts are surrounded by "residual depressions" of the Great and Little Ranns of Kutch. These plains are the basins between the uplifts in which thick Tertiary sediments have been deposited, as parts of residual depressions. The uplifts are further suggested to constituted by the quasi-vertical marginal faults located in the basement (fig. 2). All the major uplifts are bounded, at least on one side, by a fault associated with flexure zone made up of chain of domes and anticlines of varying geometry, and on the other side by peripheral plains gently dipping into the surrounding residual depression.

As further observed in the illustration (fig. 2), the above structures



(After Biswas et al 1970)

FIG. 2 . TECTONIC MAP OF KUTCH

involve the Mesozoic rocks, while the low dipping Tertiary beds warp around the Mesozoic structures (uplifts) to form noses and embayments. The study area thus forms part of such a structure with Katrol fault in the middle part along with associated flexures, chains of domes and anticlines extending approximately East to West, and gently dipping lower Cretaceous, Deccan Trap and Tertiary strata on the Southern flank.

II. 6. IGNEOUS ACTIVITY:

There are numerous evidences of the Mesozoic sediments being extensively invaded by basic intrusions. Various forms of intrusions can be recognized. Dykes are the most prominent, followed by sills, laccoliths, stocks and drop shaped intrusive bodies and volcanic plugs. Most of the intrusives with the exception of stocks, plugs etc., are syntectonic, genetically related to the tectonism and are restricted within the flexure zones (Biswas, 1971). The plugs are perhaps the centers of the Deccan Trap vulcanicity which took place towards the end of the tectonic cycle (Auden, 1949).