

all sorts of computer related problem with due care. I am also grateful to my elder brother and his family for providing all possible support. Lastly, I am also thankful to my wife and son who understood me during my busy schedule while carrying out this task.

Place: Vadodara

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## **PREFACE**

This study, with environmental approach is an attempt to understand linkages between geomorphology and environment. It was during the post visit of 2001 earthquake in the Kutch region that the Rann fascinated me, and I was hooked to it. And this somehow influenced me to work on the area.

The Kutch district falls under the semi-arid climatic conditions. The climatic characteristics of area shows transitory phase between the arid and semi humid type. Semi-arid area is often used as an example where there is high level of morpho-dynamic activity. One of the reasons for this is the presence of both precipitation as well as high ambient temperature. Much of its precipitation falls in the form of frequent heavy rain storms. The entire Kutch district on an average receives less than 500mm of rainfall, which still skews towards both the Ranns, making it absolute water stressed district of Gujarat.

Detailed analysis of any geomorphic landscape essentially demands to identify and review the study area in the light of morphoclimatic region

and each morphoclimatic region has its own characteristics assemblages of landforms and set of geomorphic processes which sculptor them.

Little Rann of Kutch, roughly triangular in shape is a monotonously saline flat surface with annual inundation. The Rann has been portrait as singularly flat region which is neither land nor sea which dries up during some part of a year and again inundated by saline water from the sea side and fresh water from the adjoining land area during monsoon. The area undergoes seasonal reversal of geomorphic processes, varying in terms of agents and intensity both, owing to the present situation, surface material and climatic variables.

The patterns of distribution of biotic elements are also explained on the basis of bioclimatic conditions prevailing in the area. Spasmodic storm water drainage, its regulation and water resource management is an important phenomenon to deal with in the semi arid regions. Another important feature of the study area is the soil type with medium to heavy clay. Thus the natural vegetation in the area is variable owing to the variation in the above ecological parameters. The recurrent drought and flood make the ecosystem of the area more fragile. Anthropogenic activity in the area has reduced the vegetation cover against marginal cropping; grazing land has been over used and subsequently, the soil is lost through erosion and thus the environmental degradation results.

The dry type (steppe-Bush) of environment is also reflected in the socio-cultural practices, such as pastoral, lumbering (of mangroves) and salt mining in the area. The complete absence of agriculture in most area and seasonal pastoral related movement of the people is strongly related to the absence of rainfall and type of soil (saline soil) available in the region.

The programme for ecological management in such an area must be based on the survey of historical land use pattern and potential productivity of the region and understanding of soil's physical properties and its relation to soil moisture and to do so, study area has been classified into four geomorphological regions considering various geo-environmental parameters, which will help to take area specific morpho-ecological management decision.

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