



विज्ञान एवं
प्रौद्योगिकी मंत्रालय
MINISTRY OF
SCIENCE AND
TECHNOLOGY



ANNUAL REPORT

2024 - 2025



IITR-ICARS

COE OF DST (GOVT. OF INDIA)



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Annual Report

INTEGRATED CENTRE FOR ADAPTATION, DISASTER RISK RESILIENCE AND SUSTAINABILITY (ICARS)

2024 - 2025

IITR-ICARS

CoE of DST (Govt. of India)

Annual Report: Integrated Centre for Adaptation, Disaster Risk Resilience and Sustainability (ICARS)

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Edition: 2025

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Published By:

Integrated Centre for Adaptation, Disaster Risk Resilience and Sustainability (ICARS),
Indian Institute of Technology Roorkee-Greater Noida Campus (NCR)

Disclaimer:

This publication is brought out under the Integrated Centre for Adaptation, Disaster Risk Resilience and Sustainability (ICARS), a CoE of Department of Science and Technology (DST), Govt. of India and Indian Institute of Technology (IIT), Roorkee, under the National Mission on Strategic Knowledge on Climate Change (NMSKCC). The report is based on evidence, inputs, and insights generated through policy dialogues, field research, stakeholder consultations, and expert interactions facilitated by IITR-ICARS. The contents may be referred to, cited, translated, or reproduced-fully or in part-for academic and non-commercial purposes, with due acknowledgment and appropriate citation.

Prof. K. K. Pant
Director



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Foreword



IIT Roorkee, with a legacy of 178 years and a remarkable journey of contributions in the areas of disaster management, climate, water, and related research, is also recognized as the gateway to Himalayan environmental research in India. Building upon the pioneering work of Padma Shri Late Prof. A. S. Arya and Late Prof. D. K. Paul in earthquake risk mitigation, IIT Roorkee takes pride in its ongoing pursuit of excellence in Disaster Risk Reduction (DRR), particularly in relation to climate extremes, ecosystems, chemical-industrial, and health challenges, positioning the Greater Noida Campus as a hub for excellence in policy-planning and capacity building.

We are pleased that the initiative of IIT Roorkee to establish the Integrated Centre for Adaptation, Disaster Risk Resilience and Sustainability (ICARS) as a Centre of Excellence (CoE) is supported by the Department of Science & Technology (DST), Government of India, under the National Mission on Strategic Knowledge for Climate Change (NMSKCC). I thank DST for their trust in our capabilities and our team. The vision, mission, and mandates of ICARS are aligned with national priorities, contextual realities, and global policy frameworks. ICARS focuses on evolving and promoting strategic knowledge through integrated research aimed at informing policy and strategy development. In pursuit of its objectives, ICARS is developing a network of Centres of Excellence and major research programmes across the country, as well as institutional collaborations within IIT Roorkee's departments and centres working in related domains. I compliment the faculty and Head of the Department of Water Resources Development and Management (WRDM) for undertaking this strategic initiative to establish ICARS at the Greater Noida Campus of IIT Roorkee.

ICARS's focus on policy-linked research, action research, research to support capacity-building, research synthesis and knowledge integration into policy-strategies, makes it a unique institution of its kind. In less than a year, the team has initiated several significant collaborative efforts with central ministries, state governments, and international and resource agencies, in pursuit of ICARS's vision. I am eager to see the concrete outcomes and impacts of ICARS's strategic and capacity endeavours in the coming years.

I am pleased to present the inaugural issue of the ICARS Annual Report 2024–25 for your perusal, and I seek your continued support in taking forward this collective mission towards a safer, more resilient, and sustainable world.

K. K. Pant

Dr. Anita Gupta
Advisor (DST) &
Head, Climate, Energy and Sustainable
Technology (CEST) Division



Department of Science and Technology (DST)
Government of India
Technology Bhavan, New Mehrauli Road,
New Delhi - 110016

Message



The Department of Science and Technology (DST)-Govt. of India, through its vision of fostering a cutting-edge, collaborative, and inclusive science, technology and innovation ecosystem for a Viksit Bharat 2047, continues to strengthen India's capacity to address climate challenges through knowledge creation, innovation, and institution building. Under the National Action Plan on Climate Change (NAPCC), DST anchors two key missions — the National Mission on Strategic Knowledge for Climate Change (NMSKCC) and the National Mission for Sustaining the Himalayan Ecosystem (NMSHE) — both aimed at developing scientific understanding, institutional capacity, and adaptive strategies to safeguard ecosystems and communities.

The Integrated Centre for Adaptation, Disaster Risk Resilience and Sustainability (ICARS), as the DST Centre of Excellence established at IIT Roorkee under NMSKCC. It embodies the mission's vision by integrating research, policy, and practice to address the interlinked challenges of climate change adaptation, disaster risk reduction, and sustainability. Through initiatives supporting policy research, action research, research to support capacity building, ADRES network and other policy frameworks, ICARS is advancing strategic climate knowledge and translating it into actionable policies and demonstrable field outcomes. I hope that ICARS at IIT Roorkee (Gr. Noida) will emerge as a national hub for convergence, collaboration, and capacity building-contributing to India's collective mission for a safer, resilient, and sustainable future.

I am happy to present the inaugural Annual Report for the year 2024-2025 of ICARS. I am pleased to go through the overall progress of activities as highlighted in First Annual Report of ICARS.

Anita Gupta

Preface



It is a pleasure to present the inaugural year's Annual Report of the Integrated Centre for Adaptation, Disaster Risk Resilience and Sustainability (ICARS) at the Indian Institute of Technology (IIT) Roorkee-Greater Noida campus (NCR) providing a glimpse of ways and strategies the newest and unique, first of its kind of establishment - ICARS, supported as CoE by the Department of Science & Technology, Govt. of India, under the Climate Change Programme.

ICARS is first such institution focused on integration of the three key priorities global and national organizations are focusing upon, i.e. Climate actions, Disaster Risk Reduction and Sustainability, in this part of the world. ICARS, the Integrated Centre, brings the highlight on 'convergence, co-benefits, synergy and collaborations' in all possible ways-of domains, of sectors, of governance, and of stakeholders. Research - Policy - Practice Interface based strategic research, tools and action support through research knowledge translation to strategies and policies, and improving capacity building, are the critical gap areas ICARS aims to address.

ICARS interventions like annual 'Adaptation Dossier', 'Disaster Risk-Resilience and Recovery Report', 'Disaster Research Agenda and Framework' and development of case studies, policy papers and demonstrable pilot studies and prototypes as core of strategies aims to bring high impacts and sustainable benefits. Report reflects on various actions and strategies as well as collaborations, other supporting projects and research activities and publications in the journey of ICARS key objectives.

With sincerely thanks to DST-Govt. of India, for strategic and financial support to the core activities of ICARS as its CoE under the National Mission on Strategic Knowledge, and to all the key stakeholder institutions and agencies in the domains of ICARS. We look forward to receiving feedbacks, support and further cooperation towards jointly working to make the mission of holistic safety, resilience and sustainability, a sure success.

Prof. Anil K. Gupta

Professor- WRDM
Principal Investigator,
ICARS, IIT Roorkee-Greater Noida Campus

Acknowledgement

The Annual Report for 2024-2025 is brought out under the project Integrated Centre for Adaptation, Disaster Risk Resilience and Sustainability (ICARS) at IIT Roorkee, supported by the Department of Science & Technology (DST), Government of India. We are thankful to Prof. Abhay Karandikar (Secretary, DST-Gol) for entrusting IIT Roorkee with the opportunity to undertake and work on the ICARS-CoE. A special note of thanks to Dr. Anita Gupta (Advisor & Head, CEST, DST-Gol), Dr. Vandana Singh (Scientist-F, CEST, DST-Gol) and Dr. Swati Jain (Scientist-D, CEST, DST-Gol) for the constant encouragement and support extended to ICARS.

The project team is thankful to Prof. K.K.Pant (Director, IIT Roorkee), Dr. Akhilesh Gupta (Distinguished Professor, CDMM, IIT Roorkee), and Dr. Thanga Raj Chelliah (HoD, WRD&M, IIT Roorkee) for their constant support and encouragement for undertaking the various strategic endeavours and ensuring the smooth functioning of ICARS. We also acknowledge the guidance and support of Padma Shri Prof. Anil Gupta (founder of Honey Bee Network and visiting professor at IIM Ahmedabad, Gujarat) on various endeavours of ICARS.

From the ICARS team, a special thanks to the Co-PIs (Prof. Ashish Pandey, Prof. Akshay Dvivedi, Dr. Komal Tripathi), and expert collaborators (Dr. Mohit Mohanty, Prof. Manish Goyal, IIT Indore and Dr. Rajarshi Dasgupta, IIT Delhi) for their collaborative efforts and valuable contributions to ICARS. Further, I acknowledge Ms. Pritha Acharya (Project Scientist-II) for coordinating and designing the report, Ms. Alpna (Junior Research Fellow) and Mr. Vinay Arya (Junior Research Fellow) for contributing to the drafting the report. Thanks are also due to the team at ICARS including the scientists Ms. Richa Srivastava, Dr. Ravi Katiyar, Ms. Fatima Amin, Research Assistant (Adapt-DMIR), Ms Jyoti Saini and Junior Research Fellow, Mr. Deepak Pandey for their contributing to the endeavours of the project.

We would like to extend our heartfelt appreciation to all the members of the Advisory Committee and the respective Working Groups for their invaluable contributions, insightful review comments, and inputs, for our various strategic outcomes.

Prof. Anil K. Gupta

Professor-WRDM
Principal Investigator,
ICARS, IIT Roorkee-Greater Noida Campus

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1.0 INTRODUCTION

1.1 About ICARS-IIT Roorkee



A STRATEGIC PLATFORM FOR POLICY INNOVATION, CAPACITY LEADERSHIP, AND RESILIENCE TRANSFORMATION

The Integrated Centre for Adaptation to Climate Change, Disaster Risk Resilience and Sustainability (ICARS) at IIT Roorkee's NCR Campus at Greater Noida is envisioned as a national and global catalyst for resilience thinking, policy innovation, and inclusive development. As a Centre of Excellence of DST- Govt. of India, ICARS serves as network facilitator platform for Climate and Disaster CoEs of DST and other Ministries as well as major research programmes in related areas. ICARS is not merely a research institution—it is a strategic platform designed to bridge the science-policy-action interface and institutionalize systemic resilience across sectors and scales.



