

SUMMER INTERNSHIP PROGRAM

at

**Climate Resilient Observing Systems Promotion Council (CROPC)
New Delhi**

From 1st May 2024 to 30th June 2024

A REPORT BY

Roshan Kumar

Master of Business Administration

Development Management

2023-25

under the Mentorship of

Kajal Sitlani

Assistant Professor and PhD Programme Coordinator

School of Development Studies





LIGHTNING RESILIENT INDIA CAMPAIGN

Joint initiative by Climate Resilient Observing Systems Promotion Council
CROPC, India Meteorological Department (IMD) & Ministry of Earth Sciences, GoI

SUMMER INTERNSHIP 2024

CERTIFICATE OF COMPLETION

This Certificate is awarded to

Roshan Kumar

of IIHMR University, Jaipur

for successfully completing the Summer Internship with CROPC, demonstrating outstanding dedication and proficiency in understanding climate change, disaster management, and community resilience from May 01, 2024 to June 30, 2024.

Your contributions are highly valued. Congratulations!

CROPC-IMD appreciate your commitment to Lightning resilience. We hope your pledge towards Lightning Resilient India shall make you and your surroundings Lightning safe.

COL PROF SANJAY SRIVASTAVA
CHAIRMAN, CROPC

DR. K.J. RAMESH
(FORMER DG, IMD)

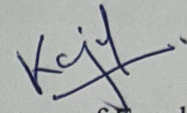


IIHMR University Faculty Mentor Approval

This is to certify that **Mr Roshan Kumar** of academic year 2023-25 of **School of Development Studies** has prepared a poster with respect to his/her summer internship held during May-June 2024.

He has carried out work as per the guidelines. His poster is approved for presentation.

Date: 23/07/2024



(Signature of Faculty Mentor)
Kajal Sitlani

Assistant Professor

IIHMR UNIVERSITY JAIPUR

Annexure-C

Faculty Mentor - Prof. Kajal Sitlani

Presented by- Roshan Kumar

Organization Mentor -
Col. Prof. Sanjay Shrivastava

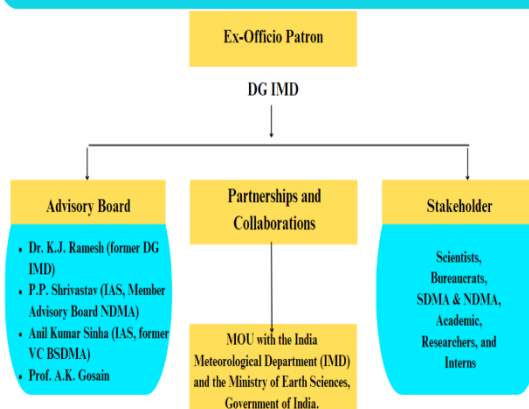
1. Brief history and description about organization

CROPC is a non-profit organization with a group of scientists, bureaucrats, disaster management professionals, researchers, and students who aim to develop technology-driven innovative solutions for disasters and development. CROPC is mandated to function as a center for promoting climate-resilient observing systems and a public notification system for climate change-related hazards. It also serves as a link between the India Meteorological Department (IMD) and other stakeholders for the Lightning Resilient India Campaign.

2. Organization vision and mission

CROPC.org's vision is to create a future where agriculture is resilient to the impacts of climate change, enabling farmers to thrive and communities to have access to nutritious, locally-grown food. The organization's mission is to empower farmers to adopt climate-smart agricultural techniques, support local food systems, and advocate for policies that protect the environment and promote rural livelihoods. This includes helping farmers implement lightning protection systems and other measures to safeguard their crops and livestock from the increasing threat of severe thunderstorms

3. Organization structure



4. Difference between practical exposure at SIP organisation and theoretical understanding

- **Alignment of Classroom Learning and SIP Focus:** The classroom learning at IIHMR, particularly in courses on rural/urban governance, public policy, and sustainable development, aligned well with the SIP organization's focus on climate change impact and mitigation strategies.
- **Smooth Navigation of SIP:** The theoretical knowledge gained from IIHMR's curriculum helped the student navigate their SIP role as a research intern at CROPC more smoothly.
- **Minimal Deviation Between Theory and Practice:** There was minimal deviation between the theoretical understanding from IIHMR and the practical work experience gained during the SIP, indicating a strong connection between the classroom and real-world application.

