

Tectono-Sedimentary Evolution of Northern part of Cambay Basin

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The Cambay basin is a Tertiary intra-cratonic graben in the western onshore part of India. The basin is divided into five tectonic blocks separated by major cross trends. The study area falls in the Sanchor-Patan tectonic block in the northern part of Cambay basin. The present paper details the current understanding of tectonic evolution and sedimentation history within the study area. Many previous authors (Bhandari and Choudhary, 1975; Biswas et al., 1994; Kundu and Wani, 1992) have described the geology, tectonics and stratigraphy of this basin in detail. Three stages of basin evolution are recognized; 1) Paleocene – Early Eocene rift stage (synrift; period of extension), 2) Middle Eocene – Early Miocene postrift stage (thermal subsidence), 3) Middle Miocene and younger stage of postrift structural inversion – period of compression. The Deccan Trap basalts erupted during the initiation of the Reunion Plume head close to KT boundary and form the basement to the overlying sediments in major part of the basin. Synrift phase in Paleocene is characterized by trap derivatives, trap conglomerate in form of alluvial fan deposits and lacustrine claystones in fault controlled half grabens. Later phase of synrift during Late Paleocene to Early Eocene is characterized by deposition of restricted marine and pro-delta shales. Postrift thermal subsidence phase is formed after synrift and is characterized by deltaic deposits and marginal marine deposits in Middle Eocene to Early Oligocene time. During Late Miocene to Recent times mainly fluvial sediments are deposited in this part of the basin.