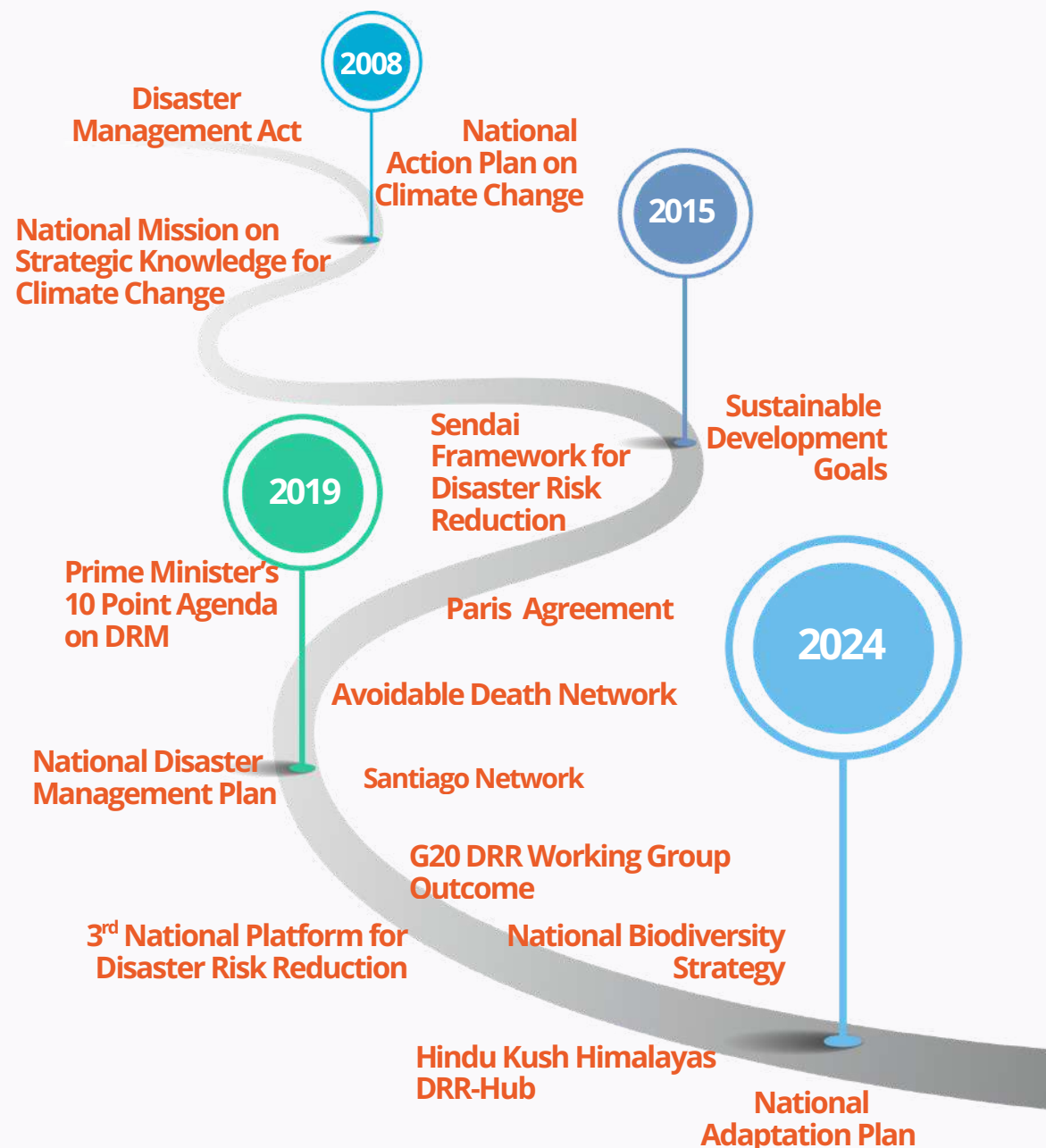
1.2 Vision

To become the leading centre for policy-linked research, strategic knowledge integration, and capacity leadership in climate adaptation and disaster risk governance. ICARS aims to shape a future-ready India by embedding resilience into planning, development, and governance-contributing directly to global and national policy goals and processes.

1.3 Mission

To generate and translate evidence into actionable policy, empower institutions through strategic capacity-building, and support implementation through integrated, context-sensitive research. It seeks to redefine how knowledge is produced, shared, and applied-moving beyond academic silos to influence real-world decisions and outcomes.

ICARS Alignment to Policy Framework

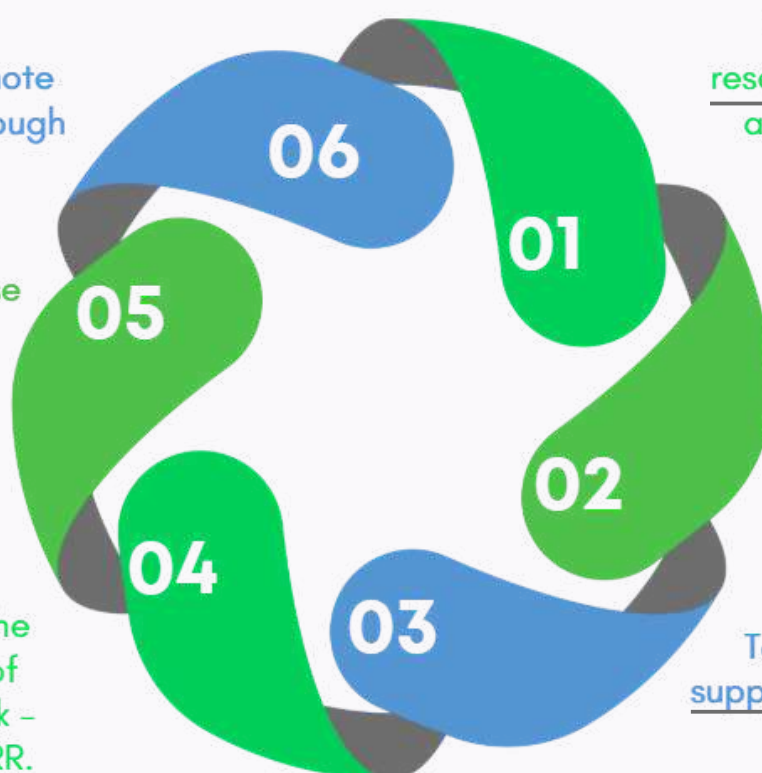


1.4 OBJECTIVES

To plan, develop and promote knowledge integration through network platform

To develop knowledge base through collection and undertaking of the case studies to support policies and capacity building processes

To undertake research in the critical / emerging areas of climate change related risk - resilience, adaptation & DRR.



To study and comprehend on the research gaps and needs in areas of adaptation to climate change and DRR

To undertake research (policy-oriented research, action research) to support policy formulation/ improvements and policy implementation at different levels

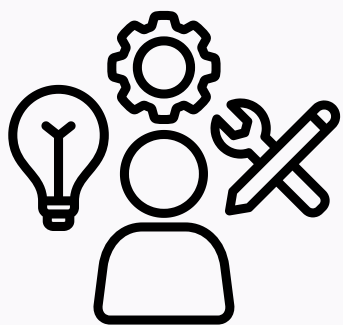
To undertake strategic research to support capacity building -TNA/ CNA



1.5 Strategic Pillars and Approach

Policy-linked Research

Prioritizing research that informs national, state, and sectoral policy institutions—developing vulnerability assessments, resilience frameworks, and strategies for integrating DRR and climate adaptation into development planning.



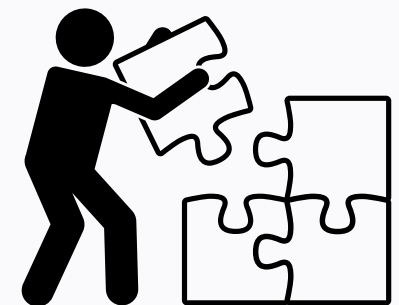
Action Research for Implementation Support

Co-developing and testing locally grounded, scalable models in collaboration with ministries, state governments, and communities—ensuring that research outcomes are directly usable in governance and planning.



Collaborative Ecosystem Building

Actively supporting and collaborating with national, state, and sectoral institutions, as well as resource agencies, to foster co-creation, shared learning, and implementation of its objectives.



Capacity-Building Research

Designing and delivering strategic-level training programs for senior policymakers, administrators, and technical experts. Its research will underpin curriculum design, leadership development, and anticipatory governance frameworks.



