incised the trappean rocks by 10-15 m. The morphostructural domain is delimited in the west by the N-S trending Rajpardi Fault which marks the sharp contact of the trappean rocks with the Tertiary rocks.

3. The morphostructural domain II comrpises the central part of the Kim river basin and shows a flat alluvial topography adjacent to the river courses and undulating topography at a higher level developed over the Tertiary rocks exposed mainly along the periphery of the basin. Topographic highs are seen to correspond with the structural highs viz. the Vagadkhol, Dinod, Dungri and Kosamba anticlines. The river courses and the alluvial deposits occupy the structural lows. The morphostructural domains III is mainly a gently westward sloping alluvial plain. The course of the Kim river is controlled by several geomorphic highs which occur over the structural highs in the subsurface Tertiary rocks.
4. Four geomorphic surfaces were formed during Late Cenozoic in Kim river basin. The oldest surface is the Early Pleistocene Erosional Surface (EPES) followed by the Late Pleistocene Depositional Surface (LPDS), Early Holocene Erosional Surface (EHES) and Late Holocene Depositional Surface (LHDS).
5. The Early Pleistocene Erosional Surface (EPES) was formed during Late Pleistocene to Middle Pleistocene as a result of a prolonged phase of post depositional deformation and erosion of the Tertiary rocks. The surface occurs as prominent geomorphic highs which mark the structural highs (anticlines) developed in Tertiary rocks. This phase marks the first phase of the inversion of the Tertiary sedimentary basin. The inversion of the sedimentary basin occurred due to significant increase in

the compressive stresses. The inversion was limited to the Narmada block only while the rest of the Cambay basin continued to subside.

6. Fluvial sedimentation took place during the Late Pleistocene which led to the formation of flat Late Pleistocene Depositional Surface (LPDS). The surface comprises semi-consolidated to unconsolidated fluvial sands, silts and gravels. A prominent buried soil occurs in upper parts of the exposed succession which has been found useful for reconstructing the stratigraphy of the sediments forming this surface. The sediments do not show large scale deformation seen in the underlying Tertiary rocks which indicates significant weakening of the tectonic activity.
7. The Late Pleistocene sediments are deeply dissected along the narrow belt along the various river channels which marks the Early Holocene Erosional Surface (EHES). The erosion took place during the Early Holocene in response to tectonic uplift which led to the formation of deep gullies and incised cliffs of Late Pleistocene sediments suggesting restrengthening of the compressive stress regime. A similar erosional phase in lower Narmada valley and Gujarat alluvial plain has been attributed to basin inversion and differential uplift along the Narmada-Son Fault (NSF) which points to tectonic inversion of the entire Cambay basin during Early Holocene.
8. The Middle to Late Holocene period is characterised by a depositional phase, which gave rise to the Late Holocene Depositional Terrace (LHDS). In morphostructural domains I and II, fluvial sediments were deposited. Prominence of gravels as a major constituent of these sediments in morphostructural domain II suggests tectonic activity along the Rajpardi Fault. Estuarine sedimentation occurred in morphostructural domain III as a consequence of the high sea level during this period.

Tectonic activity during the Late Holocene uplifted these sediments to present levels to form a terrace.

9. The morphometric analysis of drainage parameters sensitive to tectonics point towards dominating influence of neotectonics on the landscape evolution of Kim river basin. The drainage configuration, especially the higher order streams show excellent correlation with the structural features. High degree of sinuousity observed in morphostructural domain II is attributed to the structural complexity in this zone.
10. The present study suggests a major role of tectonic inversion of the sedimentary basin in phases since Late Pliocene in the geomorphic evolution of the Kim river basin. The landscape of Kim river basin has developed in response to tectonically controlled episodes primarily driven by varying intensities of tectonic activity during different phases of inversion.