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DEPARTMENT OF GEOGRAPHY & APPLIED GEOGRAPHY
UNIVERSITY OF NORTH BENGAL

ACCREDITED BY NAAC WITH GRADE B++

RAJA RAMMOHUNPUR, P.O. NORTH BENGAL UNIVERSITY, DIST. DARJEELING, WEST BENGAL, PIN - 734013
Ph. No. +91-0353-2776342, FAX +91-0353-2699001, URL: www.nbu.ac.in

DECLARATION

I do hereby declare that the thesis entitled "A Study of Spatial Distribution and Functional Characteristics of Settlements in the Rammam Basin, Darjiling-Sikkim Himalaya" has been prepared by me under the supervision of Prof. (Dr.) Ranjan Roy, Department of Geography & Applied Geography, University of North Bengal, Raja Rammohunpur, Darjeeling. No Part of this thesis has been formed the basis for award or any degree or fellowship previously.

Suchitra Ray.
(Suchitra Ray)

Department of Geography & Applied Geography

University of North Bengal

Raja Rammohunpur,

Darjeeling, West Bengal, 734013

Date: 05.09.2022



सत्यमेव जयते: सत्यमेव जयते

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Ph. No. +91-0353-2776342, FAX +91-0353-2699001, URL: www.nbu.ac.in

CERTIFICATE

This is to certify that Smt. Suchitra Ray has prepared the thesis entitled "A Study of Spatial Distribution and Functional Characteristics of Settlements in the Rammam Basin, Darjiling-Sikkim Himalaya" for the award of Doctor of Philosophy (Ph.D) degree in Geography & Applied Geography of University of North Bengal, under my supervision. She has carried out her research work at the Department of Geography & Applied Geography of University of North Bengal and thesis has been prepared based on the extensive field study for collection of primary data and secondary source of information.

It may further be mentioned that Smt. Suchitra Ray has fulfilled all other requirements as per the rules of the University of North Bengal regarding the submission of Ph.D dissertation.

(Dr. Ranjan Roy)

Professor, Department of Geography & Applied Geography

University of North Bengal

Raja Rammohunpur

Darjeeling, 734013

Date: 05.9.2022
Professor

Department of Geography &
Applied Geography
University of North Bengal

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1 Chapter 1 Introduction 1.1. Introduction of the Study Settlement Geography is the study of the form of cultural landscape depicting its orderly description and analytical explanation (Jordan, 1966). According to R.B.Mandal (2001), "It is a science of systematic enquiry of occupancy features distributed over space with differentiation in relation to man". While a settlement represents an area of interaction of a given group of people and includes the same used for residential, social and economic purposes (Saha, 2014). Study of spatial distribution of rural settlements over a region gives clear idea about how the settlements are spread over the space; as well as what are the attractive and restrictive forces which are responsible behind such pattern. These attractive and restrictive forces include site, situation, topography and other physical, cultural and economic factors. Many scholars have studied how topography and other morphometric parameters guide the distributional pattern of settlements over a particular region. S. Singh and O.P. Singh in 1976, S. Pal and S. Let in 2011, and S. Saha in 2014, have conducted such studies on Palamou Upland, Dwarka River Basin and Kurur River Basin of Rarh Bengal respectively. In these studies, it has been observed that topography and various morphometric parameters strictly guide the distributional pattern of settlements. Type of settlements imparts a clear insight about the relationship between settlements within a definitive space (Doxiadis, 1964). This also reflects the relationship of number of dwellings and number of sites (Singh, 2013, p.135). The study of Settlement Pattern marks out the geometric form and shape of the settlements which may be of different types (Singh, 2013, p.135). Morphology of settlements on the other hand gives clear idea about the layout, ground plan of the villages in relation to the surrounding environment. Study of morphology also provides clear idea about the arrangement of houses or hamlets resided by various cultural or social groups. Settlement Type, pattern and morphology have been studied by various Geographers since the early part of nineteenth century starting from Vidal De La Blasch (1926) to R.B. Singh (1979), etc.


