International Conference

(8th–9th April 2025)

on

"Geospatial Innovations for Biodiversity Conservation, Climate Resilience, and Sustainable Development across Multi-Domain Ecosystems"

Sponsored by

Indian Council of Social Science Research (ICSSR)

&

National Hydroelectric Power Corporation (NHPC)

Organized by

Department of Geography

Kalindi College, University of Delhi

Patron

Principal
Prof. Meena Charanda, Kalindi College

in esteemed association with

Centre for Himalayan Studies

University of Delhi

Patron

Director, Centre for Himalayan Studies

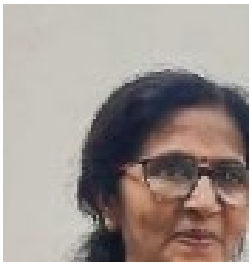
Convenor

Dr. Usha Kumari Pathak
Teacher-in-Charge, Department of Geography
Kalindi College, University of Delhi

Co-convenors

Dr. Akhilesh Kumar Mishra

Dr. Geeta Kumari



Prof. Seema Sahdev

Organizing Secretary

Dr. Ganesh Yadav

International Conference Summary

The Power of Geography and Geospatial Science

This International Conference has served as a vibrant confluence of **geographers, environmental scientists, and spatial technologists**, showcasing the discipline's growing role in addressing pressing global and regional challenges. Across the sessions, the **transformative potential of Geography** was celebrated—not just as a field of academic inquiry, but as a tool for **policy-making, community engagement, and planetary sustainability**.

Salient Features

A diverse array of **presentations and technical papers** highlighted innovations in **Geographic Information Systems (GIS), Remote Sensing, UAV-based photogrammetry, spatial modeling, and geostatistical forecasting.**

I. Studies focused on **real-world applications**—from mapping carbon sequestration zones in the Himalayas to simulating climate-induced health risks and assessing transboundary forest corridors.
II. Researchers explored **machine learning and deep learning integration with geospatial analytics**, applying them to disaster vulnerability assessment, urban sprawl monitoring, and green infrastructure planning.
III. Sessions emphasized the **interplay between climate change, land use, biodiversity loss, and hydrological transformations**—particularly in fragile ecosystems such as the **Eastern and Western Himalayas, Ziro Valley, Lahaul-Spiti, Garhwal, and the Sunderbans.**
IV. Papers highlighted the synergy of **traditional ecological knowledge** and **scientific innovation**, especially in the context of **livelihood adaptation and sustainable agriculture.**
V. **Prof. Brij Maharaj** (University of Kwazulu-Natal, South Africa) and **Prof. Richard Johnson** (University of Cumbria, United Kingdom) set a truly international tone with compelling keynote addresses on **global spatial governance** and the **geopolitics of ecological conservation.**
VI. The conference has been a testament to how **Geography bridges technology, tradition, and transformation**—using the power of spatial thinking to navigate the complexities of climate resilience, biodiversity conservation, and sustainable development across **multi-domain ecosystems.**
VII. This conference has truly been a **celebration of the discipline of Geography**—a field that transcends boundaries and bridges policy, technology, and community. Over the last two days, we have witnessed a rich confluence of **geographers, environmental scientists, spatial technologists**, and **policy thinkers** discussing pressing challenges that face our ecosystems and climate.
VIII. This gathering has served as a **living laboratory of ideas**, emphasizing that Geography is not merely a study of space but a powerful tool for **climate resilience, ecological integrity, and sustainable development**.

Special Coverage

Prominent Newspaper Highlights from the Conference

गलगोटियाज

दिल्ली विश्वविद्यालय के महर्षि कणाद भवन में दो दिवसीय अंतरराष्ट्रीय सम्मेलन का सफल आयोजन

International Conference Biodiversity Conservation: सम्मेलन का आयोजन रामजस कॉलेज के भूगोल विभाग द्वारा हिमालय अध्ययन केंद्र दिल्ली विश्वविद्यालय के सहयोग से हुआ.

International Conference Biodiversity Conservation: शिक्षा, नीति और समुदाय के हस्तक्षेपों संगम के क्रम में, दिल्ली विश्वविद्यालय के अंतर्गत रामजस कॉलेज के भूगोल विभाग एवं सेंटर फॉर हिमालयन स्टडीज के संयुक्त तत्वावधान में, 8-9 अप्रैल 2025 को महर्षि कणाद भवन, विश्वविद्यालय परिसर में दो दिवसीय अंतरराष्ट्रीय सम्मेलन "बहु-क्षेत्रीय पारिस्थितिक तंत्रों में जैव विविधता संरक्षण, जलवायु लचीलापन एवं सतत विकास हेतु भू-स्थानिक तकनीक" का सफल आयोजन किया गया. इसमें 15 देशों और 60 से अधिक विश्वविद्यालयों/संस्थानों के विद्वानों ने भाग लिया. यह सम्मेलन डॉ. उमा कुमारी नटराज, सहायक प्राध्यापक, भूगोल विभाग, रामजस कॉलेज द्वारा संयोजित किया गया और प्रो. बी. अमरेश्वर, निदेशक, सेंटर फॉर हिमालयन स्टडीज के नेतृत्व में संपन्न हुआ। इस अवसर पर पर्यावरण विज्ञान, भू-सूचना विज्ञान एवं नीति के कुल वैश्विक अग्रणी विशेषज्ञों ने भाग लिया। इसकी अध्यक्षता में रामजस कॉलेज की प्राचार्य प्रो. मीना गुप्ता की महती भूमिका रही.