Integrated Knowledge Systems

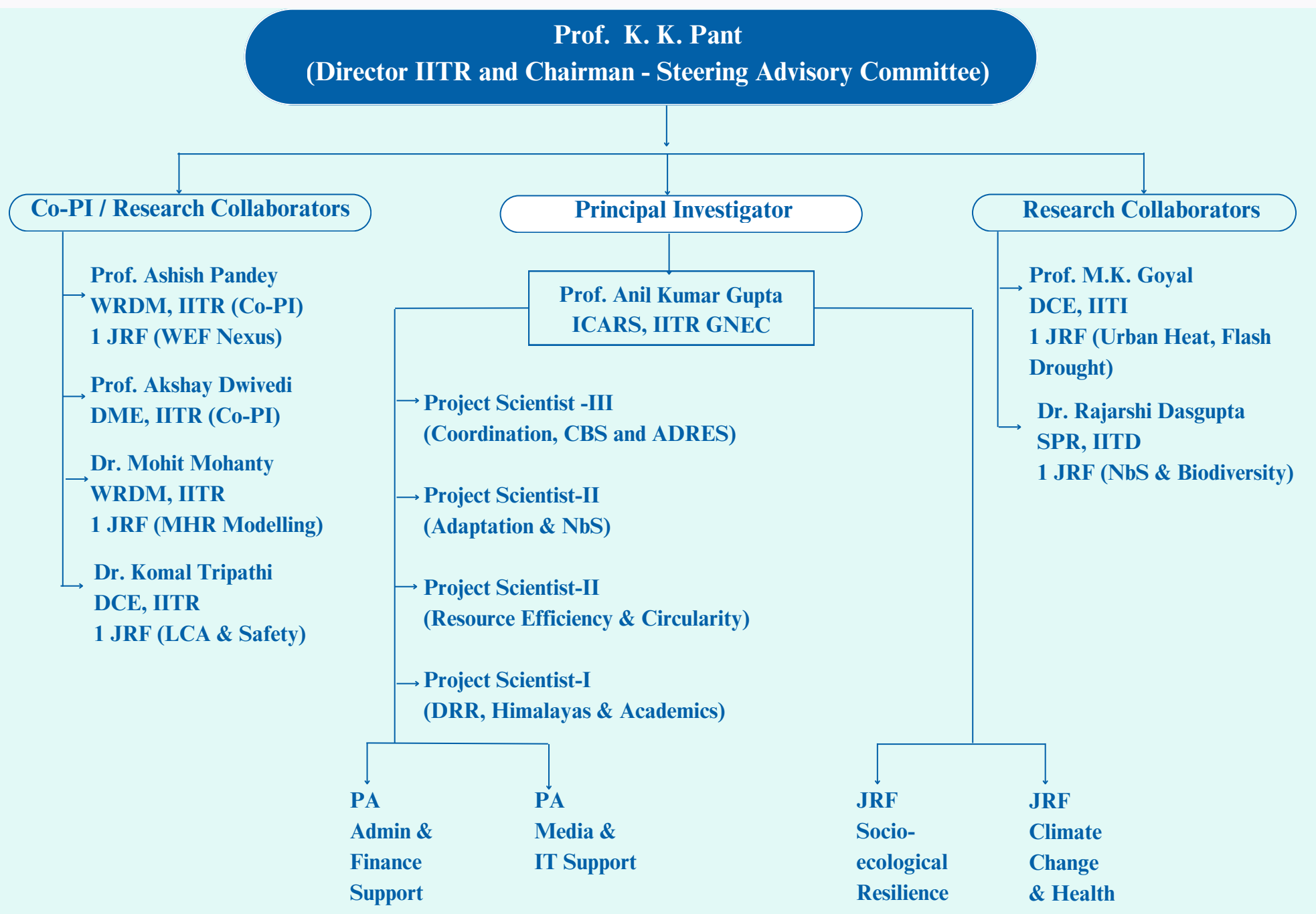
Synthesizing interdisciplinary insights to produce strategic briefs, policy insights, and decision-support knowledge. It will act as a knowledge integrator—connecting climate concerns, institutional dynamics, and social systems.

ICARS stands as a visionary institution—where policy meets practice, and where research becomes a tool for transformation, leadership, and lasting impact. A CoE of DST with IIT Roorkee, ICARS has clear path and strategies drawn to foster a real and effective research-policy-practice interface in areas, besides being a seat of higher learning and professional advances.



1.6 Organogram of ICARS

ICARS functions through its steering structure at the IIT Roorkee's Greater Noida Campus.



ADVISORY COMMITTEE OF ICARS

The Advisory Committee of ICARS includes experts from key Central Ministries/ Departments, such as DST, NDMA, NIDM, NDRF, NITI Aayog, MoEFCC, IMD, Agriculture, Water Resources, Health, and Industry. The Director is the Chairperson of the group. The PI serves as the Member Secretary or Convenor of the group.

ROLE OF DST-GOI

DST-GOI is entrusted with the National Mission for Strategic Knowledge for Climate Change (NMSKCC) under the National Action Plan for Climate Change (NAPCC), which strengthens India's climate research by developing regional impact models, fostering knowledge networks, supporting socio-economic sector studies, and promoting global collaboration for technology and data sharing to address diverse climate challenges effectively. Proceeding of 3rd NPDRR, mandates DST to coordinate policy and action research on emerging risks and to promote platforms for knowledge exchange among Centers of Excellence in disaster risk reduction and adaptation.



MENTORS



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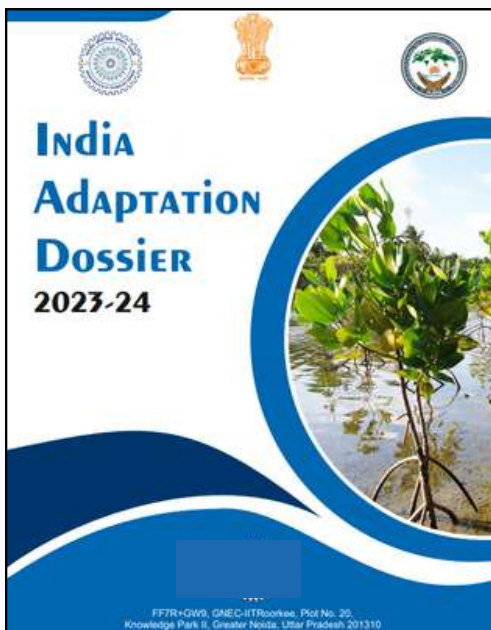


Santosh Srivastav
PA II

2.0 RESEARCH

2.1 POLICY LINKED RESEARCH

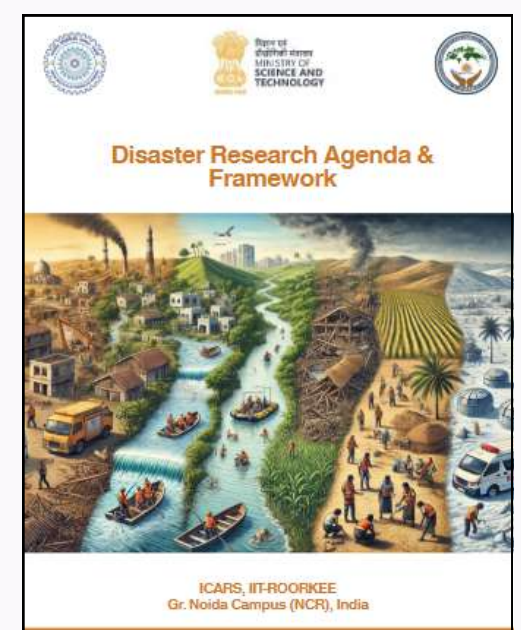
INDIA ADAPTATION DOSSIER 2024



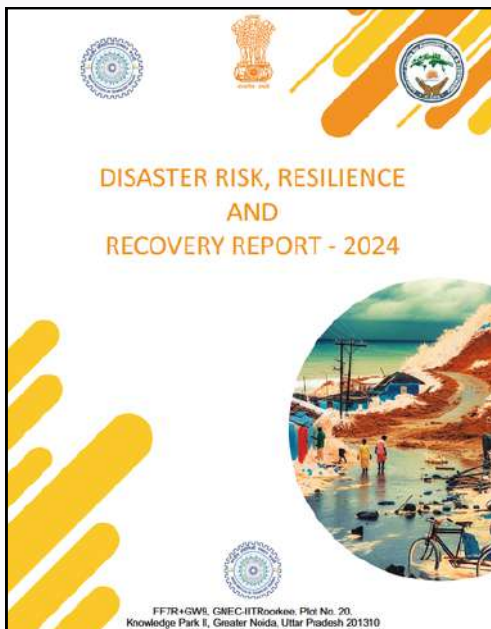
The India Adaptation Dossier tries to systematically document India's climate adaptation efforts, compiling policies, strategies, and initiatives from ministries, government bodies, states, and stakeholders. Reinforced by the 2nd and 3rd National Platforms for Disaster Risk Reduction, it emphasizes data-driven, risk-informed development and a unified climate-disaster database. Aligned with the Prime Minister's 10-Point Agenda and the National Adaptation Plan, the dossier will serve as a decision-support tool, consolidating information to track national progress. It supports policy-making, annual stocktaking, and highlights gaps and successes, enabling better planning and scalable climate resilience actions across India.

DISASTER RESEARCH AGENDA & FRAMEWORK

This document is an attempt to identify disaster research needs, gaps, and the current status to develop a Disaster Risk Reduction (DRR) Research Agenda and Framework for 2030–2050. The framework will bridge existing research gaps and align disaster management with the climate research agenda for 2050. Its outcomes will support government bodies, policy makers, academia, the private sector, and international organizations, promoting a comprehensive, multi-sectoral approach to disaster risk reduction in India. This strategic agenda will enhance preparedness and response capabilities, fostering resilient and informed disaster management practices across sectors.



DISASTER RISK, RESILIENCE AND RECOVERY REPORT 2024

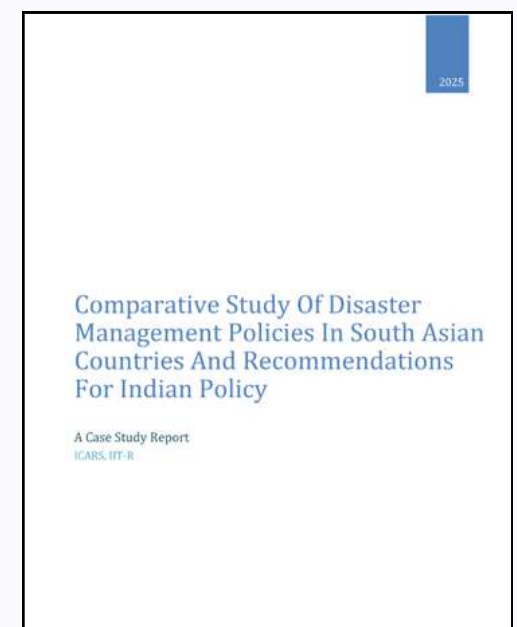


The Annual Disaster Risk, Resilience, and Recovery Report 2024 provides a comprehensive overview of disaster risks, resilience efforts, and recovery processes across India. Amidst intensifying climate change impacts, the country faces increasing extreme weather events that challenge existing systems. The report emphasizes the urgent need for anticipatory action rather than reactive responses. Serving as a national knowledge repository, it and recovery outcomes. Additionally, the report analyzes major disasters from the year, extracting lessons learned, highlighting best practices, and offering actionable recommendations to strengthen India's preparedness and response capabilities for future hazards.

OTHER RESEARCH STUDIES

Comparative Study of Disaster Management Policies in South Asian Countries and Recommendations for Indian Policy

Disaster management is crucial for South Asian governments due to frequent natural disasters like cyclones, floods, earthquakes, and droughts. This study analyzes disaster management policies in India, Pakistan, Bangladesh, Nepal, Bhutan, Maldives, and Sri Lanka, focusing on frameworks, institutional setups, and response mechanisms. It evaluates strengths and weaknesses in early warning systems, preparedness, and recovery efforts. The comparative analysis identifies key gaps and provides recommendations to enhance India's disaster resilience and improve its future response effectiveness.