5. SWOT Analysis

Strengths

- Strategic location in New Delhi facilitates stakeholder collaboration
- Expertise and research capabilities of the team
- Established partnerships and MOUs with various organizations

Weaknesses

- Limited resources and funding as a non-profit
- Dependence on external funding sources
- Limited infrastructure for large projects



Opportunities

- Growing demand for sustainable agriculture practices
- Government initiatives for disaster risk reduction
- Potential for international partnerships and expertise

Weaknesses

- Competition from private companies in the agricultural sector
- Risks from weather extremes and climate change impacts
- Potential regulatory changes affecting CROPC's operations

6. Challenges faced during internship

- Adapting to the organizational culture and practices at CROPC
- Infrastructure Limitations & administrative hurdles
- Slow paced work style

7. Learnings during internship

- Multidisciplinary collaboration on climate/disaster projects
- Expertise gained in areas like climate change, early warning, resilience
- Acquired practical knowledge on early warning, climate risk, disaster management
- Developed local climate change and vulnerability understanding

8. Usefulness of internship

- Gained exposure to real-world work and learned professional work ethics
- Improved and developed relevant skill sets
- Built a professional network with experienced industry experts

9. Suggestions

- **Streamline Administrative Processes**
 - Implement clear policies and procedures for administrative tasks
 - Automate repetitive administrative work using software tools
- **Enhance Project Management**
 - Assign dedicated project managers for complex initiatives
 - Conduct regular project reviews to identify and address issues
- **Invest in Staff Development**
 - Provide training opportunities to build staff skills
 - Offer competitive compensation to attract and retain top talent

Summer Internship Report (Week-1st)

Name of the Organisation: Climate Resilient Observing Systems Promotion Council CROPC

Area/ Department/ Project of Summer Internship Program: Research Intern

Name of the Student: Roshan Kumar

Roll no: 0049

Week no: 01

Stream: MBA- Development Management-03

From: 01/05/2024 to 10/05/2024

Activity Done	• Learning about the Inter-governmental organisation- Climate Resilient Observing Systems Promotion Council • Leant about its functioning and structure. • Attended orientation session by Col Prof Sanjay Srivastava, Chairman, CROPC.
Linking theory (Classroom learning) with practice at your organisation	• Evaluation and Assessment: Understanding the weather forecast and early warning system for alert and mitigation of risk associated with it during rain, thunderstorm, cyclone etc. • Lightning claims large number of lives especially in rural areas
Gaps identified on the working area.	• Absence of regulated oversight for lightening and ad hoc compensation provisions for lightening victims leading to personal distress among survival and families of victims.
Suggestions for improvement	• Clear action plan to bridge the gap between forecast by IMD and warning issued for risk reduction
Plan for the next week	• Understanding factors for lightning, its pattern and incident reporting pattern by CROPC.

Signature of the Student- Roshan Kumar

Approved by the IIHMR University's Mentor

Summer Internship Report (Week-2nd)

Name of the Organisation: Climate Resilient Observing Systems Promotion Council CROPC

Area/ Department/ Project of Summer Internship Program: Research Intern

Name of the Student: Roshan Kumar

Roll no: 0049

Week no: 02

Stream: MBA- Development Management-03

From: 13/05/2024 to 17/05/2024

Activity Done	• Did reading about Lightning early warning systems of NRSC and IMD for better learning • Continued learning about the Inter-governmental organization- Climate Resilient Observing Systems Promotion Council area of working and its functions • Learnd about several other organizations involved in mitigating and reducing risk associated with natural disasters.
Linking theory (Classroom learning) with practice at your organisation	• Stakeholder Engagement: Interactions with Officials from IMD, other intern from Climate resilience promotion council highlighted the importance of stakeholder engagement
Gaps identified on the working area.	• Despite of taking thousands of lives by lightning and thunderstorm in rural areas, specific state government body missing at district level
Suggestions for improvement	• The lack of district and village-level oversight for lightning mitigation is a key gap that CROPC is trying to address through its Lightning Resilient India Campaign.
Plan for the next week	• Continuing understanding factors for lightning, its pattern and incident reporting pattern by CROPC.