15 देशों के विशेषज्ञ हुए शामिल

सम्मेलन में देश-विदेश के भूगोलवेत्ता, पर्यावरण वैज्ञानिक, शोधकर्ता और छात्र एकत्रित हुए, जि
परिवर्तन और पारिस्थितिकीय चुनौतियों के समाधान में भू-स्थानिक तकनीकों की भूमिका पर वि
विशेषज्ञों और 60 से अधिक विश्वविद्यालयों एवं विज्ञान संस्थानों के प्रतिनिधियों ने भाग लिया. उ
कुलपति प्रो. योगेश सिंह के संरक्षण में हुआ. इसमें प्रो. बलराम पाणि (डीन, कॉलेजेज), प्रो. मंजु
बॉडी), प्रो. मीना चरांदा (प्राचार्या, कालिंदी कॉलेज) और प्रो. [illegible] पांडेय (निदेशक, हिमालय

प्रो. ब्रिज महाराज समेत कई विद्वानों ने रखे अपने विचार

सम्मेलन में प्रमुख वक्ताओं में प्रो. ब्रिज महाराज (दक्षिण अफ्रीका), प्रो. रिचर्ड जॉनसन (यूके),
और प्रो. कौशल शर्मा (जेएनयू) शामिल थे, जिन्होंने भू-स्थानिक विज्ञान, पारंपरिक ज्ञान और स
रखे. प्रो. [illegible] पांडेय की अग्रणी भूमिका रही. इस आयोजन के जरिये इन्होंने जलवायु अनु
नवाचार को नये आयाम प्रदान किए.

संवाद का प्रभावशाली मंच बना सम्मेलन

सम्मेलन की संयोजिका एवं कालिंदी कॉलेज की सहायक प्रोफेसर डॉ. उषा कुमारी पाठक ने क
प्रभावशाली मंच बना, जिसने पृथ्वी के सतत भविष्य हेतु भू-स्थानिक बुद्धिमत्ता को केंद्र में रखते

दृष्टिकोण में तात्कालिकता की पुकार

सम्मेलन की शुरुआत प्रो. बलराम पाणी, डीन ऑफ कॉलेजेज, दिल्ली विश्वविद्यालय के प्रेरक वि
तकनीकें आधुनिक भूगोल की आधारशिला हैं, जो हिमनदों के पीछे हटने और जैव विविधता के
प्रदान करती हैं. कालिंदी कॉलेज की गवर्निंग बॉडी की अध्यक्ष प्रो. मंजु मुकुल कांबले ने "जलवा
पर्यावरणीय परिणाम सिर्फ नहीं, बल्कि विनाशक होते हैं.

जलवायु लचीलापन: एक विशेष विमर्श

"जलवायु लचीलापन और सतत विकास" विषय पर केंद्रित सत्र की अध्यक्षता प्रो. अनुराधा बन
अनुकूलन क्षमता के अंतर को रेखांकित किया और स्थानीय संदर्भ आधारित समाधान विकसित
कार्यक्रम (UNDP) की ओर से डॉ. सूची मिश्रा ने "रेजीलिएंस ट्री" की कल्पना प्रस्तुत करते हु
समन्वय की आवश्यकता पर बल दिया. उन्होंने जलवायु परिवर्तन को "पॉलीक्राइसिस" की तरह
संकटों का जटिल समुच्चय.

Galgotias Times, May 11, 2025

नई दिल्ली 14 मई 2025 दैनिक जागरण

भू-स्थानिक तकनीक हैं भूगोल की आधारशिला : प्रोफसर पाणी

जागरण संवाददाता, नई दिल्ली: दिल्ली विश्वविद्यालय के डीन आफ कालेजेज प्रो. बलराम पाणी ने कहा कि भू-स्थानिक तकनीकें आधुनिक भूगोल की आधारशिला हैं जो हिमनदों के पीछे हटने और जैव विविधता के क्षरण जैसे पारिस्थितिक परिवर्तनों की सूक्ष्म समझ प्रदान करती हैं। वे कालिंदी कालेज के भूगोल विभाग व सेंटर फार हिमालयन स्टडीज के संयुक्त तत्वावधान में दो दिवसीय 'बहु-डोमेन पारिस्थितिक तंत्रों में जैव विविधता संरक्षण, जलवायु लचीलापन व सतत विकास के लिए भू-स्थानिक नवाचार' विषय पर दो दिवसीय हुए अंतरराष्ट्रीय सम्मेलन को संबोधित कर रहे थे।

कार्यक्रम की संयोजिका डा. उषा युग की चुनौतियों के बीच हमा दायित्व है कि हम परंपरा व तकनीक विज्ञान व सामाजिक समता के बी संतुलन साधें। भू-स्थानिक उपकर हमारे समय की जटिलता में दिश निर्देशक बन सकते हैं। सम्मेलन कालिंदी कालेज की गवर्निंग बा की अध्यक्ष प्रो. मंजु मुकुल कांबले जेएनयू के प्रो. कौशल शर्मा ने अप विचार रखे। सम्मेलन में 15 देश के 60 से अधिक विश्वविद्यालयों संस्थानों के विद्वानों ने भाग लिया यह सम्मेलन भूगोल विभाग की सहायक प्राध्यापक डा. उषा कुमारी पाठक के संयोजन और सेंटर फार हिमालयन स्टडीज के निदेशक प्रो. विंध्य वासिनी पांडेय के नेतृत्व में संपन्न हुआ। इसमें कालिंदी कालेज की प्राचार्य प्रो. मीना चरांदा की आहम भूमिका रही।

Dainok Jagaran, May 14, 2025

पारिस्थितिकी तंत्रों में भू-स्थानिक नवाचार पर सम्मेलन

नई दिल्ली (एसएनबी)। दिल्ली विश्वविद्यालय के महर्षि कणाद भवन में 'जैव विविधता संरक्षण, जलवायु अनुकूलन और सतत विकास के लिए बहु-डोमेन पारिस्थितिकी तंत्रों में भू-स्थानिक नवाचार' विषय पर दो दिवसीय अंतरराष्ट्रीय सम्मेलन का सफल आयोजन किया गया। यह सम्मेलन कलिंदी कॉलेज के भूगोल विभाग द्वारा हिमालय अध्ययन केंद्र के सहयोग से आयोजित किया गया।

■ सम्मेलन में देश-विदेश के भूगोल वेत्ता, पर्यावरण वैज्ञानिक, शोधकर्ता और छात्र एकत्रित हुए