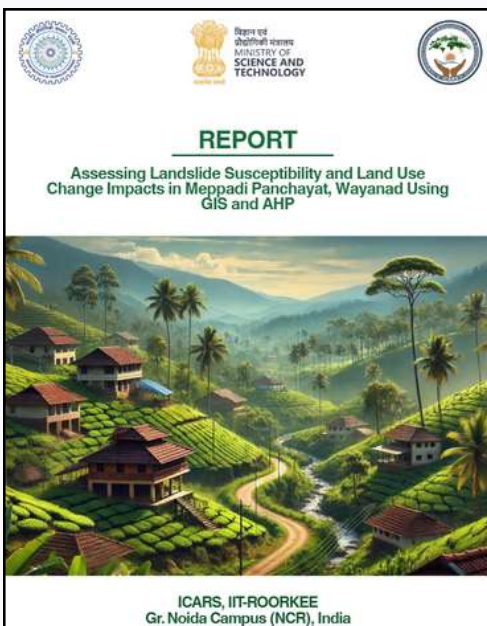


Needs, Challenges and Opportunities for Sectoral approach to Disaster Risk Reduction Strategies and Lessons from India

Disasters affect sectors like agriculture, health, infrastructure, education, water, and housing across India's diverse geography. This paper introduces a strategic framework using Hazard Risk Vulnerability Capacity Assessment (HRVCA) to evaluate sector-specific risks, vulnerabilities, and capacities. It proposes conceptual tools to enhance resilience and climate change adaptation, supporting effective, sector-focused Disaster Risk Reduction (DRR) and improved disaster management in India.

2.2 ACTION RESEARCH

ANALYTICAL MAPPING & FIELD BASED CASE STUDIES



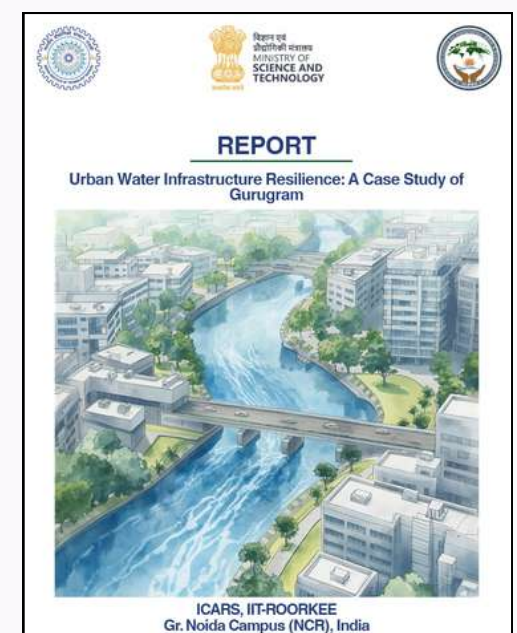
Assessing Landslide Susceptibility and Land Use Change Impacts in Meppadi Panchayat, Wayanad Using GIS and AHP

Landslides remain a recurring hazard in Wayanad, particularly within the ecologically sensitive Meppadi Panchayat. This study utilized the Analytic Hierarchy Process (AHP) and Geographic Information Systems (GIS) to develop a landslide susceptibility map. Key geospatial parameters—including slope, rainfall, drainage density, lithology, elevation, land use/land cover, soil type, and proximity to drainage and roads—were analyzed to determine risk zones. The area was classified into four susceptibility levels: Very Low, Low, Moderate, and High.

Findings indicate that 79.94% of the region falls under the moderate susceptibility, while 6.41% is highly susceptible, primarily in the southern and south-eastern parts.

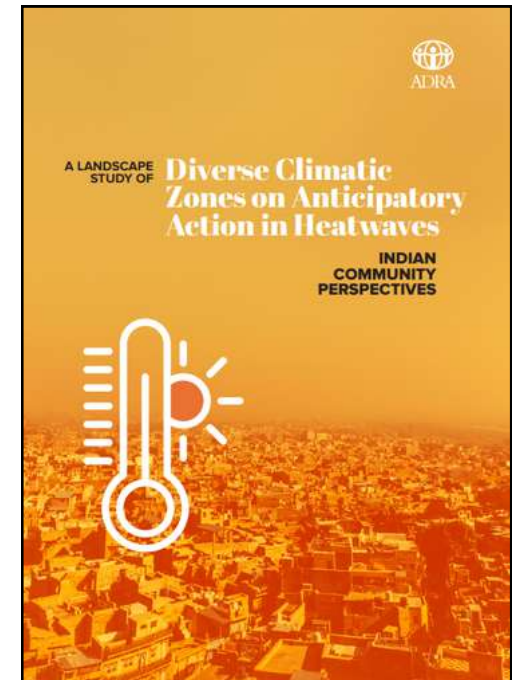
Urban Water Infrastructure Resilience: A Case Study of Gurugram

The study focuses on Gurugram city and aims to identify barriers and opportunities for enhancing resilience in the water supply, wastewater, and drainage infrastructure sectors. Through a detailed assessment, the study provides strategic insights into approaches and key considerations for building resilient urban water infrastructure. The findings offer a framework that addresses current challenges while supporting future planning efforts. These insights are designed to be scalable and adaptable, providing a valuable reference for other Indian cities as well as international contexts seeking to strengthen urban water sector resilience in the context of growing environmental and urbanisation pressures.



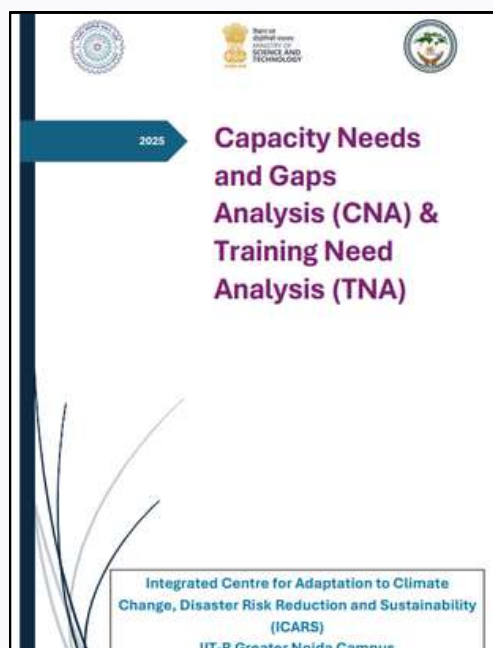
DIVERSE CLIMATIC ZONES ON ANTICIPATORY ACTION IN HEATWAVES

The study on "A Landscape Study of Diverse Climatic Zones on Anticipatory Action in Heatwaves – Indian Community Perspectives", was launched in February 2025 by Adventist Development and Relief Agency (ADRA) India, National Disaster Management Authority (NDMA), and IITR-ICARS. It explores the growing threat of heatwaves in India, with a focus on 2024. It emphasizes the urgent need for improved preparedness, early warning systems, and forecasting. Drawing on community perspectives across diverse climatic regions, the study highlights the specific vulnerabilities of groups such as farmers and migrant workers. It calls for localized, anticipatory action to build resilience and protect lives amid increasing climate-related risks and extreme heat events nationwide.



2.3 RESEARCH TO SUPPORT CAPACITY BUILDING

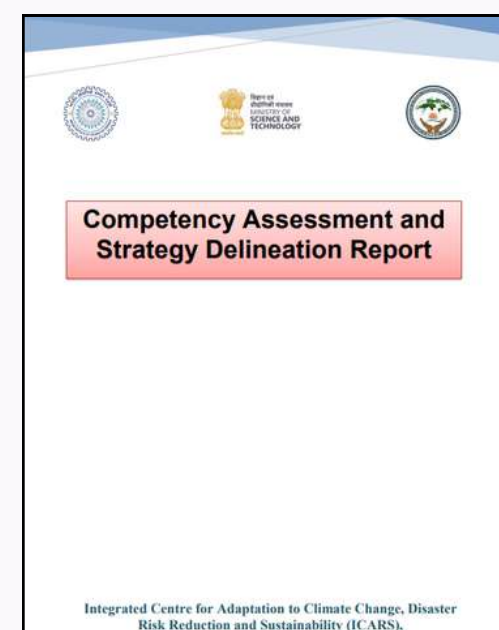
CAPACITY NEED ANALYSIS/ TRAINING NEED ANALYSIS



This analysis marks the initial step in addressing capacity-building needs and identifying key gaps in disaster management. It presents a five-year roadmap to develop a conceptual framework based on the review of past experiences, lessons, and policies. The first year focuses on creating Capacity Needs Assessment (CNA) and Training Needs Assessment (TNA) toolkits, including questionnaires, surveys, data collection, analysis, and training workshops. By the end of the fifth year, five thematic assessment reports will be produced, covering multiple governance levels to ensure a systematic and structured approach to strengthening disaster management capacity across sectors.

COMPETENCY STRATEGY FRAMEWORK

This analysis aims to develop a competency framework to strengthen capacities in Disaster Risk Reduction (DRR) and Climate Change Adaptation (CCA) at institutional, community, and individual levels. It outlines a systematic approach for competency assessments, mapping institutional resources, and recommending implementation strategies. Rather than providing extensive data analysis, the report focuses on how gap assessments will be conducted through collecting information on institutional structures, actions, and outcomes. The primary goal is to evaluate and enhance institutional effectiveness, guiding future decision-making and implementation of DRR and CCA initiatives for improved resilience and adaptive capacity.





2.4 RESEARCH IN CRITICAL AND EMERGING AREAS

INTEGRATED RESILIENCE FRAMEWORK FOR WATER RISK UNDER CHANGING CLIMATE: LEH (LADAKH)



The study aims to assess current trends and projected impacts of climate change on water resources in the mountain cities of Leh-Ladakh. By evaluating climatic patterns and their influence on water availability and sustainability, the study provides a comprehensive understanding of regional water challenges. Additionally, it identifies and analyses key parameters contributing to water-related risks and vulnerabilities specific to these high-altitude urban areas. Through detailed case studies of Leh, the research highlights critical stress factors and supports development of

context-specific adaptation strategies to enhance water security and resilience in fragile mountain ecosystems.

