4. Study area:

4.A. Location and boundary: Sikkim State is situated between 27° 5'–28° 9' North latitudes and 88° 59'-89° 56' East longitudes. It is totally a hilly State sandwiched between the two neighbouring countries Nepal in the west and Bhutan in the east. On its northern border tours the platuue of Tibet, whereas it shares its southern border with West Bengal. It acquires about 7096 sq Kms area.

My study area is Southern Sikkim, which lies between 27° 5'-27° 37' North latitudes and 88° 59'-89° 56' East longitudes comprising of about 3900 sq kms area, which is slightly greater than half of the entire State of Sikkim.

4.B. Topography: Sikkim is a small State, consists of four districts, North -, South -, East - and West Districts, but formidable physical features compensate this. The Chola range represents the east boundary with Tibet whereas the Pangolia range constitutes the border with Bhutan. In the west the Singallila range roams the watershed as well as the border between Nepal and Sikkim. Parts of river Rangit, Tista Raman and Rangpoo-chu combine to define the border of Sikkim with West Bengal.

Sikkim has a very rugged topography and flat lands are difficult to found. The altitude ranges from 224-8598 meters. The two principal mountain ranges are Singallila on the western border and Chola on the eastern border. The Sikkim State encompasses the lesser Himalayas, Central Himalayas and Tethys Himalayas. Most of the peaks above 6100 m lie towards the western border of Sikkim. The third highest mountain Kanchenjungha (8598 m) lies here. Other peaks are Kabru (6100 m), Siniolchu, Pandim, Rathong, Kothang, talung etc. On the eastern border the most important peak is Paunhri 6700 m, others are Masthonagye, Yabukjakchen, Narsing and Lamaongden.

Through the center of Sikkim runs another mountain ridge from north to south direction. The peak of this ridge is Tendong 2640 m and Maenum 3235 m. This mountain ridge separates the Tista and Rangit river valley and ends at the confluence of the two rivers.

There are many glaciers in Sikkim, but the most important ones are the Zemu Glacier, Rathong glacier and Lonak Glacier.
4.C. Lakes: Surprisingly in the mountain State Sikkim have lakes, though not very large in size. Lakes are of two types, ‘spring fed’ and ‘river fed’. The lake Chhangu is situated at an altitude of 3693 m in the east district. Two other lakes situated nearby are Bindandcho and Menmencho. Kechopalri Lake is situated in west district.

4.D. Rivers: There are two main rivers in Sikkim. River Tista and River Rangit. There are so many Jhoras and Kholas, which meet with these two main rivers. The river Tista flows right across the length of Sikkim from north to south. Its major tributary is Rangit, which originates from Rathong glacier and meets it at the border between Sikkim and West Bengal. The River Tista originates from the Lake Cholame where it is hardly a stream. From an altitude of 5400m the Tista plummets down in less than 80 km to 1620 m at Chungthang; from Chungthang onwards the Tista descends just another 900 m over a course of about 100 km. The Rivers of Sikkim are perennial and do not dry out even in the winters. The rivers are fed by snow melting as well as by monsoon water.

4.E. Hot spring: Sikkim has many hot springs. The most important ones located on the Yumthang, Borong, Ralong, Samdong etc. The average temperature of the water in these hot springs is 50° C.

4.F. Climate: Though it is a small State by area, but surprisingly Sikkim possesses all the climates right from the tropical to tundra’s. On most part of the northern, eastern and western borders, the earth is blanketed with snow almost throughout the year due to high altitudes. Elevations of 6000m and above remains snow bound throughout the year, places as low as 3000m are snowless except in winter.

4.G. Temperatures: The temperature of places varies with altitudes. At places of low altitude like Singtam, Rangpoo, Jorethang, the temperature varies between 8-35° C. At places of moderate altitudes, like Gangtok winter periods are relatively cold at night, but pleasant during the day. In lower and middle hills, average night temperatures 5° C and day temperatures remains around 15° C.

4.H. Rainfall: The monsoon wind strikes Sikkim between late May and early June and there is incessant rain all across the State till late September. Annual rainfall of the capital of Sikkim (Gangtok) is 325 cm. A peculiar feature of Sikkim weather is
that though there is classification of sorts of various seasons, but actually experiences a cold winter from end of November to February and monsoon throughout the year with a little respite during May-June and October-November.

4.1. Vegetation: The vegetation of South Sikkim is classified in five categories (Humboltz, 1851):

1. Low hill forest (up to 750m)
2. Middle hill forests (750-1500 m)
3. Upper hill forests (1500-2700 m)
4. Rhododendron-Conifer zone forests (2700-3600 m)
5. Alpine scrub and grassland (3600-4300 m and above).