सम्मेलन में देश-विदेश के भूगोल वेत्ता, पर्यावरण वैज्ञानिक, शोधकर्ता और छात्र एकत्रित हुए, जिन्होंने हिमालय जैसे संवेदनशील क्षेत्रों में जलवायु परिवर्तन और पारिस्थितिकीय चुनौतियों के समाधान में भू-स्थानिक तकनीकों की भूमिका पर विचार-विमर्श किया। इस अवसर पर 15 देशों के विशेषज्ञों और 60 से अधिक विश्वविद्यालयों एवं शिक्षण संस्थानों के प्रतिनिधियों ने भाग लिया। सम्मेलन का आयोजन डीयू के कुलपति प्रो. योगेश सिंह के संरक्षण में हुआ। इसमें डीन ऑफ कॉलेजेस प्रो. बलराम पाणि, कालिंदी कॉलेज प्रबंध समिति की अध्यक्ष प्रो. मंजु मुकुल कांबले, कॉलेज की प्राचार्य प्रो. मीना चरांदा और हिमालय अध्ययन केंद्र के निदेशक प्रो. बीडब्ल्यू पांडेय का मार्गदर्शन प्राप्त हुआ।

सेंट्रो यूनियन बैंक लिमिटेड

Rashtriy Sahara, May 11, 2025

लगाए गए हैं। याचिका में इन्हें हटाने की मांग की गई है। याचिकाकर्ता लिए भवन मालिक

परंपरा व सामाजिक समता के बीच संतुलन जरूरी : प्रो. उषा

नई दिल्ली (एसएनबी)। एंथ्रोपोसीन युग की चुनौतियों के मध्य, हमारा साझा दायित्व है कि हम परंपरा, तकनीक, विज्ञान और सामाजिक समता के बीच संतुलन साधें। भू-स्थानिक उपकरण हमारे समय की जटिलता में दिशा-निर्देशक बन सकते हैं। विज्ञान, नीति और उद्देश्य के प्रभावशाली संगम के रूप में दिल्ली विश्वविद्यालय से सम्बद्ध कालिंदी कॉलेज के भूगोल विभाग एवं सेंटर फॉर हिमालयन स्टडीज के संयुक्त तत्वावधान में आयोजित बहु-डोमेन पारिस्थितिक तंत्रों में जैव विविधता संरक्षण, जलवायु लचीलापन एवं सतत विकास को भू-स्थानिक नवाचार पर अंतरराष्ट्रीय सम्मेलन में डॉ प्रो उषा कुमारी पाठक ने ये विचार व्यक्त किए। प्रो पाठक ने कलिंदी कॉलेज और सेंटर फॉर हिमालयन स्टडीज की साझेदारी को प्रभावशाली, अंतरविषयक शोध एवं नीति समन्वयन के माध्यम से सतत विकास के लक्ष्य में बदलने की प्रतिबद्धता दोहराई।

■ भूस्थानिक तकनीकों के जरिए ही आपदापूर्व तैयारी की जा सकती है : प्रो बीडब्ल्यू पांडेय

सेंटर फार हिमालयन स्टडीज के निदेशक प्रो. विन्ध्यवासिनी पांडेय ने कहा कि भूस्थानिक तकनीकों के जरिये ही आपदापूर्व तैयारी की जा सकती है, साथ ही सतत विकास का सपना साकार किया जा सकता है। यह सम्मेलन सेंटर फॉर हिमालयन स्टडीज के निदेशक प्रो. बीडब्ल्यू पांडेय के प्रेरणादायक नेतृत्व में संपन्न हुआ। इस अवसर पर पर्यावरण विज्ञान, भू-सूचना विज्ञान एवं नीति के कुछ वैश्विक अग्रणी विशेषज्ञों ने भाग लिया। इसकी सफलता में कालिंदी कॉलेज की प्राचार्या प्रो. मीना चरान्दा की महती भूमिका रही।

Rashtriy Sahara, May 14, 2025

गलगोटियाज

दिल्ली विश्वविद्यालय के महर्षि कणाद भवन में दो दिवसीय अंतरराष्ट्रीय सम्मेलन का सफल आयोजन

15 देशों के विशेषज्ञ हुए शामिल

प्रो. ब्रिज महाराज समेत कई विद्वानों ने रखे अपने विचार

संवाद का प्रभावशाली मंच बना सम्मेलन

वैश्विक दृष्टिकोण, स्थानीय समझ

दृष्टिकोण में तात्कालिकता की पुकार

जलवायु लचीलापन: एक विशेष विमर्श

एक नवभौगोलिक चेतना की ओर

Galgotias Times, May 14, 2025

Charting New Realms through Sessions

(Technical Excellence)

Two Plenary Sessions were conducted:

Day 1: *Geospatial Innovations for Biodiversity Conservation*
Day 2: *Climate Resilience and Sustainable Development*

A total of 14 Technical Sessions spread over two days:

Day 1: 8 Sessions
Day 2: 6 Sessions

Total 16 Themes

1. Geospatial Innovations for Biodiversity Conservation
2. *Geospatial Indicators for Biodiversity Conservation Strategies*
3. *Ecological Sustainability and Livelihood Adaptations in the Himalayan Region*
4. Cryosphere–Atmosphere Interactions: Implications for Global Climate Systems
5. *Advanced Remote Sensing in Climate Vulnerability Assessments*
6. *Geo-analytics for Ecosystem-Based Disaster Risk Reduction (EcoDRR)*
7. *Geospatial Insights into Sustainable Land Use Planning*
8. *Spatial Dynamics of Carbon Sequestration and Emission Mitigation*
9. *Indigenous Knowledge and Spatial Mapping for Climate Resilience*
10. *Climate Resilience and Sustainable Development*
11. *Cryosphere–Atmosphere Interactions: Implications for Global Climate*
12. *Geospatial Policies for Enhancing Climate Change Adaptation*
13. *Geospatial Techniques in Monitoring Climate-Induced Health Risks*
14. *Integrated Geospatial Frameworks for Sustainable Water Resource Management*
15. Climate-Smart Agriculture through Geospatial Innovation
16. Geospatial Practices for Monitoring Ecosystem-Based Climate Mitigation

Over 40 universities and academic institutions participated, including:

University of Cumbria (UK), University of KwaZulu-Natal (South Africa), UNDP, University of Delhi, JNU, Jamia Millia Islamia, IGNOU, AMU, MDU, Ranchi University, Punjab University, University of Jammu, Central University of Haryana, and others.

