INTRODUCTION

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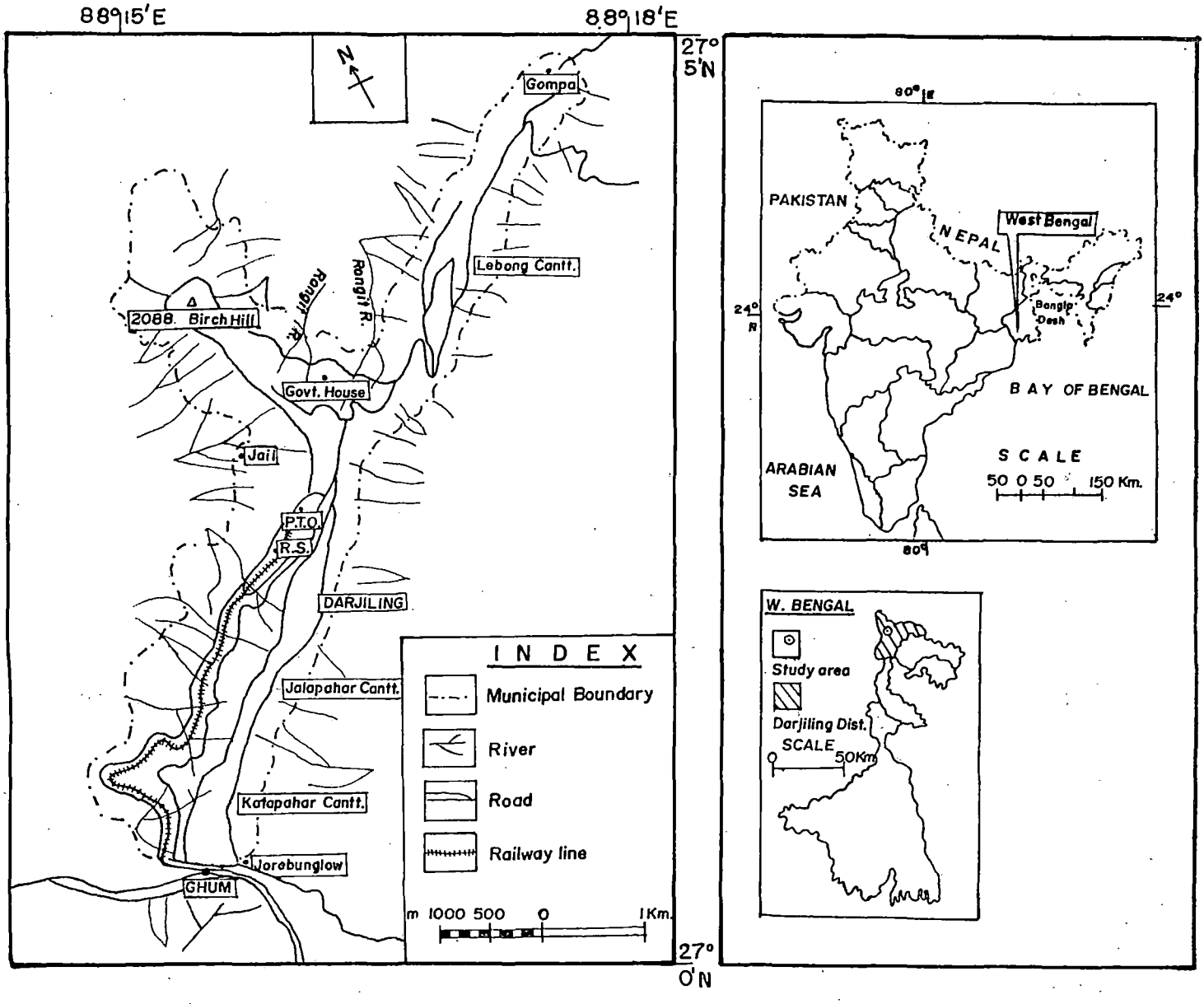
a) Problem :

"Urban Geomorphology" a recent but more useful branch of Applied Geomorphology, is the study of landforms and their related processes; materials and hazards in ways that are beneficial to planning, development and management of urbanised areas or areas where urban growth is expected. Thus, 'Urban Geomorphology' deals with the lithological and topographic characteristics and geomorphic processes and hydrological conditions (in a city or a town) which determine the size and rate of urbanisation and stability of urbanised localities, the impact of geomorphology and urban development on the environment and geo-environmental problems emanating there from. Very little attention is paid towards understanding the geomorphological conditions before the development of existing urban centres mainly in the developing and under developed countries. As a result, uncontrolled growth gives rise to serious environmental problems.