CLIMATE EXTREMES IN INDIA: MECHANISMS, HEALTH CONSEQUENCES AND PATHWAYS TO RESILIENCE

This study presents a comprehensive review of extreme weather events—such as heatwaves, cold waves, floods, droughts, and cyclones—and their diverse impacts on Indian society. It synthesizes global and regional research on climatic drivers like ENSO, Arctic Amplification, and monsoonal variability, alongside local factors such as irrigation and urban heat islands. Using high-resolution climate models, hydrological simulations, and statistical analyses, the report captures both isolated and compound hazard events. It also examines the associated health impacts, including heat-induced cardiovascular stress and disease outbreaks from flooding, while emphasizing spatial and temporal variability crucial for developing region-specific adaptation strategies.



HOME GARDEN AS NBS FOR BUILDING CLIMATE RESILIENCE AND FOOD SECURITY IN AND AROUND KOCHI

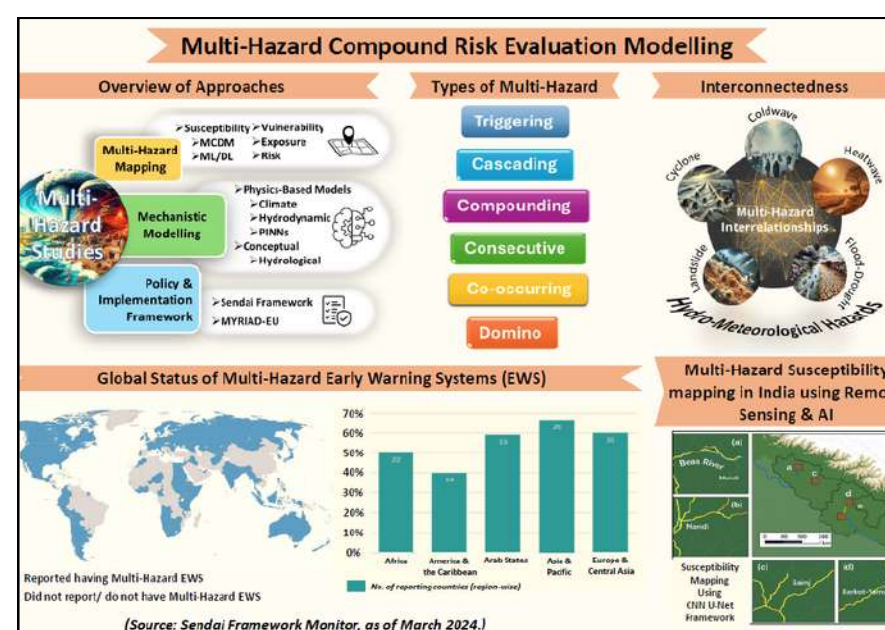


This study explores home gardens as Nature-Based Solutions (NBS) for building climate resilience and food security in and around Kochi, Kerala. Recognized as vital green infrastructure in urban and peri-urban areas, home gardens enhance local biodiversity, mitigate climate impacts, and support ecosystem health. This research assesses social, economic, and environmental benefits, highlighting their role in improving food security and pollinator networks at the community level. While identifying opportunities for sustainable management, the

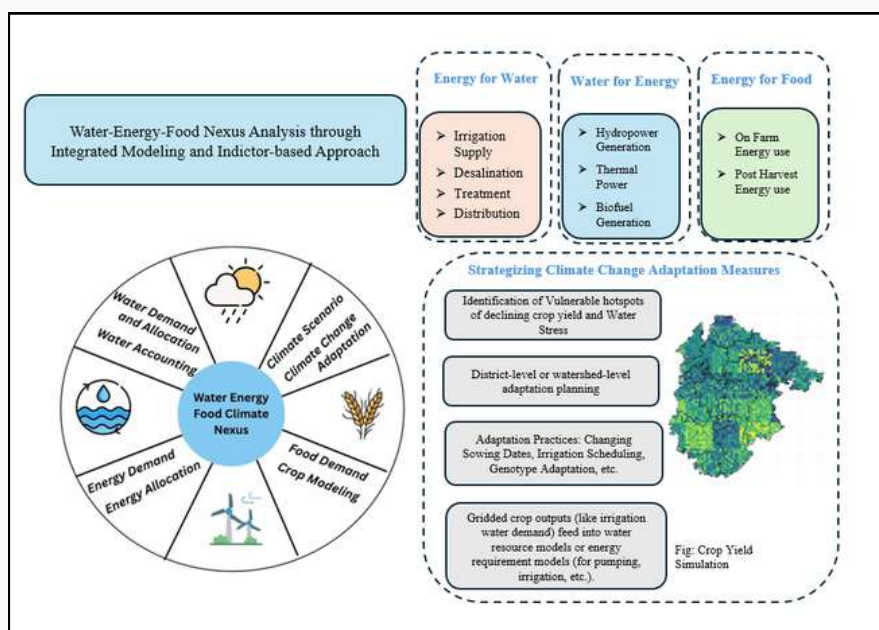
study also addresses constraints in urban food production. Overall, it emphasizes home gardens' potential in fostering resilient, eco-friendly agricultural practices amid climate challenges.

MULTI-HAZARD SUSCEPTIBILITY MAPPING FOR DISASTER RESILIENCE AND ADAPTATION

This study focuses on developing a multi-hazard risk framework for hydro-meteorological hazards to enhance disaster resilience in India. Using Convolutional Neural Networks (CNN), the research aims to create a predictive framework to assess and map susceptibility across the country. Key goals include preparing a national multi-hazard susceptibility map, identifying interrelationships among hazards for spatio-temporal assessment, and predicting regions vulnerable to multiple hazards under climate change scenarios. The study also seeks to map highly vulnerable areas to support targeted adaptation strategies and disaster risk reduction policies, ultimately contributing to more resilient infrastructure and planning at national and regional levels.



WATER–ENERGY–FOOD (WEF) NEXUS ANALYSIS THROUGH INTEGRATED MODELING AND INDICATOR-BASED APPROACH

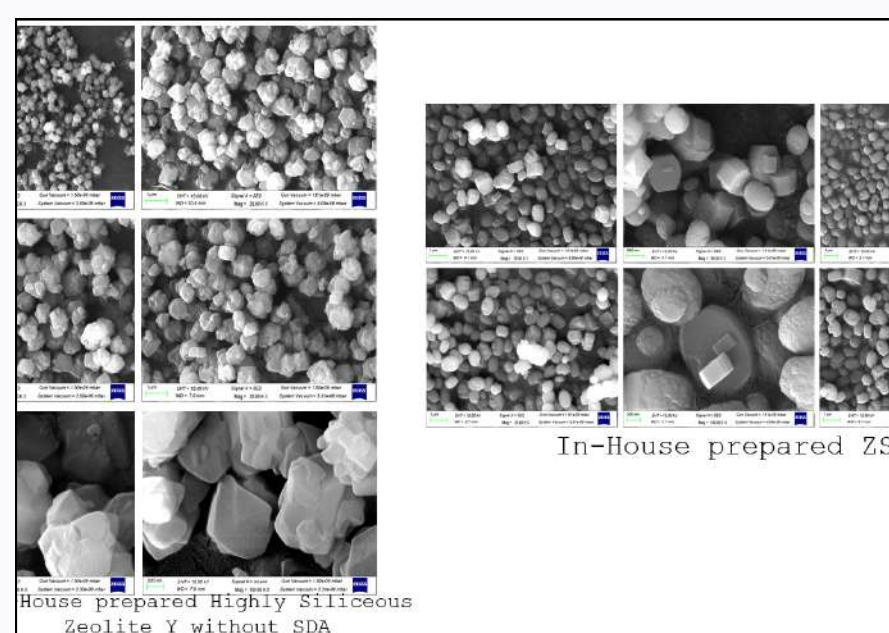


This study investigates the Water-Energy-Food (WEF) Nexus within groundwater-irrigated rice-wheat cropping systems under varying climate scenarios. It utilizes simulation models to analyze WEF variables, particularly under extreme events such as droughts and heatwaves. The research also explores genotype adaptation and management strategies to enhance WEF resource efficiency. Statistical analysis is employed to assess the reliability, resilience, and interdependencies of WEF components during hydro-climatic extremes. Additionally, the study aims to develop a

user-friendly graphical interface for model integration, data visualization and informed decision-making, thereby supporting sustainable resource management and climate-resilient agricultural planning in WEF-sensitive systems.

CATALYTIC PYROLYSIS OF BIOMASS: UNLOCKING HIGH-QUALITY BIO-OIL FOR GREEN FUELS

This study focuses on advancing catalytic processes for improved bio-oil production from biomass. It outlines the development of more durable and cost-effective catalysts to enhance the efficiency and longevity of conversion systems. The study also emphasizes the optimization of reaction conditions to increase product selectivity and yield, ensuring a more targeted and efficient conversion process. Additionally, the report explores process integration techniques aimed at improving the quality of bio-oil, making it more stable and suitable for commercial applications. Overall, the research supports the development of sustainable and economically viable biofuel technologies through innovation in catalysis and process engineering.