Over 60 academic and research bodies contributed, including:

- ✓ University of Cumbria, *UK*
- ✓ University of KwaZulu-Natal, *South Africa*
- ✓ *Jawaharlal University (JNU)*
- ✓ *Aligarh Muslim University (*AMU*)*
- ✓ Jamia Millia Islamia
- ✓ Indira Gandhi National Open University (IGNOU)
- ✓ Punjab University, Chandigarh
- ✓ Central University of Haryana
- ✓ Ranchi University
- ✓ Indian Agricultural Research Institute (PUSA)
- ✓ Maharshi Dayanand University, Rohtak (MDU)
- ✓ **Colleges under University of Delhi**
- ✓ **Central and State Universities**
- ✓ **Global research institutions**
- ✓ **Wadia Institute of Himalayan Geology**, (WIHG)

- ✓ **Indian Institute of Public Administration (IIPA)**
- ✓ **UNDP**
- ✓ **ICSSR**
- ✓ **… …**

Over 17 International Participation from Different Countries:

1. Dr. Richard Johnson – **United Kingdom**
2. Prof. Brij Maharaj – **South Africa**
3. Mr. William Kekeisen – **United States of America**
4. Mr. Vladislav Ermoshin – **Russia**
5. Ms. Sajjana – Myanmar
6. Mr. Rikuto Ito – **Japan**
7. Dr. Shubhi Mishra (Consultant, UNDP) – **Representing Saudi Arabia**
8. Mr. Hosam Shatnawi – Jordan
9. Mr. Subodh – **Sri Lanka**
10. Mr. Bakhromjon Ergashev – **Uzbekistan**
11. Mr. Olivier Bukur – **Burundi**
12. Mr. Ibrahim Annan – **Ghana**
13. Mr. Hong Loang Bui – **Vietnam**
14. Mr. Mohammad Helal Allail – **Syria**
15. Mr. Javier Cordero – **Costa Rica**
16. Mr. Mamadou Diakite – **Mali**
17. Mr. Hyung Jin An – **South Korea**

Over 4o Eminent Speakers & Keynote Speakers (International & national):

1. **Prof. Brij Maharaj** – University of KwaZulu-Natal, *South Africa*
2. **Dr. Richard Johnson** – University of Cumbria, *UK*
3. **Dr. Shubhi Mishra** – UNDP Consultant, *Saudi Arabia*
4. **Prof. Vinod Kumar Sharma** - Senior Professor, Disaster Management & Consultant, IIPA, New Delhi
5. **Prof. Kaushal Kumar Sharma (Dean, CSRD, JNU)**
6. **Prof. P. K. Joshi (School of Environmental Sciences, JNU)**
7. **Prof. A.K. Bhagi** (Department of Chemistry, Dayal Singh College,University of Delhi & President DUTA, University of Delhi
8. **Prof. Mehtab Singh** (Head, Department of Geography, MDU)
9. **Prof. Vaneeta Chandna** (Department of Geography, SBSC Evening, University of Delhi)
10. **Prof. Mary Tahir** (Department of Geography, Jamia Millia Islamia)
11. **Prof. Poonam Sharma** (Department of Geography, Shaheed Bhagat Singh College, University of Delhi)
12. **Prof. Subhakanta Mohapatra** (Department of Geography, IGNOU)

13. **Dr Jairam Singh Yadav** (Scientist-C Wadia Institute of Himalayan Geology (WIHG), Dept. of Science and Technology, Govt. of India)
14. **Dr. Netrananda Sahu** (Department of Geography, DSE, University of Delhi)
15. **Prof Vishwaraj Sharma** (Department of Geography, SBSC, University of Delhi)
16. **Prof. Haroon Sajjad** (Department of Geography, Jamia Millia Islamia)
17. **Prof. S. K. Bandooni**(Department of Geography, SBSC Evening, University of Delhi)
18. **Prof. Jitendra Shukla** (Head, Department of Geography, Ranchi University)
19. **Prof Punyatoya Patra (**Department of Geography, Aditi Mahavidyalaya, University of Delhi)
20. **Prof Bashabi Gupta** (Department of Geography, Miranda House, University of Delhi)
21. **Prof. Gaurav Kalotra**(Department of Geography, Punjab University, Chandigarh
22. **Prof Jagbir Singh** (Deptt. of Geography, Swami Shraddhanand College, University of Delhi)
23. **Prof. Anuradha Banerjee (CSRD, JNU)**
24. **Prof Vijay Kumar Baraik**(Department of Geography, IGNOU)
25. **Prof. Mary Tahir** (Department of Geography, Jamia Millia Islamia)
26. **Prof. A. R. Siddiqui** (Department of Geography, Jamia Millia Islamia)
27. **Prof. Sahab Fazal** (Department of Geography, AMU
28. **Dr. Rakesh Bhambri** (Scientist-C, Wadia Institute of Himalayan Geology,
29. Dehradun)
30. **Prof. Ritu Ahlawat** (Department of Geography, Miranda House, University of Delhi)
31. **Prof. Praveen Kumar Pathak** (CSRD, JNU)
32. **Prof. Anupama Hasija** (Department of Geography, SBSC Evening, University of Delhi)
33. **Prof. Preeti Sachar** (Department of Geography, Swami Shraddhanand College, University of Delhi)
34. **Dr. CherringTandup**(University of Jammu)
35. **Prof. Swati Rajput (**Department of Geography, SBSC, University of Delhi)
36. **Prof. M. L. Meena** (Head, Department of Geography, Central University of Haryana)
37. **Prof. Seema M Parihar** (Department of Geography, KMC, University of Delhi)
38. **Prof. Suresh Chand Rai** (Department of Geography, DSE, University of Delhi)
39. **Dr. Awani Kumar Singh** (Senior Scientist, Horticulture, PUSA)
40. **Dr. Rupesh Gupta** (Department of Continuing Education & Extension, University of Delhi)

Event Highlights

Inaugural Session, First Day, May 8, 2025

Chief Guest
Prof. Balaram Pani (Dean of Colleges, University of Delhi)

Chief Guests of Honour
Prof. Dhananjay Singh, Member Secretary, ICSSR

Guests of Honour

Prof. Vinod K. Sharma (Senior Professor, IIPA) - Guest of Honour
Prof. A. K. Bhagi (Dayal Singh College,DU & President, DUTA) - Guest of Honour
Prof. B. W. Pandey – Director, Centre for Himalayan Studies) - Guest of Honour
Prof. Manju Mukul Kamble (Chair Person, Kalindi College) - Guest of Honour
Prof. Ranjan Tripathi (Dean Students' Welfare, University of Delhi) - Guest of Honour
Prof. K. Ratnabali (Dean Academics, University of Delhi) - Guest of Honour
Prof. Meena Charanda (My Principal, Principal of Kalindi College) - Guest of Honour