31.08.2022
Professor
Department of Geography &
Applied Geography
University of North Bengal


31.08.2022
Suchitra Ray
31.08.2022

Preface

Settlements whether rural or urban are direct reflection of man-environment interaction at a particular place in a particular time. The growth of a settlement over the earth's surface is always guided by the physical environment, especially by the terrain characteristics. Today man occupies almost all those parts of the earth's surface wherever it is possible to survive even in hostile environs. The basin of the river Rammam represents such an area where human habitation faces many types of physical constraints due to highly elevated and dissected topography mostly covered with dense forests in many parts of the tract. The entire basin area belongs to mountainous course of the river Rammam without showing any large floodplain in the valley section. In spite of those hindrances the basin is one of the most populated regions in the Darjiling-Sikkim Himalaya and is dotted with settlements all over the basin though the spacing and the size of settlements vary enormously within the region. The tiny hamlets mostly with single function of primary activities are spread all over the tract following the forces of diversification.

Some of the settlements, however, located in Rammam Basin enjoy situational facilities and attract more people to live with more functional options following the forces of unification. The latter ones become larger in terms of size of population and area; and provide services to the surrounding settlements. On the contrary, the surrounding band of smaller hamlets acts as the hinterland providing the basic materials required for the sustenance of those larger settlements. Rimbick, Lodhama, Kaijalia, etc. in the southern part of the Rammam Basin and Okhery, Sombarey, Soreng, Nayabazar Notified Bazar Area, etc. in the northern part of the basin are such settlements which act as notable service centres among the surrounding habitations.

To interpret the spatial distribution and functional characteristics of settlements in the basin area under study the entire thesis has been divided into the following chapters:

The Introductory chapter describes the location and administrative set up of the study area in details. Objectives and Hypotheses are depicted here with all Database and Methodology of the study. The second chapter provides an idea about the Physical and Socio-Cultural Background of the basin area. Terrain Characteristics, Drainage system, Lithostratigraphy, Natural Vegetation, Weather and Climate, and Soil have been discussed under the heading of Physical Background; and Population, Ethnic

Groups, Economic Composition, Agriculture, Transport and Communication, and Markets have been elucidated under Socio-Cultural Background with appropriate maps and figures.

In third chapter Settlement Size, Spacing and Dispersion of Settlements along with Morphometric Indices have been computed minutely. The correlations between Terrain characteristics and Dispersion and Spacing of hamlets have also been analysed in this chapter. The fourth chapter deals with Site and Situation of Settlements along with their Functional characteristics. While the fifth chapter explains the Type, Pattern and Morphology of Settlements of the area under study. Correlation between Type of Settlements and their Functions has also been deduced here.

Primary, Secondary and Tertiary Service Centres have been identified and depicted in the sixth chapter. The distribution and distinctiveness of settlements as well as service centres in the various parts of the basin have also been discussed in this chapter. The last two chapters deal with the Problems and Prospects of Settlements in the basin along with the summary and conclusion of the entire work.

Suchitra Ray.
(Suchitra Ray)
Date: 05.09.2022
Place: N.B.U.

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Date: 05.09.2022
Place: N.B.U.

Suchitra B. J.

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Acronyms

Approx. - Approximately
°C - Degree Celsius
C.D. Block - Community Development Block
cm – Centimetre
C. F. I. – Composite Functionality Index
DEM - Digital Elevation Model
ESE - East-south-east
F.B. - Forest Block
F.C.I. – Functional Centrality Index
Fig. - Figure
F.V. – Forest Village
GTA – Gorkhaland Territorial Administration
MBC - Most Backward Class
N.B.A. - Notified Bazar Area
NE –North-East
NNE - North-north-east
NNW - North-north-west
OBC - Other Backward Class
SSW - South-south-west
R.F. - Reserved Forest
SC - Scheduled Caste
ST - Scheduled Tribe

Local Terms

Danra: A ridge or spur (Nepali word).
Khola: Stream (Nepali word)
Bhanjyang: A mountain Gap or saddle (Nepali word)
Goth: Temporary huts of Sherpas used while pasturing their herds of dzoes in the forests (Nepali word)
Gaon: Village or hamlet (Nepali word)
Chhota: Small (Nepali word)
Bari: Great or large (Nepali word)
Jhora: Spring or rivulet (Nepali word)
Bong: Settlement (Tibetan word)