

Geomorphology and Climate

Geomorphology of a region is directly controlled by the climate, geology and the tectonic set up. This is especially significant in case of Teesta basin where the rock sequences have under gone complex polyphase deformation producing prominent tectonic features. Teesta River originates from Tista Khangchen glacier in North Sikkim and as it flows it cuts through all the lithotectonic units of Eastern Himalaya almost along the hinge zone of the north – south broad regional antiform, almost up to the southern fringe of the Trans- Axial Belt.

The state of Sikkim is unique in the sense that it is the only state in the country where its administrative boundaries coincide with the watershed defining the catchment of a major river basin. The state is 113 km long N-S and 64 km wide E-W approximately, with an area 7299 Sq. Km.. Teesta has maintained its course despite the tectonic uplift of Himalaya, as an antecedent river. Burrard et. al (1934) suggested that the head waters of Teesta river were part of the tributary of Tsangpo (Brahmaputra) in the geological past. Teesta and its tributaries have played a significant role in the development of complex geomorphic features of Sikkim (see Fig. 2.1). The elevation in the state varies from 200 m.a.s.l. to 8000 m.a.s.l. (Fig 2.2). Distribution of area in various height zones is given in Table 2.1.

Table 2. 1 (Based on Oxford University Atlas, 1990)

S. No.	Height Zone	Area	Percentage
1	200- 600 masl.	38.03 Sq. Km.	0.53 %
2	600- 900 masl.	299.75 Sq. Km.	04.2 %
3	900- 1350 masl.	785.85 Sq. Km.	11.00 %
4	1350- 1800 masl.	824.87 Sq. Km.	11.56 %
5	1800- 3000 masl.	1014.00 Sq. Km.	14.10 %
6	3000- 4500 masl.	1922.00 Sq. Km.	26.94 %
7	4500- 6000 masl.	2158.97 Sq. Km.	30.26 %