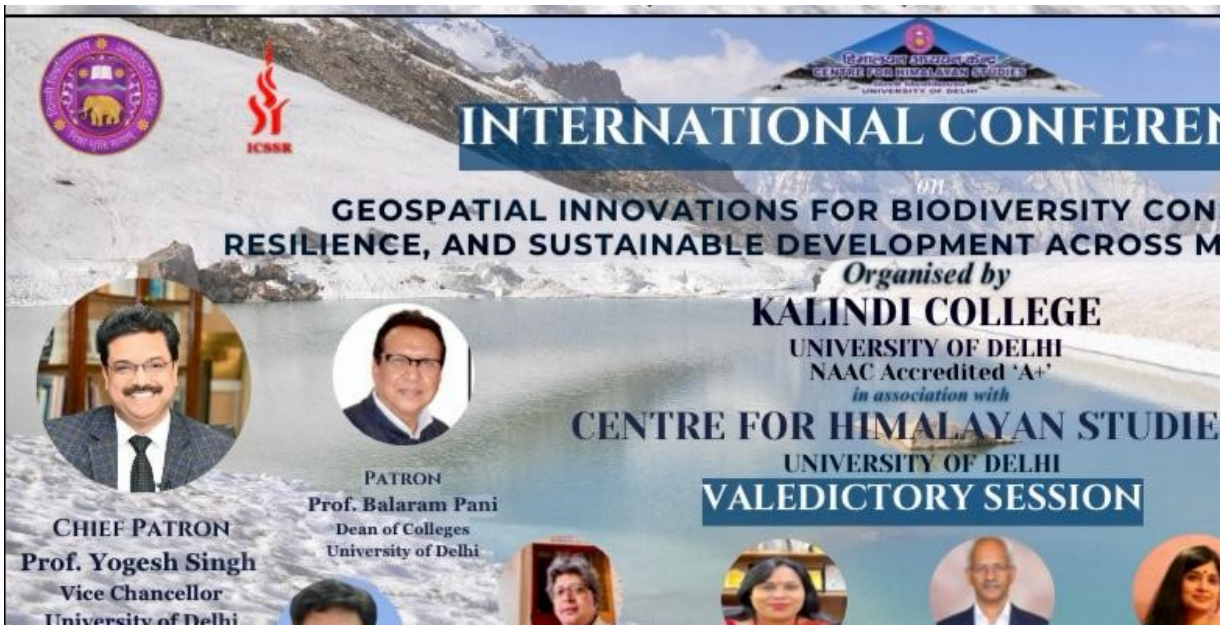
Plenary Session I, First Day, May 8, 2025

1. **Prof. Brij Maharaj (University of KwaZulu-Natal, South Africa)**
2. **Prof. Richard Johnson (University of Cumbria, United Kingdom)**
3. **Prof. Kaushal Kumar Sharma (Dean, CSRD, Jawaharlal Nehru University)**
4. **Prof. Poonam Kumria (Principal, Indraprastha College for Women, University of Delhi)**
5. **Prof. P. K. Joshi (School of Environmental Sciences, Jawaharlal Nehru University)**

Plenary Session II, Second Day, May 9, 2025

1. **Prof. Anuradha Banerjee (CSRD, JNU)**
2. **Prof. A. R. Siddiqui (Allahabad University)**
3. **Prof. Sahab Fazal (Aligarh Muslim University)**
4. **Prof. Mary Tahir (Jamia Millia Islamia)**
5. **Dr. Shubhi Mishra (Consultant, UNDP)**
6. **Prof. Vijay Kumar Baraik (Department of Geography, IGNOU)**

Valedictory Session, Second Day, May 9, 2025



Chief Guest

Prof. Balaram Pani (Dean of Colleges, University of Delhi)

Guests of Honour

1. **Prof. Sanjay Roy (Dean, Faculty of Social Science, University of Delhi)**
2. **Prof. Bindhy Wasini Pandey, Director, Centre for Himalayan Studies**
3. **Prof. V.K. Paliwal (Principal, Dyal Singh College, University of Delhi)**
4. **Prof. Bijayalaxmi Nanda (Principal, Miranda House, University of Delhi)**
5. **Prof. Rajiv Gupta (CEO, Institution of Eminence, University of Delhi)**

Cultural Enrichment

A soulful **cultural programme** was presented **by the students of Department of Geography, Kalindi College on Day 1 evening**, celebrating India's ecological traditions, music, and dance—reflecting the deep linkage between nature, heritage, and culture. Delegates from **diverse nations and institutions** witnessed a vibrant portrayal of **India's intangible cultural heritage**, celebrated for its depth, diversity, and sustainability:

Geo-Ecological Roots of Tradition

Performances highlighted how Indian cultural expressions are **rooted in geography, shaped by ecology**, and **transmitted across generations**, echoing the living traditions of forests, rivers, mountains, and communities.

Cultural Heritage as Sustainable Wisdom

The event revealed India's cultural heritage as a **model of sustainability and inclusivity**, reflecting **resilient and harmonious coexistence** with nature.

Extension of Conference Themes

Rather than mere entertainment, the program acted as an **aesthetic and philosophical extension** of the conference's core themes:

Poetic Geography of Identity

The performances served as **poetic maps of civilization**, reinforcing the idea that **culture is the soul of geography**—telling stories of adaptation, reverence, and survival.

