

Springer Geology Field Guides

Sanjib K. Biswas · Kotha Mahender ·
Gaurav D. Chauhan

Field Guide
Book of Geology
of Kutch
(Kachchh) Basin,
Gujarat, India

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Field Guide Book of Geology of Kutch (Kachchh) Basin, Gujarat, India

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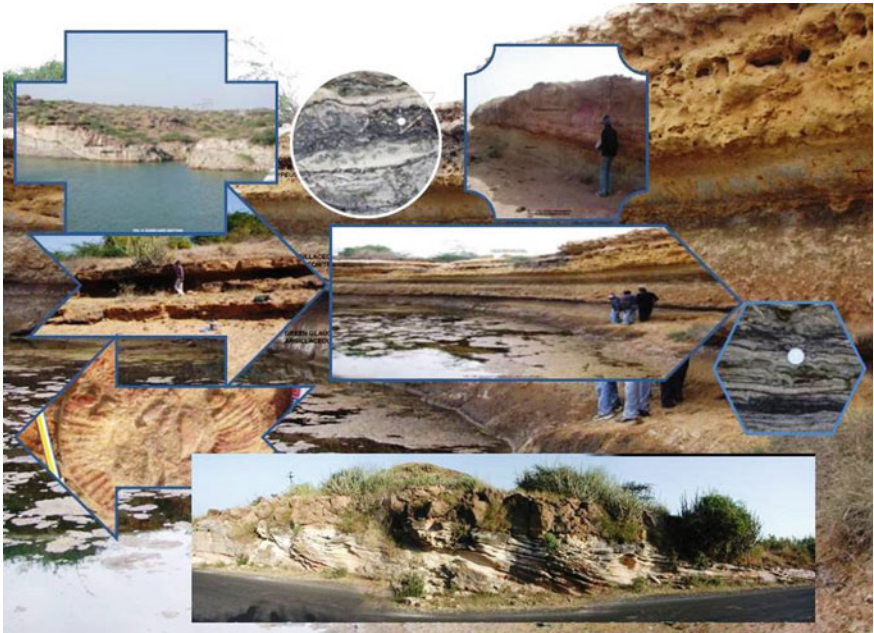
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Preface

Kutch basin is located in northern Gujarat in western India and occupies the entire district of Kutch and the western part of Banas kantha district. It is easily approachable by road from Ahmedabad and Baroda. The city of Bhuj, the district headquarter, is connected by air from Mumbai and Ahmedabad.

Kutch basin is the best exposed pericratonic rift basin in India. Its unique geology has attracted the attention of geologists since the early nineteenth century. Initially, its rich Jurassic–Cretaceous ammonite fauna attracted the attention of paleontologists. Subsequently, particularly after detailed studies and mapping by the geologists of Oil & Natural Gas Corporation, sedimentologists and structural geologists are getting increasingly interested in research in this basin. Extensive outcrops in well-exposed sections in this semiarid, sparsely vegetated region and easy accessibility to sections make it easy for detailed field study. This basin is the best example of a rift margin basin with its rich history of syn-rift marine/non-marine Mesozoic sedimentation and post-rift marine Tertiary sequence of a superposed marginal sag basin. It offers vast scope for research in all branches of geology and learning opportunities for the students.

Department of Science and Technology (DST), India had conducted several field workshops and training courses in Kutch on different topics such as sedimentation, stratigraphy, structure/tectonics, seismotectonics, and geomorphology. An urgent need was felt to prepare a field guide for the benefit of the visiting geologists, researchers, and students. The present project was sponsored to meet this long-felt demand.

The main objectives of the project are: (1) Select long traverses across the basin to provide an overview of the geology of the basin, (2) describe traverse route, approach to section, and salient geological features to be seen in various selected sections/geosites along the traverse, (3) introduce important geological sections along the selected traverses to the visiting geologists/students at chosen halting points, and (4) guide to the stratotypes and reference sections for study of the formal Mesozoic–Tertiary lithostratigraphic units.

The landscape of Kutch is typically featured by highlands surrounded by lowlands, extensive mudflats on the north, and the Gulf of Kutch on the south. The biggest

highland, the southernmost one bordering the gulf, is commonly referred to as Kutch Mainland, which is the most developed and populated region. Lowlands are mudflats (*playas and salinas*). All the highlands are featured by a rugged hill range on the north and a gentle backslope on the south excepting Wagad highland which slopes toward the north. Many roads are available now to approach the interior sections, and it is also possible to drive the cross-country over the barren lands. The geomorphology of Kutch is tectonically controlled, exhibiting first-order topography. It is easy to locate structures from the morphotectonic features. The best time for field visits in Kutch is the winter months between October and March.

Regular visits by geologists created interest among the villagers who are familiar to geologists and generally very helpful and hospitable. There are many hotels/guest houses in Bhuj city to stay during the field trip. The traverses have been designed to start from Bhuj every day early morning. It involves a long drive of around 200 Km each day and returns to Bhuj in the late evening. Each taluka Head Quarter (HQ) has Public Works Department (PWD) guest houses, Jain *Dharamsala*, and also hotels in some big townships, e.g., Nakhatrana, Naliya, Bhachau, Anjar, Gandhidham, Mandvi, and Rapar. Besides these, several resorts have come up in recent times at beautiful spots for tourists. One may choose to stay at these places, in order to save driving time, particularly during the detailed study of sections or for research work.

In this guidebook, we have given a comprehensive description of the geology of the basin at the onset, followed by the description of eight trans-basin traverses and 17 stratotype sections. All the traverses are well illustrated by photographs.

We sincerely hope that this field guide will be a helpful document for the geologists opting to study the geology of Kutch.

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