Signature of the Student- Roshan Kumar

Approved by the IIHMR University's Mentor

Summer Internship Report (Week-3rd)

Name of the Organization: Climate Resilient Observing Systems Promotion Council CROPC

Area/ Department/ Project of Summer Internship Program: Research Intern

Name of the Student: Roshan Kumar

Roll no: 0049

Week no: 03

Stream: MBA- Development Management-03

From: 20/05/2024 to 24/05/2024

Activity Done	• Attended two sessions on Lightning from followings- 1. NRSC ISRO session by Dr Alok Taori Scientist PM 2. IMD session by Dr Soma Sen Roy, Scientist F Head of NWCF Division, IMD New Delhi • Undertook Reading of publications and articles on the following topics • Learned how CROPC conducts impact assessments of climate change on water, agriculture, and environment sectors, quantifying the availability of water for drinking, irrigation, hydropower, and industrial use using climate model data. • How CROPC evaluates the potential changes in the severity of droughts and intensity of floods due to climate change and formulates adaptation strategies. • CROPC generates future climate change scenarios to inform policy implications for the water-agriculture-energy nexus. • CROPC assessment of the impact of climate change from social, economic, and environmental perspectives, and developing city-level strategies and coastal zone development plans.
Linking theory (Classroom learning) with practice at your organisation	• Understood Organizational Dynamics • Witnessed the intricate dynamics within the organizational structure. • Explored how different departments collaborate and communicate
Gaps identified on the working area.	• Absence of district and village regulated oversight for lightening. • Despite of taking thousands of lives by lightning and thunderstorm in rural areas, specific state government body missing at district level
Plan for the next week	• To study and learn about IMD's IEC and multimedia mode to generate awareness relating to adverse climate events.

Signature of the Student- Roshan Kumar

Approved by the IIHMR University's Mentor

Summer Internship Report (Week-4th)

Name of the Organisation: Climate Resilient Observing Systems Promotion Council CROPC

Area/ Department/ Project of Summer Internship Program: Research Intern

Name of the Student: Roshan Kumar

Roll no: 0049

Stream: MBA- Development Management-03

Week no:04

From:27/05/2024 to 31/05/2024

Activity Done	• On 31st May attended two sessions by esteemed scientist from Indian Meteorological Department • Topic: Understanding Lightning Observations and Their Use in Weather Forecasting • Speaker: Dr. Trisanu Banik, Scientist D, IMD In charge - India Lightning Detection Network (under trial) by MoES. • Topic: The Lightning Forecast System of IMD • Speaker: Dr. Soma Sen Roy, Scientist “F”, Head of, Nowcast & Thunderstorms & Lightning Forecast Division, IMD.
Linking theory (Classroom learning) with practice at your organisation	• These sessions provided me with valuable insights into the latest advancements in lightning detection and forecasting systems, crucial for enhancing our understanding and preparedness for weather-related events.
Gaps identified on the working area.	• Absence of district and village regulated oversight for lightening. • Despite of taking thousands of lives by lightning and thunderstorm in rural areas, specific state government body missing at district level
Suggestions for improvement	• More opportunities for resource mobilization through partnerships, grants, or fundraising initiatives. • Lightning is not given due prominence as a natural disaster which should be hastened.
Plan for the next week	• To deeply understand the concept of LDN (lightning Detection Network) deployed by IMD in NCR region.

Signature of the Student- Roshan Kumar

Approved by the IIHMR University's Mentor

Summer Internship Report (Week-5th)

Name of the Organisation: Climate Resilient Observing Systems Promotion Council CROPC