The evening left an enduring message: *"The Earth does not belong to us; we belong to it—and our cultures are its most poetic maps."*

Voices and Visions:

A Vivid Session-by-Session Voyage

(International Conference Report)

Day 1: 8th April 2025

Inaugural Session

Time: 10:15 AM – 12:00 PM

Venue: Kanad Bhawan (Main Hall), University Enclave

University of Delhi

A Radiant Prelude to Honored Arrivals







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Prof. V.K Sharma
Prof. K. Ratnatan


INTERNATIONAL CONFERENCE
GEOSPATIAL INNOVATIONS FOR BIODIVERSITY CONSERVATION, CLIMATE RESILIENCE, AND SUSTAINABLE DEVELOPMENT ACROSS MULTI-DOMAIN ECOSYSTEMS
Organized by
KALIND COLLEGE
CENTRE FOR HIMALAYAN STUDIES
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A Gracious Inauguration and Heartfelt Welcome

The inaugural session commenced at 10:15 AM with the gracious arrival of our esteemed guests. At 10:17 AM, the formal proceedings began with the lighting of the ceremonial lamp, a timeless tradition that illuminates the path of knowledge. This sacred moment was beautifully accompanied by the melodious rendition of Ganesh Vandana, a heartfelt tribute that symbolized the dispelling of ignorance and the invocation of divine wisdom. It was a poignant reminder of India's rich cultural heritage, where every ritual embodies a profound connection to wisdom and enlightenment.

Gracious Welcome Address by Prof. Meena Charanda, Principal, Kalindi College

Prof. Meena Charanda, Principal of Kalindi College, extended a heartfelt welcome to all dignitaries, scholars, and delegates, igniting the spirit of academic excellence and meaningful dialogue. With her inspiring words, she set a vibrant tone for collaboration, innovation, and shared learning. Her address reflected a deep commitment to fostering global partnerships and advancing the frontiers of knowledge.

Introduction of the International Conference by the Convenor, Dr. Usha Kumari Pathak

Dr. Usha Kumari Pathak, Convenor of the International Conference and Teacher-in-Charge, Department of Geography, Kalindi College, delivered a magnetic introduction to the conference, emphasizing the pressing relevance of geospatial technologies for

ana responsibility, with ge collective pursuit of sus critical imperatives—adv strengthening climate res stewardship of multi-don delves into transformative disaster risk governance, and the empowering role knowledge systems. Cutt imagery, drone technolog

Patron's Address: Prof. Bindhy Wasini Pandey, Direxor, CHS, University of Delhi

As Patron of the conference and Director of the Centre for Himalayan Studies, **Prof. Bindhy Wasini Pandey** expressed his pride in being part of this significant event, highlighting how **geospatial intelligence** fosters **biodiversity conservation, climate resilience, and ecosystem stewardship**. As a geographer, he emphasized the role of **spatial analysis in understanding natural and human interactions**.

Prof. Pandey stressed that advancing **geospatial**

Inaugural Addresses and Keynote Highlights

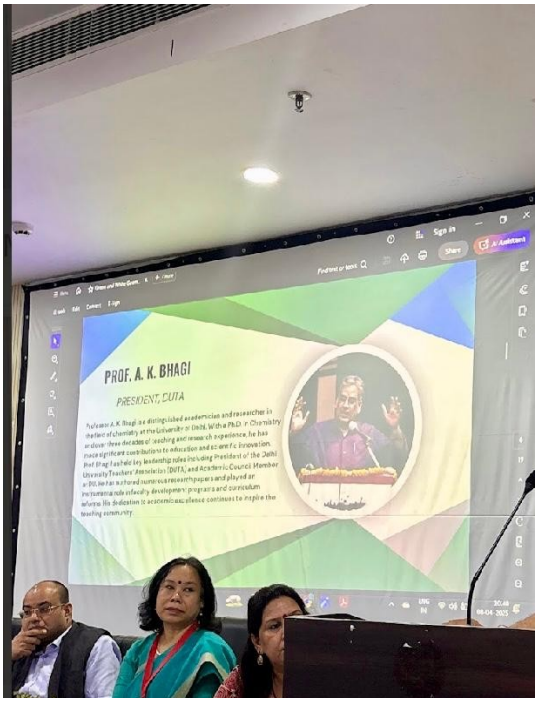
Illustrious Address by the Chief Guest, Prof. Balram Pani, Honorable Dean of Colleges, University of Delhi

***Prof. Balram Pani**, in his thought-provoking address, emphasized the transformative role of **geospatial technologies** in decoding the complexities of our changing environment. He delineated the distinction between **primary and secondary data sources**, drawing attention to the growing relevance of geospatial datasets in tracking critical phenomena such as **glacial melt**—a pressing indicator of climate change. Prof. Pani underscored that in contemporary geographical research, **data is the cornerstone** of credible analysis and informed decision-making. He also proudly highlighted the recent accolade awarded to the **Department of Geography, University of Delhi**, at **IIT Mumbai**, reinforcing the department's unwavering commitment to academic excellence and innovation in geospatial science.*

Guest of Honour: Address by Prof. Dhananjay Singh, Member Secretary, ICSSR

Prof. Dhananjay Singh, in his eloquent address, emphasized that conferences of this stature serve as vital platforms for advancing the 17 Sustainable Development Goals (SDGs). He highlighted how such academic initiatives not only enrich scholarly discourse but also act as catalysts in propelling the nation from developing to developed status. Prof. Singh underscored the critical role of meticulously organized conferences in fostering interdisciplinary collaboration, generating knowledge, and shaping policy innovation essential for sustainable growth. He extended heartfelt appreciation to ***Dr. Usha Kumari Pathak****, the convenor, for her visionary leadership in curating a conference that seamlessly integrated academic excellence with a deep commitment to ecological and developmental imperatives.*

Keynote Address by Professor of Chemistry, DSC, and DUTA President Prof. A.K. Bhagi



Prof. A.K. Bhagi, a distinguished academician, delivered a captivating lecture that elegantly wove together the threads of **science, time, and nature**. He began with the **Big Bang Theory**, tracing the origins of the universe 13.7 billion years ago, and explained how time and matter emerged from the most infinitesimal particles. Moving through cosmic chronology, he described the formation of the solar system, the early evolution of Earth, and the intricate emergence of life. Quoting insightfully, *"Unnatural is the thing that happens rapidly,"* Prof. Bhagi warned against the **unsustainable pace of anthropogenic change**, which risks ecological collapse and species extinction. He highlighted **photosynthesis and population dynamics** as the two cardinal biological processes shaping the biosphere. Stressing the importance of **ecosystem auditing, continuous monitoring, and robust data collection**, he underscored their role in understanding temporal environmental shifts and anticipating future scenarios. With compelling urgency, he concluded that *"every moment, every inch, every scruple counts"* in our pursuit of **climate resilience and biodiversity conservation**.

