

INSTITUTE OF SCIENCE & TECHNOLOGY FOR ADVANCED STUDIES & RESEARCH

THE CHARUTAR VIDYA MANDAL UNIVERSITY





A Project Report on Urban Expansion and Thermal Environment: Exploring the Urban Heat Island Effect in Siliguri City of West Bengal, India

Submitted by

SNEHA SANJIB GHOSH

(Roll no: 23GI06, Enrollment No: 22301400301006)

Internal Guide

DR. KRUNAL B. SUTHAR HOD, Geoinformatics
Department -ISTAR
The CVM University
V.V. Nagar-388120,

Gujarat, India

External Guide

Dr. MONJIT BORTHAKUR
Assistant Professor,
Dept. of Geography
Cotton University

Guwahati-781001, Assam, India

Academic year 2024-2025



INSTITUTE OF SCIENCE & TECHNOLOGY FOR ADVANCED STUDIES & RESEARCH

THE CHARUTAR VIDYA MANDAL UNIVERSITY





A Project Report on

Urban Expansion and Thermal Environment: Exploring the Urban Heat Island Effect in Siliguri City of West Bengal, India

Submitted by

SNEHA SANJIB GHOSH

(Roll no: 23Gl06, Enrollment no.: 22301400301006)

Guided by:

DR. KRUNAL B. SUTHAR

HOD, Geoinformatics Department -ISTAR

The CVM University

V.V. Nagar-388120, Gujarat, India

Academic year 2024-2025



INSTITUTE OF SCIENCE & TECHNOLOGY FOR ADVANCED STUDIES & RESEARCH

THE CHARUTAR VIDYA MANDAL UNIVERSITY





CERTIFICATE

This is to certify that the project work embodied in this report entitled "URBAN EXPANSION AND THERMAL ENVIRONMENT: EXPLORING THE URBAN HEAT ISLAND EFFECT IN SILIGURI CITY OF WEST BENGAL, INDIA" was carried out by Sneha Sanjib Ghosh (22301400301006) at the Geoinformatics department, Institute of Science and Technology for Advanced Studies and Research (ISTAR)-CVM University, Vallabh Vidyanagar fulfilment of the requirement for the award of M.Sc. (Geoinformatics) for the Project Work (201400401). This project work has been carried out under my guidance and it is to my satisfaction.

Ho Was

Dr. Krunal B. Suthar Project Guide,

Head, P.G. Department of Geoinformatics

ISTAR-CVM University

My My 16/4/225

Principal,

ISTAR-CVM University



Department of Geography Cotton University

Panbazar, Guwahati – 781001, India Website: www.cottonuniversity.ac.in

CERTIFICATE

This is to certify that **Sneha Sanjib Ghosh**, a student of the Department of Geoinformatics, ISTAR, Gujrat, India, has carried out this internship research entitled "*Urban Expansion and Thermal Environment: Exploring the Urban Heat Island Effect in Siliguri City of West Bengal, India*" under my guidance and supervision.

This dissertation is based on the original work done by the researcher herself. The researcher has fulfilled all the requirements for the completion of an internship project. This dissertation as a whole or any part of it has not been submitted to any other University or Institution for any other degree.

Date: 12, 04, 2025

Monjet Bonehale (Dr. Monjit Borthakur)

Assistant Professor Department of Geography Cotton University, Guwahati, Assam

ACKNOWLEDGEMENT

I would like to express my heartfelt gratitude to all those who supported and guided me throughout the successful completion of this project.

First and foremost, I extend my sincere thanks to Dr. Monjit Borthakur, Assistant Professor, Cotton University, for his invaluable guidance, both theoretical and practical. His consistent support and expert advice have been instrumental in shaping the outcome of this project.

I am deeply grateful to my internal guide, Dr. Krunal B. Suthar, Head of the Department of Geoinformatics, ISTAR, for his constant support, encouragement, and insightful suggestions throughout the course of this work.

I would also like to express my sincere thanks to Dr. M. M. Raj, Principal of ISTAR, for providing me with the opportunity to work on this project and for fostering an academic environment conducive to learning and research.

Additionally, I am thankful to ISTAR, CVM University and Charutar Vidyamandal for providing the necessary facilities and support, which have played a crucial role in the successful completion of this project.

Lastly, I would like to express my appreciation to all the researchers, scholars, and experts in the fields of GIS and Remote Sensing, whose contributions laid the foundation for the development of this project.

Thanking you

Sneha Sanjib Ghosh (22301400301006)