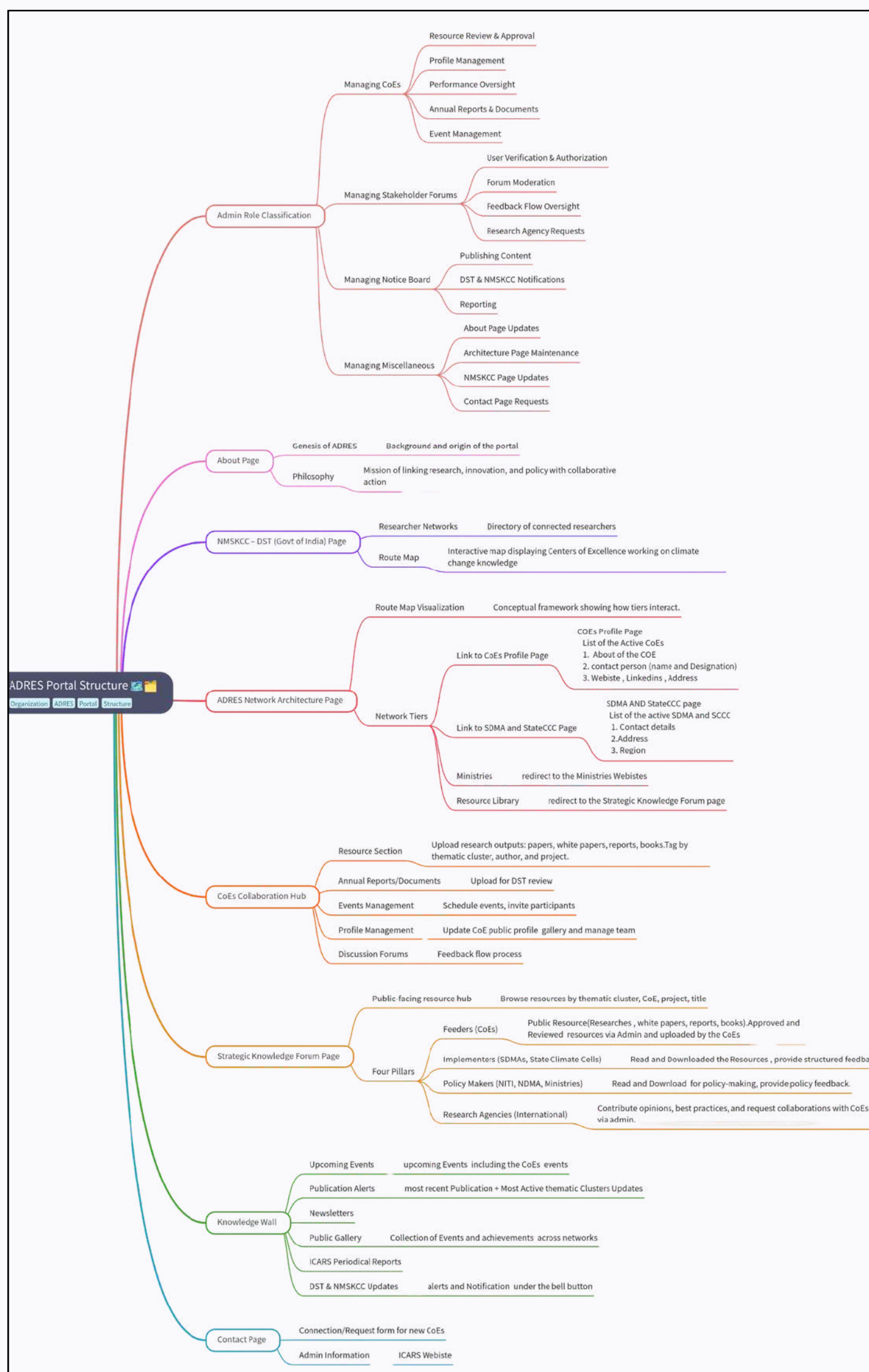
3.0 KNOWLEDGE INTEGRATION

3.1 ADRES NETWORK

A key component of ICARS' strategy for strategic knowledge is the Adaptation, Resilience, and Sustainability (ADRES) Network. This network platform fosters collaboration among the designated CoEs, policy departments, implementation agencies, and resource organizations, by facilitating research synthesis and knowledge integration.

Supported by the domain experts, the ADRES portal's design has been developed. Serving as both a virtual and physical hub, it offers sharing of updates regarding events, publications and research interventions, linkages to policy and capacity processes.

The network aims to strengthen cooperation among Centres of Excellence, enhance engagement with government bodies, and promote policy-practice-interface for resilience building.

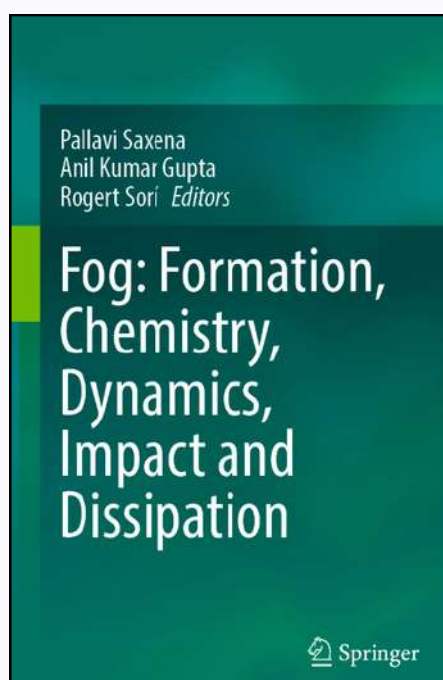




4.0 PUBLICATIONS

4.1 BOOKS

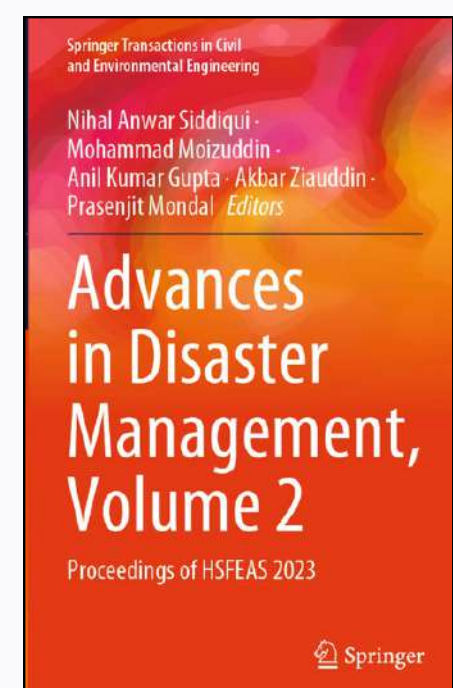
FOG: FORMATION, CHEMISTRY, DYNAMICS, IMPACT AND DISSIPATION



This book explores the atmospheric phenomenon of fog formation and its effects on plant life, human health, and the environment. It discusses the chemistry, dynamics, and dissipation of fog, along with its meteorological basis and chemical composition. The book highlights fog's impact on visibility, the economy, and health, while also presenting cost-effective methods for fog mitigation. It examines the role of certain plant species in managing fog-induced pollution. A valuable resource for teachers, researchers, climate scientists, air quality professionals, and policymakers, it also serves as supplementary reading for students in agriculture, forestry, ecology, and environmental sciences, both nationally and internationally.

ADVANCES IN DISASTER MANAGEMENT, VOLUME 2

This book compiles leading research and strategies from the International Conference on Advances in Health, Safety, Fire, Environment, Allied Sciences and Sustainability (HSFEAS – 2023). It brings together global experts addressing the multifaceted challenges of disaster risk reduction and resilience in an increasingly uncertain world. Covering topics such as disaster preparedness, emergency response, climate-related risks, and community resilience, the volume offers practical insights and scientific developments. It serves as a valuable resource for policymakers, emergency management professionals, urban planners, and researchers, contributing to informed decision-making and sustainable resilience-building across sectors and geographies.





4.2 OTHERS

Journal Papers	
1	Rather, A. H., Rather, J. A., Saleem, S., & Gupta, A. K. Assessment of Fire Safety Knowledge, Perception, and Practices Among Healthcare Workers in Srinagar City, India.
2	Mangal, S., Kumar, D., Dhupper, R., Kumari, M., & Gupta, A. K. (2024). Identifying influential climatic factors for urban risk studies in rapidly urbanizing Region. Computational Urban Science, 4(1), 9.
3	Saini, J., Gupta, A. K., Shrivastava, A., & Dhupper, R. (2024). Study of urban warming in Chandigarh union territory, India: geospatial approach. Theoretical and Applied Climatology, 155(8), 8245-8261.
Book Chapters	
4	Amin, F., Gupta, A. K., & Katyal, D. (2023, December). Impact Assessment of Climate Change on Lakes and Rivers: A Case Study of Dal Lake and Jhelum River. In International Conference on Hydraulics, Water Resources and Coastal Engineering (pp. 75-89). Singapore: Springer Nature Singapore.
5	Mangal, S., Kumar, D., Dhupper, R., Kumari, M., & Gupta, A. K. (2024). Identifying influential climatic factors for urban risk studies in rapidly urbanizing Region. Computational Urban Science, 4(1), 9.
6	Saxena, P., Gupta, A. K., & Sorí, R. (2025). An Introduction to Fog: Formation, Chemistry, Dynamics, Impact and Dissipation. In Fog: Formation, Chemistry, Dynamics, Impact and Dissipation (pp. 1-7). Singapore: Springer Nature Singapore.
7	Sood, A., Pathare, G., Sinha, S., & Gupta, A. K. (2025). Cost-Effective Measures of Fog Remediation and Control: Mitigation of Health Impacts and Safety Risks. In Fog: Formation, Chemistry, Dynamics, Impact and Dissipation (pp. 201-223). Singapore: Springer Nature Singapore.

5.0 CAPACITY BUILDING ACTIVITIES

5.1 WORKSHOPS



Wetlands as Nature-based Solutions for Disaster Management and Adaptation Planning

November 8, 2024, IITR-Greater Noida campus

India's policies increasingly support Nature-based Solutions (NbS) in disaster management, promoting ecosystem-based approaches. However, NbS remains nascent, with gaps between science, policy, and practice. This workshop organized by IITR-ICARS in collaboration with Deutsche Gesellschaft für

Internationale Zusammenarbeit (GIZ) and Wetlands International South Asia (WISA) explored wetland degradation, disaster risk mapping, and strategies to integrate NbS, while highlighting the need for professional awareness and multi-level policy alignment.

Disaster Risk Resilience, Response and Recovery

December 3-4, 2024, IITR-Greater Noida Campus

This workshop aimed to engage various stakeholders at National and Sub- National Level to reflect on the progress made in disaster management, emerging trends during Sendai period and work towards a joint annual plan for 2024. This effort facilitated the exchange of experiences, insights, challenges, and potential solutions to enhance

India's disaster management capabilities. IITR-ICARS organized this workshop in collaboration with SPHERE India, HCL Foundation and other partners.



National Consultation Workshop: RESSUMMIT 2025

February 10-11, 2025, IITR-Greater Noida Campus

Organized by IITR-ICARS, the RESSUMMIT 2025 workshop focused on climate risks, disaster resilience, and sustainable infrastructure. Key themes included Loss & Damage, resilient infrastructure, industrial safety, and nature-based solutions. It aimed to shape actionable strategies aligning with national and global goals like the Sendai Framework, Paris Agreement, and

the SDGs. The workshop had participation from MoEFCC, NDMA, UNDP, GIZ, SDMAs and key sectoral ministries.