Guest of Honour: Dean, Academics, University of Delhi, Prof. K. Ratnabali's Address

Prof. K. Ratnabali *delivered a compelling address centered on the* ***interconnectedness of biotic and abiotic components*** *within Earth's systems and the critical need for curriculum development*

that keeps pace with scientific and technological advancements. Emphasizing the relevance of geospatial education, she discussed the importance of incorporating emerging disciplines such as ***data analytics, artificial intelligence, and quantum mechanics*** *into academic geography. She also highlighted the revivalist academic focus on the* ***Saraswati River****, symbolizing a blend of cultural heritage and scientific inquiry.*

Prof. Ratnabali elaborated on ***Postgraduate studies in Geography*** *under the* ***NEP 2020 framework****, outlining the structure and vision of the newly implemented* ***4-Year Undergraduate Programme with Research****, introduced in the academic year 2025–26. She stressed that* ***environmental protection must become a shared academic and societal responsibility****, reminding the audience that "there is no Plan B for Earth."*

Drawing from space research on Mars, she stated poignantly, "It is under excavation, but the truth is—no life exists there." She concluded with a resonant call to action: "We always assume someone else will save the planet. But unless we step forward, Earth cannot be saved."

Chairman of Kalindi College, Prof. Manju Mukul Kamble's Address

Prof. Kamble *opened her address with a compelling statement: "Niyati nahi hai, poorn vidhan hai"—underscoring that environmental degradation is not a matter of destiny, but the result of systemic shortcomings. She introduced the* ***Pancha Pillars of Climate Consciousness****, mapping them to the global commitments under* ***COP26****, and advocated for urgent action through:*

- *Achieving net-zero greenhouse gas emissions*
- *Reducing fossil fuel dependence by 50%*
- *Cutting overall carbon emissions by 45%*
- *Accelerating afforestation initiatives*
- *Implementing robust greenhouse gas mitigation strategies*

Her presentation served as a call to reimagine climate action through ***scientific planning, policy integration, and societal responsibility****, reinforcing the theme of the conference on* ***geospatial innovations and sustainability****.*

Dean, Students' Welfare, University of Delhi, Prof. Ranjan Kumar Tripathi's Address

Prof. Tripathi *delivered an inspiring address that bridged academic inquiry with the national vision of* ***"Viksit Bharat @2047."*** *He emphasized the value of every scholarly contribution, stating, "We may be contributing just a little, a mere portion—but we are contributing. And that is significant." Encouraging researchers to recognize the broader impact of their work, he urged participants to align their academic efforts with* ***India's long-term goals for sustainable and inclusive development****. Prof. Tripathi reinforced that each step in research—no matter how small—has the potential to shape transformative pathways for a* ***resilient and geospatially informed future****.*

Address by Prof. Vinod K. Sharma, Senior Professor, Indian Institute of Public Administration (IIPA)

Prof. Sharma *concluded the session with a poignant reflection on the Himalayas, describing them as "our eternal warrior." He remarked, "Without the Himalayas, India would not exist as we know it—it would have been reduced to a cold desert."*

Blending poetic insight with scientific urgency, his address invoked a renewed reverence for the Himalayas—not only as a climatic shield but as a cradle of biodiversity, culture, and sustainability. His words resonated deeply with the audience, reinforcing the conference's core message of ecological stewardship and geospatial foresight.

Address by Prof. Dinesh Khattar, Principal, Kirori Mal College, University of Delhi

Prof. Dinesh Khattar*, Principal of Kirori Mal College, delivered an inspiring address that encapsulated the vision of nurturing geographical wisdom, promoting pedagogical innovation, and contributing to national development. He emphasized the transformative potential of*

academic platforms like this conference in shaping informed, climate-conscious citizens and advancing India's sustainable future.

International Felicitations and Souvenir Release

The conference proudly honored and felicitated esteemed international delegates from Myanmar, Russia, Burundi, Mali, Costa Rica, Japan, Niger, and Cambodia. Special recognition was also extended to a delegate representing Arunachal Pradesh, celebrating India's rich internal diversity.

The release of the **Conference Souvenir** marked a significant milestone, encapsulating the scholarly contributions, key themes, and groundbreaking discussions of the gathering. The souvenir serves as a valuable record of the conference's commitment to advancing **geospatial innovations**, **biodiversity conservation**, and **sustainable development** across multi-domain ecosystems.

Vote of Thanks and Conclusion

The inaugural session concluded with a sincere **Vote of Thanks** delivered by Prof. V. S. Negi, SBSC (Evening), University of Delhi. He expressed profound gratitude to the esteemed dignitaries, distinguished delegates, dedicated organizing teams, and engaged participants, whose collective efforts contributed to the resounding success of the opening day. Prof. Negi acknowledged the invaluable contributions of all involved in making the event a milestone in advancing the **geospatial innovations**, **biodiversity conservation**, and **sustainable development** discourse.

PLENARY SESSION I

Theme: Geospatial Innovations for Biodiversity Conservation
Time: 12:00 PM – 2:00 PM
Venue: Kanad Bhawan (Main Hall)

Chair: Prof. Vinod K. Sharma (Senior Professor, Disaster Management & Consultant, Indian Institute of Public Administration)
Session Coordinator: Prof. Seema Sahdev (Kalindi College, University of Delhi)
Rapporteur: Dr. Aakash Upadhyay (Department of Geography, IPCW, University of Delhi)

National-International Speakers:

6. **Prof. Brij Maharaj** (University of KwaZulu-Natal, South Africa)
7. **Prof. Richard Johnson** (University of Cumbria, United Kingdom)
8. **Prof. Kaushal Kumar Sharma** (Dean, CSRD, Jawaharlal Nehru University)
9. **Prof. Poonam Kumria** (Principal, Indraprastha College for Women, University of Delhi)
10. **Prof. P. K. Joshi** (School of Environmental Sciences, Jawaharlal Nehru University)

Plenary Session I commenced amidst an atmosphere brimming with academic fervor, as the conference hall, filled to its capacity, resonated with a warm welcome and an exhilarating downpour of knowledge and ideas.



