INTRODUCTION TO KACHCHH: THE PLACE OF ALGAL EXPLORATION

ORIGIN:

Kachchh is an ancient land possessed of great antiquity which takes its name from its geographical characteristics and topographical features resembling a tortoise. Kachchh, the name by which it has been referred to the ancient literature, has been defined by Mallinath as a Marshy region or Waste land in Sanjivani his commentary on Amarkosh. Prior to the dawn of Christian era, the region lying between Sindh and Saurashtra (Kathiawad) has been described as Abhir by which name it has also been referred to in the Mahabharata. First known as Abhir from its original inhabitants, the Ahirs, who resided in this area, it later on came to be known as Kachchh because of its unique geographical location surrounded by water and waste land.

BOUNDARIES AND NATURAL DIVISIONS:

This crescent shaped region called Kachchh forms part of north-west Gujarat. The district stretches roughly from 22°-44' -11" (approx) to 24°-41'-25" (approx) - north latitudes and 68°-09'-46" (approx) and 71°-54'-47" (approx) east longitudes. It is bounded on the north and north-west by

* Recent spelling - Kachchh
Sindh (Pakistan). On the north-east by Rajasthan, on the east by the districts of Banaskantha and Mehsana, on the south-east by Surendranagar district, on the south by the Gulf of Kachchh and the Rajkot district and on the south-west and west by the Arabian sea.

GEOLOGICAL FORMATIONS:

The geological formations in Kachchh range in age from Middle Jurassic to late Tertiary, with unconformities breaking the succession between the Middle cretaceous and supra-trapean, supra-trappean and Middle Kirthar and finally Miocene and Pliocene. It may, therefore, be seen that in the Kachchh district we have in effect an epitome of Jurassic and Post-Jurassic geology of India, of great significance to Indian Stratigraphy. Kachchh is considered to be an eastern extension of the mobile belt than a part of the unfolded and stable peninsular Fore-land of India. Peninsular India witnessed marine transgression in the coastal regions, during Jurassic, lower cretaceous and Miocene times probably resulting due to drifting of the different units of the Gondwana continent and causing a temporary incursion of sea in the westerns of the present Gujarat State, Rajasthan and extending as far as the salt range in West Pakistan. These outcrops are now isolated by intervening large stretches of desert sands and alluvium.
PHYSICAL FEATURES OF KACHCHH:

Hills: Its hills, though of no great height, are one of the chief natural features of Kachchh. They may be divided into three groups, the hills on its mainland, of vagad in east, and of the Rann elevations in the north. Nearly all the ranges and many of the hills are steep, scarped on the north slope gently towards the south. Most of the beds have long southerly slopes at right angles to three parallel lines of disturbance; one in the Rann elevations from Pachham to Pranthal, a second along the north of Kachchh from Lakhapat to Vagad and a third in the central uplands from Roha to Bhachau. In Kachchh proper the hills widely spread over its western parts, gradually narrow eastwards into a single range. Though none of great height, the highest, Dhinodhar only a little over 387 meters high above the mean sea level, several of them are from some peculiarity of shape or make worthy of notice. Besides this, some other hills are Jhura 246.58 metres above the Rann, Jandharia (Jangharia) 213.36 metres, Habo Hill about 243.84 metres, Nanama 243.70 metres.

The Vagad hills, a broad group stretching east and west, have many separate peaks, the chief of them Adhoi, rising 82.30 metres from its base.

Of the hills that rise out of the Rann, in pachham, the Kala Dungar, 458 metres above the Rann, is the highest point in Kachchh.
THE RANN:

The Rann (means desert) of Kachchh is a peculiar tract of territory, described by Lieut. Burnes in his memoirs (1827-1828) as "a space without a counterpart on the globe". The entire expanse is covered with a thick salt layer mixed with fine sand and clay devoid of vegetation and habitation.

Derived from the Sanskrit word 'irina' or 'the waste', the Rann is a salt flat. It is divided into two parts, the great Rann to the north and the little Rann to the east.

In appearance and general character, the two parts of the Rann differ but little. Except the four hilly elevations on the south edges of the great Rann and plots of raised land, the whole area is from April to October the season of strong south winds and occasional rain, frequently flooded to the depth of 0.30 to 0.91 metre. Most of this water is salt, either sea water driven by the strong south-west winds up the Kori river or beyond the head of the Gulf of Kachchh, or land water from the Luni and the Banas, or the brackish local streams. The flood waters, as they dry, leave a hard flat surface covered with stone, shingle and salt. As the season wears on, and the heat grows greater, the ground, baked and blistered by the Sun, shines over large tracts of salt with dazzling whiteness, and the air, dim and quivering mocks all distance by an almost ceaseless mirage.
Only some raised rocky lands is water found, and only near water is there brushwood, grass, or any sign of growth. Except a chance bird or heard of wild ass in the little Rann, a stray of antelope, or an occasional Camel Caravan, no sign of life breaks the weary loneliness.

THE COASTAL AREA:

The Kachchh district has approximately a coastline of 352 km. with nine parts, viz. Kandla, Tuna, Jangi, Kharirohar, Mundra, Mandavi, Jakhau, Koteshwar and Lakhpat. The coast is generally flat and broken by small and big creeks. Big creeks have been formed on account of strong currents of water received from the sea, and small creeks have been formed on account of rapid flows of rivers. In some of the creeks water stays permanently and some receive water only during tides. This district has Kori, Boacha and Godia creeks. In addition to these creeks there are other creeks of lesser importance such as, the Malirdi Creek, the Mandvi Creek, the Nakti Creek, etc.