5.2 OUTREACH PROGRAMMES



Cold Wave Preparedness in India October 7, 2024

This workshop, conducted by IITR-ICARS and Sphere India, focused on climate-driven challenges, early warning systems, vulnerability reduction, community resilience, and multi-stakeholder strategies to address the impacts of intensifying cold waves on health, agriculture, and infrastructure in India.

Consultation on Examining the Disaster Management (Amendment) Bill 2024 Opportunities and Challenges October 25, 2024

Sphere India Academy in partnership with IITR-ICARS organized this webinar. The consultation emphasized urban preparedness, climate risks, local governance, decentralization, coordination, inclusive data, and resilience to strengthen India's disaster management framework.



Brainstorming Session on Sustainability and Resource Efficiency: In Context with DRR, Adaptation and Safety October 26, 2024

IITR-ICARS in partnership with Sphere India Academy organized this webinar. The session emphasized sustainable practices, resource efficiency, climate adaptation, safety, and cross-sector collaboration to build resilient, disaster-ready communities.

Atmospheric Extremes DRR - Delhi Smog: Adaptation & Safety November 18, 2024

The webinar was organized by IITR-ICARS and explored Delhi smog's causes, impacts, and solutions, emphasizing adaptation strategies, safety measures, and disaster risk reduction to address atmospheric extremes and protect public health and the environment.





Strategies for Managing Cold Wave Impacts in India December 27, 2024

IITR-ICARS in partnership with Sphere India Academy organized this webinar. The session addressed strategies for managing cold wave impacts in India, focusing on health protection, infrastructure resilience, and safeguarding animal welfare during extreme cold conditions.

Strategic Road Map for Climate-Resilient Peri-Urban Systems January 10, 2025

Organized by IITR-ICARS, the webinar discussed the need to developed a strategic roadmap for climate-resilient peri-urban systems, emphasizing infrastructure changes, health impacts, and nature-based solutions to enhance sustainability and adapt to climate challenges in rapidly growing peri-urban areas.



Avoiding Casualties on the Road March 12, 2025

On International Awareness Day for Avoidable Deaths, IITR-ICARS, Avoidable Death Network (ADN), and the UNFCCC's Santiago Framework hosted this webinar in partnership with Association Of Occupational And Environmental Health (AEOH) and Centre for Environment and Regional Development (CERD)

to raise awareness and discuss strategies for preventing avoidable deaths through loss and damage reduction.

6.0 OTHER PROJECTS AND ENDEAVOURS

6.1 Adapt-DMIR : NATIONAL ADAPTATION PLAN FOR DISASTER MANAGEMENT AND RESILIENT INFRASTRUCTURE

Nodal Ministry: MoEFCC | Funding Agency: UNDP | Sectoral Chair: NDMA

India is poised to submit its first National Adaptation Plan (NAP) to the United Nations Framework Convention on Climate Change (UNFCCC) during COP 30 in Brazil. IITR- ICARS has played a pivotal role in shaping the Disaster Management and Resilient Infrastructure (DM & RI) sector of the NAP.

Entrusted by the Ministry of Environment, Forest and Climate Change (MoEF&CC) and the United Nations Development Programme (UNDP), IITR-ICARS acts as the designated anchoring institute for this sector. It has led the entire process of coordinating and drafting the DM & RI chapter, and will be implementing India's NAP framework for DM & RI sector. To ensure a comprehensive and inclusive approach, IITR-ICARS organized and facilitated multiple national workshops aimed to gather inputs from a wide range of experts, sectoral representatives, and stakeholders. These consultations helped incorporate valuable insights related to disaster risk reduction, resilient infrastructure planning, and climate adaptation strategies.

IITR-ICARS's efforts have strengthened the quality and relevance of the draft chapter, reflecting India's commitment to enhancing climate resilience across vulnerable sectors. The finalized drafts and supporting documents will be submitted to key agencies, including the NDMA, MoEF&CC, and UNDP. This collaborative effort marks a significant step forward in India's climate action agenda and disaster preparedness initiatives.





6.2 HINDU-KUSH HIMALAYA DRR HUB



India Focal Point for HKH DRR Knowledge Hub

ICARS at IIT Roorkee-Greater Noida Campus, has been designated as India Focal Point for the Hindu Kush Himalaya (HKH) Disaster Risk Reduction Knowledge Hub, launched by the ICIMOD Kathmandu in December 2024. This strategic recognition places ICARS at the core of regional collaboration on disaster risk reduction across the Indian Himalayan region. As the Focal Point, the Centre will spearhead action programmes

comprising of policy support, research, knowledge development and sharing and capacity building interventions. An ICIMOD Unit would be set up with ICARS at IITR-Greater Noida to help support cooperation activities including through advocacy, S&T and innovation promotion, research and policy translation of knowledge outcomes.

6.3 SANTIAGO NETWORK FOR LOSS & DAMAGE

Professional Member of the Santiago Network for L&D (UNFCCC)

The Santiago Network under the UNFCCC is a global platform providing technical assistance for loss and damage caused by climate change, with a focus on vulnerable developing countries. It mobilizes expert support for assessments, planning, and action. IITR-ICARS has been selected as a professional member through the

Avoidable Death Network (ADN), headquartered at the University of Leicester. ADN connects global experts to reduce disaster-related avoidable deaths by promoting research, policy development, and practical actions, to enhance resilience and climate adaptation efforts worldwide.





6.4 INDO-GERMAN PARTNERSHIP



Strategic Collaboration between IITR-ICARS and ABCD Centre TU Dresden, Germany

IIT Roorkee's Centre of Excellence ICARS with the ABCD Centre of the Technical University of Dresden, Germany, is working towards developing the next generation of thinkers and practitioners in resilience research. The collaboration will emphasize on research, learning, and skill development in the domains of climate action, disaster risk reduction, and

sustainability. As an initial step under this partnership, a 10-day Winter School will be organized at IITR-ICARS for early-career researchers and postgraduate students. The joint initiative will further expand through collaborative projects, faculty exchanges, policy dialogues, and long-term capacity-building programmes, fostering sustained academic and institutional engagement between the two centres.

7.0 ICARS IN INTERNATIONAL AND NATIONAL FORUMS



Roundtable Discussion: Conceptualize Wetland Knowledge Network (WKN)

April 02, 2024. ICARS-Gr. Noida Campus

IITR-ICARS hosted a roundtable to conceptualize the Wetland Knowledge Network in collaboration with MoEF&CC, NIDM, GIZ India, and Wetlands International South Asia. The discussion emphasized integrating wetlands into climate

adaptation, DRR, and development planning. ICARS was designated as the Secretariat to anchor the network's coordination, knowledge exchange, and capacity-building efforts. It was decided that IITR-ICARS will act as the anchorage for the wetland network initiative.

Workshop: Earth Observation for Disaster Management & Emergency Response

October 14-15, 2024. Gujarat

IITR-ICARS participated in the panel on "Innovations in Earth Observation Technologies for End Users," organized by CEPT Ahmedabad in association with CAG and CRDF. The session emphasized on integration of geospatial intelligence in disaster management and the importance of collaboration among scientists, practitioners, and policymakers to enhance resilience and decision-making. PI, ICARS, Prof. Anil K Gupta, chaired the session which had participation from senior officers of NRSC, CDRI, NDMA and other organization.



Indian Mobile Congress I: Panel Discussion on Shaping AI Standards for Climate Response and Disaster Management

October 17, 2024. New Delhi

IITR-ICARS participated in the panel discussion featuring global experts from IEEE Standards Association, World Meteorological Organization, Fraunhofer HHI and China Telecommunication Technology Labs. Ms. Pritha Acharya represented IITR-ICARS

and highlighted AI's critical role in disaster risk mitigation and climate response, emphasizing the need for localized adaptation strategies and addressing on-ground challenges, particularly for last-mile connectivity. The panel discussion was organized by International Telecommunication Union as part of the World Telecommunication Standardization Assembly (WTSA-24) side event on "Reimagining DRR: The Role of Standardization and Innovative Technologies."



Indian Mobile Congress II: Panel Session on Disaster Risk Reduction and Innovation October 17, 2024. New Delhi

IITR-ICARS participated in the session on "Reimagining Disaster Risk Reduction: The Role of Standardization and Innovative Technologies". Prof. Anil Gupta shared the panel with notable experts including Shri Amit Prothi (DG, CDRI), Dr. Sanjay K. Agrawal (DDG-DM, DoT), Dr. Katharina Weitz (Fraunhofer HHI)

and Dr. Marco Obiso (ITU). With over 50 participants from academia, industry, and policymaking, the session underscored the transformative impacts of technologies like AI, big data, drones and remote sensing in disaster management.

Workshop: Intersections of Climate Change with Sexual and Reproductive Health and Rights (SRHR) November 07, 2024. IHC, New Delhi

PI, ICARS was invited to speak on Climate and DRR finance for promoting SRHR at a Regional Workshop on the Intersections of Climate Change with Sexual and Reproductive Health and Rights (SRHR) organized by Population Council Consulting. The session focused on climate and DRR finance to promote SRHR, with representatives from Population Council, Danish, Norwegian, United Nations Population Fund (UNFPA), and United States Agency For International Development (USAID) contributing as co-panelists. It fostered strong discussions and generated actionable leads, emphasizing the importance of integrating SRHR within climate and disaster resilience frameworks.



Workshop: Redesigning of Forest Fire Fighting Tools and Equipments November 22, 2024. Hyderabad

A National Workshop on Redesigning Forest Fire Fighting Tools and Equipment was organized by MoEF&CC in collaboration with the Indian Institute of Forest Management (IIFM), Bhopal. The event focused on advancing forest fire strategies through research, innovation, and cross-sectoral collaboration. Prof. Anil

K Gupta (PI, ICARS) discussed key challenges and research needs for forest fire risk management, highlighting actionable pathways for sustainable forest resilience and innovations to enhance India's preparedness and response.



Climate Talk: Celebration of 50 Years of Indo-German Scientific Cooperation November 25, 2024. New Delhi

IITR-ICARS took part in the “Climate Talk on Science Solutions for Climate Action: Focus Areas of Indo-German Cooperation,” hosted by the German Embassy, marking 50 years of joint scientific efforts. Prof. Anil K Gupta and Ms. Richa Srivastava represented ICARS, discussions emphasized on science,

technology, and innovation for climate adaptation, renewable energy, green tech, and circular economy. India and Germany reiterated their commitment toward transformative action for sustainability and resilience.