Area/ Department/ Project of Summer Internship Program: Research Intern

Name of the Student: Roshan Kumar

Roll no: 0049

Stream: MBA- Development Management-03

Week no: 05

From: 03/06/2024 to 07/06/2024

Activity Done	• Attended meetings on Topic Lightning Resilience in North East India - NESAC a front leader in Lightning EW and Research and Development by 1. Dr SS Kundu , NESAC, Umiam Shillong, ISRO. 2. Dr Rekha B Gogoi 3. Dr Abhay Srivastava
Linking theory (Classroom learning) with practice at your organisation	• Project Monitoring and Review: Participation in regular meetings and discussions By IMD and ISRO scientist to understand weather forecasting and the role of CORPC in awareness generation and building a young team of Research intern for future research. • showcase the importance of timely monitoring and review of issues for active advocacy and awareness.
Gaps identified on the working area.	• Absence of district and village regulated oversight for lightening. • Despite of taking thousands of lives by lightning and thunderstorm in rural areas, specific state government body missing at district level
Plan for the next week	• Studying the Lightning detection system implemented by IMD and other bodies. • To study various IEC methods used by central and state government for severe weather and thunderstorm, cloud bursts, heatwaves.

Signature of the Student- Roshan Kumar

Approved by the IIHMR University's Mentor

Summer Internship Report (Week-6th)

Name of the Organization: Climate Resilient Observing Systems Promotion Council CROPC

Area/ Department/ Project of Summer Internship Program: Research Intern

Name of the Student: Roshan Kumar

Roll no: 0049

Stream: MBA- Development Management-03

Week no: 06

From: 10/06/2024 to 14/06/2024

Activity Done	• Completed following assignment. • What do you understand by science of Lightning? Please describe in 1000 words. • Lightning in India - What is the trend of lightning occurrence vis a vis death in India? Analyse in 1000 words • Lightning in Your state - What is the trend of lightning occurrence vis a vis death in your state? Analyse in 1000 words • Lightning in your district - What is the trend of lightning occurrence vis a vis death in your district? Analyse in 1000 words
Linking theory (Classroom learning) with practice at your organisation	• Project Monitoring and Review: Participation in regular meetings and discussions By IMD and ISRO scientist to understand weather forecasting and the role of CORPC in awareness generation and building a young team of Research intern for future research. • showcase the importance of timely monitoring and review of issue for active advocacy and awareness
Gaps identified on the working area.	• More opportunities for resource mobilization through partnerships, grants, or fundraising initiatives. • Lightning is not given due prominence as a natural disaster which should be hastened.
Suggestions for improvement	• To bridge the gap between IMD's weather forecasts and community awareness, CROPC suggests a clear action plan for dissemination and awareness generation at the grassroots level
Plan for the next week	• Studying the severe heat pattern in the month of May and June.

Signature of the Student – Roshan Kumar

Approved by the IIHMR University's Mentor

Summer Internship Report (Week-7th)

Name of the Organisation: Climate Resilient Observing Systems Promotion Council CROPC

Area/ Department/ Project of Summer Internship Program: Research Intern

Name of the Student: Roshan Kumar

Roll no: 0049

Stream: MBA- Development Management-03

Week no: 07

From: 17/06/2024 to 21/06/2024

Activity Done	Maintained Daily weather and Lightning occurrence and casualty report in my district for the month of May and June.
Linking theory (Classroom learning) with practice at your organisation	Project Monitoring and Review: Participation in regular meetings and discussions By IMD and ISRO scientist to understand weather forecasting and the role of CORPC in awareness generation and building a young team of Research intern for future research. - showcase the importance of timely monitoring and review of issue for active advocacy and awareness generation.
Gaps identified on the working area.	- Absence of regulated oversight for lightening. - Despite of taking thousands of lives by lightning and thunderstorm in rural areas, people usually don't abide by lightening protocol.
Suggestions for improvement	- Clear action plan to bridge the gap between forecast by IMD - More opportunities for resource mobilization through partnerships, grants, or fundraising initiatives. - Lightning is not given due prominence as a natural disaster which should be hastened.
Plan for the next week	- Studying the Lightening detection system implemented by IMD and other bodies. - To study various IEC methods used by central and state government for severe weather and thunderstorm, cloud bursts, heatwaves.

