Here I plainly put forward my sincerest and diligent labour of five years for perusal and sympathetic accreditation. My area of special interest and field of study has been: “Slope Instability Along Transport Arteries of Darjeeling Himalaya: A Case of Kalimpong Sub-division, Westbengal.”

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OUTLINE OF THE THESIS STRUCTURE

This thesis comprises of the following eight chapters:

CHAPTER I: INTRODUCTION.

A brief description on the scope, problems and objectives that motivated this research is offered in this chapter.

CHAPTER II: ENVIRONMENTAL SETUP.

This chapter offers a description of Geographical settings of the study area, such as the geology, geomorphology, climate, natural vegetation, soil and population issues.

CHAPTER III: CAUSATIVE FACTORS.

The purpose of this chapter is to find out the causes of landslide on such fragile environment.

CHAPTER IV: LANDSLIDE HAZARD ZONATION MAPPING.

This chapter includes the preparation of hazard zonation map of the study area. For this purpose used the LHEF (BIS) rating scheme, governed by the major causative factors like lithology, structure, slope morphometry, relative relief, land use/ land cover and hydrological condition of the study area. LHEF data have been computed from interpretation of 1:50,000 SOI topographical maps, 1:50,000 geo coded LISS III satellite data existing geological maps and extensive fieldwork.

CHAPTER V: MORPHOLOGICAL STUDY OF SELECTED LANDSLIDES AND SUBSIDENCES.

This chapter describes the selected landslides and subsidence. There are seven major landslides which are selected for morphological analysis along transport arteries of Kalimpong Subdivision. Subsidences are common along Labha-Paparkheti road, so this road section is selected for subsidence analysis. Here detailed morphological analysis and geomorphological mapping of selected landslides are conducted to identify the nature of slides in this region.
CHAPTER VI: LABORATORY STUDIES AND ENGINEERING CLASSIFICATION OF SLIDE MATERIALS.

This chapter deals with slide material analysis in laboratory by sieving to identify the underlying nature of rock and soil material, which causes the initiation and progression of the landslide. Hot woven and unit weight machine are used for determine the moisture content and unit weight of slide materials. In laboratory the grain size distribution of slide materials is conducted for the measure of soil gradation. The grain size distribution curves of selected seven slides are drawn to know whether the curves are well graded or poorly graded.

CHAPTER VII: INVESTIGATION OF FACTOR OF SAFETY (Fs) THROUGH CIRCULAR FAILURE CHART (CFC). (Grain Size Distribution Approach)

This chapter can be considered as the most important chapter of the present work as it analyses the stability in the entire area in term of factor of safety, which is determined by the shear strength and stress parameters. Circular failure chart of 25% ground water condition is used in this concern. The parameters of factor of safety are determined in laboratory by grain size distribution approach. The values of Fs of selected seven slides are less than 1, which indicates the instability of the entire study area.

CHAPTER VIII: CONCLUDING REMARKS.

This chapter comprises of the concluding remarks. Through this entire systematic study the researcher has drawn the conclusion that slope instability is very common here. Therefore systematic micro level planning and proper effective remedial measures are necessary for the development and protection the study area.