Workshop: Water & Climate Academy's Young Leadership Programme Conference on Nature-Based Solutions for Climate Resilience December 6, 2024. Bhubaneswar

Prof. Anil K Gupta, (PI, IITR-ICARS) inaugurated the Water & Climate Academy’s “Young Leadership Programme Conference on Nature-Based Solutions for Climate Resilience.” The event brought together dignitaries from Odisha and international organizations. ICARS highlighted Indian policy and practical approaches to Nature-based Solutions (NbS), emphasizing their relevance in climate resilience, ecosystem restoration, and community-driven adaptation efforts for sustainable development and disaster risk reduction.



Discussion: Regional Disaster Resilient Strategies December 6, 2024. Bhubaneswar

Prof. Anil K Gupta (PI, ICARS), visited Odisha for an introductory meeting and discussion with the managing director of Odisha State Disaster Management Authority (OSDMA), Shri Deorajan Kumar Singh (IAS) and discussed prospects of strategic collaborations and defining actionable pathways to enhance disaster resilience and promote sustainable development at a regional scale.



Launch of HKH DRR Knowledge Hub by ICIMOD December 8-10, 2024. Kathmandu, Nepal

ICARS–GNEC, IIT Roorkee, has been designated as the Focal Point from India for the HKH DRR Knowledge Hub launched by ICIMOD in Kathmandu. This initiative aims to strengthen regional collaboration on disaster risk reduction, resilience, and climate adaptation through focused knowledge sharing,

capacity building, and policy support in the ecologically sensitive Hindu Kush Himalayan region.

Panel Session: Reducing Impacts and Safeguarding Lives using Early Warnings December 8-10, 2024. Kathmandu, Nepal

Ms. Richa Srivastava, represented IITR-ICARS and chaired the session at the HKH Hub focused on Pillar 4 "Preparedness to Respond – Reducing Impacts and Safeguarding Lives Using Early Warnings". She guided insightful discussions on how timely and accurate warnings can help communities take proactive measures, reduce casualties, and minimize economic losses during natural hazards.



National Consultation: Future Pathways for Wetland Conservation in India December 11, 2024. New Delhi

ICARS participated in the National Consultation on "Future Pathways for Wetland Conservation in India," organised by MoEF&CC, WISA, and GIZ India. At the forum, ICARS gave the motto of "Wetlands for Development" and proposed strategic pathways to integrate wetland conservation into the broader

development agenda. The discussion underscored the critical role of wetlands in supporting biodiversity, climate resilience, and sustainable livelihoods, aligning conservation efforts with national development priorities.



National Consultation: Integrated Drought Management in India

December 30, 2024. New Delhi

IITR- ICARS actively participated in the National Consultation on Integrated Drought Management in India, organized by the WAPCOS, MoEFCC, in collaboration with UNCCD & ADPC. Prof. Anil K Gupta, Ms. Richa Srivastava and Ms. Pritha Acharya participated in the consultation which also marked the launch of the Regional Drought Risk Management and Mitigation

Strategy for South Asia, focusing on enhancing drought resilience through scientific research, governance, and regional cooperation. Launch of Regional Drought Risk Management and Mitigation Strategy for South Asia & regional cooperation also took place during the consultation.

Workshop: Preparing for Climate Futures (2047), Nature-Based Solutions to Enhance Ecosystem Services

March 6-7, 2025. Pune

IITR-ICARS was invited by the Watershed Organization Trust (WOTR) to the workshop on Preparing for Climate Futures (2047): Nature-Based Solutions to Enhance Ecosystem Services. Ms. Pritha Acharya delivered the keynote address on Maharashtra's growing disaster risks.

She emphasized on district-level vulnerabilities and the urgent need for awareness and adaptation, offering key insights into resilience planning for semi-arid regions.



TEAM'S CAPACITY BUILDING ENDEAVOURS



Training: Environment and Emergencies Training (EET)

November 3-7, 2024. Hua Hin, Thailand

Ms. Fatima Amin, Project Scientist I at ICARS, successfully completed the Environment and Emergencies Training (EET) conducted by the UNEP/OCHA Joint Environment Unit in Hua Hin, Thailand. The program focused on advanced methodologies for rapid environmental risk assessment and emergency response, including the application of tools such as

the Flash Environmental Assessment Tool (FEAT) and Disaster Waste Management Guidelines. This specialized training enhances ICARS' capacity to integrate environmental considerations into disaster response frameworks, strengthening its research and teaching initiatives in disaster risk reduction and sustainability.

8.0 VISITORS AT ICARS



Mr. Nakul Prasad, World Meteorological Organization (WMO), Geneva

October 18, 2024. IITR-Greater Noida Campus

Mr. Nakul Prasad, Project Officer from WMO Geneva visited IITR-ICARS to explore future collaboration with ICARS in areas of disaster risk reduction and climate adaptation, emphasizing the science-policy-planning-practice interface in climate, hydrology, and DRR as a key area for joint research, training, and mutual learning.

Prof. Nibedita S. Ray Bennet, University of Leicester, UK
November 21, 2024. IITR-Greater Noida Campus

IITR-ICARS hosted Prof. Nibedita S. Ray-Bennett, Professor and Founder of Avoidable Deaths Network (ADN), to explore collaborative prospects in the areas of on climate adaptation, DRR, and loss and damage. The discussions further led to "plans for" developing short courses, joint summer schools, thematic synergies, and ICARS becoming a member of the ADN.



Dr. Leonard Machado

November 25, 2024. IITR-Greater Noida Campus

Dr. Leonard Machado (former WHO expert) met with the ICARS team to discuss key gap areas and the need for collaborative action in public health, DRR, climate change, chemical incidents, emergency preparedness, and hospital system resilience.

Dr. Sunil Prashar, University of Southern Denmark, Denmark

November 28, 2024. IITR-Greater Noida Campus

Dr. Sunil Prashar, Researcher at the University of Southern Denmark visited ICARS to explore collaborations on summer schools, short courses, and academic partnerships, focusing on urban resilience, DRR, and innovative education to promote sustainability and disaster management.





Shri Vinay Kumar Ruhella, Vice-Chairman of USDMA, Uttarakhand

December 26, 2024. IITR Greater Noida Campus

Shri Vinay Kumar Ruhella, Vice-Chairperson of the Uttarakhand State Disaster Management Authority, visited ICARS to explore cooperation in science, technology, ecology, and community-focused disaster governance in the Himalayas. The discussion centered on resilient strategic action planning and policy

frameworks, drawing from Uttarakhand's experiences. Shri Ruhella's insights will support effective implementation and promote knowledge sharing at both national and international levels.

Prof. Sunil Nautiyal, Director - GB Pant National Institute of Himalayan Environment, Almora

January 1, 2025. IITR-Greater Noida Campus

The ICARS team at IIT Roorkee-Greater Noida campus celebrated the New Year with esteemed guests, including Prof. Sunil Nautiyal, Director of G.B. Pant National Institute of Himalayan Environment and Dr. Akhilesh Gupta. The meeting fostered key discussions on collaboration and joint programs in Disaster Risk Reduction and Sustainability.



Prof. Rajib Shaw, Keio University, Japan

January 9, 2025. IITR-Greater Noida Campus

Prof. Rajib Shaw, Professor at Keio University, a global DRR and climate resilience expert, visited ICARS. He engaged in detailed discussions on future collaborations, focusing on advancing disaster risk reduction, climate adaptation, and joint initiatives to strengthen resilience and sustainability efforts.

Shri Deepak Sharma, Shri Shri Rural Development Trust, Bengaluru

February 05, 2025. IITR-Greater Noida Campus

Shri Deepak Sharma, Director of Shri Shri Rural Development Trust, Bengaluru, visited ICARS-IITR, Greater Noida campus with his delegation. He discussed integrating Disaster Risk Management with Rural Development Mission and Himalaya Unnati Abhiyan with PI, ICARS and the team.





Prof. Martin Widmann, University of Birmingham, UK
March 25, 2025 , IITR-Greater Noida Campus

Prof. Martin Widmann from the University of Birmingham, along with Prof. Brijesh Kumar Yadav and Dr. Ashutosh Sharma from IIT Roorkee, were warmly welcomed at ICARS, Gr. Noida. The discussions were focused on climate resilience, water sustainability, and disaster risk reduction, fostering future research collaborations and innovation.

9.0 AWARDS AND RECOGNITIONS



IITR- ICARS, Gr Noida Campus has been identified to host the “Wetlands Knowledge Network”, following the round table consultation on “Conceptualizing a Wetland Knowledge Network” held on 2nd April 2024.

The Ministry of Environment, Forest and Climate Change (MoEF&CC) has recognized IITR-ICARS as the anchoring institute for preparing and implementing the National Adaptation Plan (NAP) on Disaster Management and the Resilient Infrastructure sector.



IITR-ICARS has been recognized as a Focal Point for the Hindu Kush Himalaya DRR knowledge hub. Under this, ICARS will coordinate with Himalayan states of India and other related institutes.

Prof. Anil K. Gupta, PI ICARS, was honored with the WCDM DRR Award for his outstanding contributions to disaster risk reduction. The award was presented by Honourable Union Minister of Commerce & Industry, Shri Piyush Goyal ji.



IITR- ICARS, has been selected as a professional member of the Santiago Network for Loss and Damage through the Avoidable Deaths Network (ADN)

ICARS

Indian Institute of Technology Roorkee,
Greater Noida Campus (NCR)



The Integrated Centre for Adaptation, Disaster Risk Resilience and Sustainability (ICARS) is a joint centre of Excellence established by the Department of Science and Technology (DST), Govt. Of India at the Greater Noida Campus of Indian Institute of Technology, Roorkee. The centre aims to promote “Capacities and Public-Policy for Resilience and Sustainability (CAPP-RES)” through policy-linked research, action research, research to support capacity building and knowledge integration under the broad mandates of the National Mission on Strategic Knowledge for Climate Change (NMSKCC). This is a unique facility established on integrated and holistic coverage of DRR and Adaptation. ICARS promotes professional advances, leadership, and supports policy-planning, capacity building and localization of resilience agenda.



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