Signature of the Student- Roshan Kumar

Approved by the IIHMR University's Mentor

Summer Internship Report (Week-8th)

Name of the Organisation: Climate Resilient Observing Systems Promotion Council CROPC

Area/ Department/ Project of Summer Internship Program: Research Intern

Name of the Student: Roshan Kumar

Roll no: 0049

Stream: MBA- Development Management-03

Week no: 08

From: 24/06/2024 to 28/06/2024

Activity Done	- Designed poster for Lightning Awareness, Use of DAMINI Application for early warning, installation of lightning arrester on houses and tall buildings. - Attended 6th Annual Lightning Conference, New Delhi Completed following assignment. - Try and understand “Risk Impact Based forecasting “. - Location wise Time to intimate people - What Pre- cyclone precautions are required? - What is Emergency Communication and Supply chain management? - How to ensure business continuity? - Assessed the level of awareness regarding lightning safety among the members of the locality where I stayed. - Share the Lightning Resilience Framework with the community. - Identify and create a locality Champion responsible for promoting lightning awareness. - Sensitize the members of locality on the Dos and Don'ts during lightning events. - Ensuring that all the members of locality download and use the Damini app - Analyse and write a reason for safety.
Linking theory (Classroom learning) with practice at your organisation	Project Monitoring and Review: Participation in regular meetings and discussions By IMD and ISRO scientist to understand weather forecasting and the role of CORPC in awareness generation and building a young team of Research intern for future research. - showcase the importance of timely monitoring and review of patterns in climate change for active advocacy by NGO, community mobilization.
Gaps identified on the working area.	Nil

Suggestions for improvement	• Clear action plan to bridge the gap between forecast by IMD and the awareness. • More opportunities for resource mobilization through partnerships, grants, or fundraising initiatives. • Lightning is not given due prominence as a natural disaster which should be hastened.
Plan for the next week	• To study and learn about IMD's IEC and multimedia mode to generate awareness relating to adverse climate events.

Signature of the Student- Roshan Kumar

Approved by the IIHMR University's Mentor



Compiled Reporting Format

Name of the Organisation: Climate Resilient Observing Systems Promotion Council CROPC

Area/ Department/ Project of Summer Internship Program: Research Intern

Name of the Student: Roshan Kumar

Roll no: 0049

Stream: MBA DM 03

Activity Done	Week 1: • Introduced to the Climate Resilient Observing Systems Promotion Council (CROPC). • Attended orientation session by Col Prof Sanjay Srivastava, Chairman of CROPC. Week 2: • Studied Lightning early warning systems of NRSC and IMD. • Continued learning about CROPC's functions and structure. • Explored various organizations involved in disaster risk reduction. Week 3: • Attended sessions on Lightning by NRSC ISRO and IMD scientists. • Conducted readings on CROPC's impact assessments related to climate change on water, agriculture, and environment sectors. • Explored climate change scenarios and adaptation strategies formulated by CROPC. Week 4: • Attended sessions by scientists from IMD on Lightning Observations and Forecast Systems. Week 5: • Participated in meeting on Lightning Resilience in North- East India, led by NESAC scientists. Week 6: • Completed assignments on the science of Lightning and analysed Lightning occurrence trends at national, state, and district levels. Week 7: • Maintained daily weather and Lightning occurrence reports for May and June in your district. • Studied various reports published by the organisation.
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	Week 8: - Designed a poster for Lightning Awareness and participated in the 6th Annual Lightning Conference in New Delhi. - Completed assignments related to Risk Impact Based Forecasting, public awareness, cyclone precautions, and business continuity. - Conducted a daylong visit around my locality to assess lightning safety awareness and promote the Damini app.
Linking theory (Classroom learning) with practice at your organization	Organizational Understanding: Acquired comprehensive knowledge about CROPC's role in climate resilient observing systems and its impact assessment methodologies. Technical Expertise: Gained insights into Lightning early warning systems, forecasting, and resilience strategies from sessions by NRSC ISRO, IMD, and NESAC. Analytical Skills: Developed analytical capabilities through assignments analyzing Lightning trends and impact at different geographic scales. Community Engagement: Engaged with local communities through awareness campaigns and sensitization efforts on Lightning safety, leveraging tools like the Damini app.
Gaps identified on the working area.	The organization involvement with different stakeholders and their work can be better coordinated and streamlined.
Suggestions for improvement	Staff Training and Soft Skills: Implement comprehensive training programs for staff.

Signature of the Student: *Roshan Kumar*

Approved by the IIHMR University's Mentor