The Kachchh coast can be divided into two stretches, viz., one from Lakhpat to Mandvi called the Arabian sea and (ii) that from Mandvi to Shikarpur (Bhachau taluka) called the Gulf of Kachchh.
RIVERS:

The rivers of the district have certain characteristics. Firstly, all the rivers or streams of Kachchh start from its central portion and flow towards the sea in the south and the Great Rann in the north and the little Rann in the south-east. Broadly speaking the rivers flow northwards or southwards because of the ranges in the central area which serves as water sheds. The Kachchh rivers are non-perennial. Duration of flow of water in the rivers is a question of a few hours in monsoon. The Rivers of this district broadly divided into two groups. North flowing rivers and South flowing rivers.

I North flowing rivers are Bhurud, Kali, Godhatad, Suvai, Dhudud, Malan, Chang, Nara, Khari, Rav, Kaila, Kaswati (Kans).

II South flowing rivers: Naiero, Kankawati, Kharod, Khari, (Lakhpat taluka), Mithi, Sakra, Rukmavati, Nagmati, Lakadiawali, Bhukhi, Sakra (starts from the hills north of Vadli village of Bhuj taluka) Sang, Sai, Rakhdi, Bhukhi (Anjar taluka).

LAKES, PONDS AND DAMS:

The district Kachchh so unfavourably placed with regard to rainfall, successive rulers experimented to build lakes,
ponds and dams as a reservoirs of water for various purposes. The well known lakes in the Kachchh are Hamirsar, Desalsar, and Pragsar near Bhuj city, Sinay and Nigal in Anjar taluka, and Chakasar in Bhuj taluka. Looking to the size and depth of water, so called lakes to Kachchh can be consider as Ponds. The rains are inadequate and irregular and all the rivers are not perennial, for this reason the little rain which the monsoon brings has to be properly stored and well preserved. The Government tried their level best to solve the problem of water for the Kachchh district, by constructing the dams. They are as Rudramata, Nirona, Gajansar, Suvi, Vijaysagar, Kalla, Sanadhro, etc.

SOILS: The soils of Kachchh can be mainly classified into (1) desert, (2) alluvial sandy,(3) medium black, (4) saline alkaline. Though other types such as loamy, silty and clayey are also found at certain places. The northern part of the district is dominated by desert and sandy soils which are mostly salt affected soils. Proceeding southwards, the interior area is composed of either sandy or medium black soils. The southern part of the district comprising the coastal area around Mandvi and Mundra has saline soils, suitable for cultivation. The eastern part is mostly plain with some rocky patches where the soil is sandy with clay and alluvial loam in some parts. The central portion is
hilly and rocky with strips of cultivable lands along the lower slopes. In western part the soils are mostly sandy with patches of fine sandy loams. The soils in Kachchh are generally poor in plant nutrients and lime content in most of them is quite high.

USEFUL MINERALS AND ROCKS: The important mineral deposits and useful rocks in Kachchh are lime stone, bauxite, lignite, bentonite and building stone. Kutch is an important producer of salt from sea water in India. The various minerals located in Kachchh are Barytes, Gypsum, Iron ore, White clay, Glass sand, oil and natural Gas.

FLORA AND FAUNA:

FLORA: Due to the poor rain fall and variety of soil of Kachchh lacks fine forest and characterised by scrubby jungle consist of thorny and non-thorny tree growth. The south-western coastal area joined by the little Rann of Kachchh consist of swamps vegetated with mangroves forests on one hand and the sand flats and dunes - vegetated by grasses. The Banni zone consist of vast sandy loam tract, flat in nature and thinly populated. The great Rann of Kachchh comprises desert area devoid of vegetation and human life. The central hilly region shows growth of trees.

FAUNA: The chief domestic animals noticed in the district are horses, camles, oxen, cows, buffalos, sheep, goat and
asses. Kachchh has long been famous for its camels. Due to the lack of forest wild life like Tiger, Lion are not found but scrub jungle loving animals like Panther, Wold, Fox, Jackol, Rabbit are found. Kachchh is well known for its wild ass.

Kachchh has attracted the attention of Ornithologists, since the middle of 19th century. Books published on 'Birds of Kutch' gives the clear picture of Birds of Kachchh. This district is very famous for its "Flamingo" Bird. Besides these so many other birds migrate in, out from other countries at shore region of the Kachchh. Because of large number of migratory birds, the algal flora assumes great importance.

CLIMATE:

RAINFALL: Rainfall in the district is not so adequate and sometimes fails altogether. The average rainfall of the district for the last ten years is approximately ranging 14"-16". The highest rainfall was 1705 mm at Papar taluka in year 1975-76. The lowest rainfall was 32 mm at Lakhpat in year 1973-74. During last three years the rainfall data shows quite improvement. Detail information regarding talukewise rainfall is given in table 1 and Map - 1.

TEMPERATURE: The day temperature in coastal parts of the district in general are less than in the interior. This
particularly so during summer. In the cold season the interior parts are colder by a few degree. After February temperature rapidly increases till May which is generally the hottest month. The mean daily maximum temperature in May at Bhuj is approximately ranging between 31-38°C, while nights are generally warmer during June and July than in May. With the onset of the south-west monsoon by about the middle of June, day temperature decreases appreciably. After October both day and night temperature rapidly decreases till January which is the coldest month.

**HUMIDITY**: The Humidity in the coastal parts is high throughout the year, exceeding 60 percent on the average. During the south-west monsoon the humidity of the air over the district in general is high. In the interior of the district, during the rest of the year the air is generally remains dry.

**WINDS**: Winds are generally light to moderate with some increase in force during the late summer and south-west monsoon season. Coastal parts experience stronger winds especially during monsoon season.

**SPECIAL WEATHER PHENOMENA**: Thunderstorms occur during the monsoon season. Duststorms occur occasionally during the summer particularly in the interior of the district.