Darjiling town situated in the lesser Himalayan ranges, was once the summer capital of undivided Bengal and is now the headquarters of the district having the same name, which is the northern most district of West Bengal and is about 600 km north of Calcutta. It has an average elevation of 2,000 m. above sealevel. Even since, the British occupation, the physico-cultural set-up of this premium hill settlement has been seriously disturbed. Extensive

LOCATION MAP OF THE STUDY AREA



Fig—01

heedless deforestation, tea-plantation, haphazard constructional work, inadequate drainage and unplaned usage of land, has led to the establishment of viscious cycle of degradation. Moreover the rapid growth in population since independence has been responsible for more and more of environmental changes. Darjiling town had a population of only 100 in 1800 compared to the present figure 71,479 (Census record 1991). Such an enormous increase in the number of human beings needed space for dwellings, roads for communication, water for drinking and building materials for their houses. Moreover, during the tourist season (May to October) the population almost becomes double. Uncontrolable pressure of population leads to illegal land grabbing by clearing virgin forests and occupying over steepened slopes disturbing thereby the overall ecological balance and gradually undermining the economic and cultural development of Darjiling town and its environs. So far, almost nothing has been done as regards the problem understudy and as such the present researcher has taken this intricate problem of Urban Geomorphology of Darjiling town for a closer investigation.

b) Area of Study :

In order to study the above mentioned problem Darjiling Municipality bounded by the latitude 27°0'N to 27°4'N and longitude 88°15'E to 88°18'E and comprising on area of 10.56 sq. km has been selected.

'Darjiling' is a corruption of 'Dorje-ling'. Dorje means the majestic thunderbold of the Lamaist religion and 'linga' means the land or place. In other words it means the 'land of Thunderbold'. It was the name given to the Buddhist Monestary which stands on top of

the Observatory Hill.

The hill station or sanatarium of Darjiling owes its origin to the necessity of providing places where the health of Europeans may be recuperated by a more temperate climate.

Darjiling was visited by a gentleman of high scientific attaintment, Mr. J.W. Grant, who pointed out its eligibility as a site for a sanatarium to Lord William Bentick, the then Governor-General. He dwelt especially upon its climate, proximity to Calcutta and its accessibility, on its central position between Tibet, Bhutan, Nepal and British India and on the good example of a peacefully conducted and well-governed station. The suggestion was cordially received and the Raja of Sikkim was requested to part with a tract of country which would include Darjiling for an equivalent, in money or land. The Raja gifted Darjiling unconditionally and a sum off £ 300 per annuam (aftterwards increased to £600) was granted to him as an equivalent for what was then a worthless uninhabited mountain.

c) Methodology :

In order to study the mentioned problems the basic data for mapping has been obtained from the Survey of India Topographical Sheet Nos. 78A/4; 78A/8 and 78B/9. (1:50,000), maps published by the Geological Survey of India, Forest Dept, etc.

The geomorphological information along with the morphometric data of the study area have been mostly collected from the Topographical Sheets mentioned above and from direct field observations. Information relating to the nature and characteristics

of soils have been gathered from a number of sample pits during field work. Soil degradation has been assessed quantitatively following the Universal Soil Loss Equation (U.S.L.E.) and F.A.O. methods. For studying the landslips, the methodology employed has been an entirely field-based one. Individual landslips have been examined carefully under the heading of bed-rock, climate, soil, forest cover and human interferances with the help of a check list. After appending the processes, mechanisms and causes of the movement some preventive measures have also been suggested.

Urban amenities like water-supply, sanitation and maintanance of transportation and communication links have been assessed from the data collected from the Darjiling Municipality. Meteorological data of the study area have been collected from the Regional Meteorological Office, Alipore, Darjiling Planters Association, Agricultural Office, Darjiling and from direct field observations of the natural springs.

The assessment of urban degradation and associated problems have been analysed based on both primary data collected from the field and secondary sources like previous publications.