Presentation by Prof. Richard Johnson:

*The first speaker, **Professor Richard Johnson** from the United Kingdom, graced the session virtually, bridging the geographic distance with the power of knowledge. In a masterfully delivered presentation, he illuminated the vital role of geospatial technologies in disaster monitoring and environmental stewardship. Through compelling case studies from the UK, he captured the dynamic interplay between environmental stressors — landslides, floods — and the evolving landscapes they sculpt. Demonstrating the precision of tools such as LiDAR, satellite imagery, and GIS modeling, Professor Johnson showcased how geomorphological processes can be quantified, disasters managed proactively, and degraded ecosystems restored. His comparative analysis of a disaster-impacted region in Himachal Pradesh, India, over five years, underscored the urgent need for real-time monitoring and interdisciplinary collaboration. In a stirring conclusion, he championed the integration of geospatial intelligence into environmental and disaster sciences and passionately called upon the next generation of scholars to master these transformative technologies for a resilient and sustainable future.*

Presentation by Prof. Kaushal Kumar Sharma, Dean, CSRD, Jawaharlal Nehru University:

Professor Kumar Sharma reflected on the significance of multidisciplinary research in addressing complex environmental challenges. He stressed the integration of geography with natural sciences, particularly in biodiversity conservation, disaster risk reduction, and sustainable development. Professor Sharma introduced the notion of "human-controlled factors," where conservation and sustainability are shaped by human decision-making and societal collaboration. He drew attention to alarming statistics — a 69% biodiversity loss over the past 50 years and 47% of productive land turning barren due to desertification — urging deeper analysis and action through collaborative frameworks that blend scientific, technological, and geographic perspectives. He highlighted the need for inclusive (samaveshi) development, climate resilience, and ecological restoration as pillars for future planning.

Presentation by Prof. Brij Maharaj, University of KwaZulu-Natal, South Africa:

Prof. Brij Maharaj delivered a compelling presentation, perfectly aligning with the session's core theme — Geospatial Innovations for Biodiversity Conservation*. Using vivid case studies from India and South Africa, he drew insightful comparisons to showcase how geospatial tools can bridge gaps in conservation strategies. Prof. Maharaj emphasized that both nations, by leveraging technology and collaborative frameworks, can chart a course toward risk-free, resilient sustainability, blending innovation with indigenous wisdom.*

Presentation by Prof. P. K. Joshi, School of Environmental Sciences, Jawaharlal Nehru University:

Prof. P.K. Joshi, in his thought-provoking presentation, delivered a meticulously researched paper that holds significant promise for advancing global sustainability, with particular relevance to India's environmental landscape. Drawing upon empirical data, cutting-edge geospatial analyses, and ecological modelling, Prof. Joshi outlined actionable frameworks aimed at fostering ecosystem resilience, biodiversity preservation, and climate-adaptive strategies. His work underscored the critical nexus between scientific innovation and ground-level policy implementation, offering pathways to harmonize development with environmental stewardship. The presentation resonated as a clarion call to academia, policymakers, and practitioners alike — emphasizing that scientific research, when strategically applied, can become a transformative force in safeguarding the Earth's ecological balance for future generations.

Presentation by Prof. Poonam Kumria, Principal, Indraprastha College for Women, University of Delhi:

Prof. Poonam Kumria delivered a research-driven presentation on Geospatial Innovations for Biodiversity Conservation, thoughtfully linking the ecological significance of the Himalayas to India's broader environmental future. She provided critical insights into the interconnectedness of these fragile ecosystems and underscored our collective responsibility in preserving them for sustainable development.

A special welcome was accorded to Dr. Somveer, Minister from Bali, Indonesia, an illustrious alumnus of Hansraj College with a Ph.D. and notable contributions in governance, telecommunications, and law. His presence added a distinguished international dimension to the session, reinforcing the global relevance of the themes discussed. In his remarks, Dr. Somveer eloquently stated, "Indian culture, with its ancient sustainable strategies and timeless practices, has safeguarded the environment across the Yugas, offering enduring lessons for the modern world."

Technical Session – 1A

Theme: *Geospatial Indicators for Biodiversity Conservation Strategies*
Time: 3:00 PM – 5:45 PM, **Venue:** Kanad Bhawan (Main Hall)

Session Leadership:

Keynote Speaker: Prof. Mehtab Singh (Head, Department of Geography, MDU)
Chair: Prof. Vaneeta Chandna (SBSC Evening, University of Delhi)
Co-Chair: Dr. Chandrakanta (NEHU)
Session Coordinator: Dr. Neetu Malik (IPCW, University of Delhi)
Rapporteur: Dr. Himanshu Mishra (SBSC Evening, University of Delhi)

The session began with an introduction to the distinguished panel by Dr. Neetu Mallik. Prof. Mehtab Singh delivered an insightful keynote address, tracing the evolution of geography from its ancient origins to its contemporary advancements. He underscored the critical relationship between human welfare and environmental sustainability in geographical research. Drawing from historical milestones such as the Pushpak Viman and contributions from scholars like Aristotle, Anaximander, and Abul Fazal, Prof. Singh highlighted the foundational role of geographical knowledge in shaping human civilization. He further explored the significance of longitude, latitude, and the history of navigation, linking these to modern geospatial technologies, including metro route mapping as a practical example of their transformative impact.

Following the keynote address, participants presented their research:

I. **Divya**: *Spatio-temporal Trends in Vegetation Greenness across the Garhwal Himalayas Using Google Earth Engine*
II. **Sushant Sharma, Pritam Chand**: *Comparative Analysis of Point Cloud and 3D Mesh Techniques for Generating Digital Elevation Models Using UAV-Based Photogrammetry*
III. **Vaibhav Verma**: *Geospatial Indicators for Biodiversity Conservation Strategies*
IV. **Bashabi Gupta, Ankita Medhi, Milu Maria Jose, Somdutta Sinha Roy et al.**: *Climate Change Dynamics in Manas National Park: Monitoring Land Use and Land Cover Changes Using a Geospatial Approach*
V. **Aman Rai, Dr. Prabuddh Kumar Mishra**: *Forest Cover Change and Sustainable Forest Management in East Sikkim, Himalayas*

VI. **Swati Mishra, Prof. Bindhy Wasini Pandey**: *Temporal, Spatial, and Delayed Dynamics of a Predator-Prey Interaction Model Incorporating the Impact of Fear of Predators*

Prof. Haroon Sajjad posed insightful questions, sparking thought-provoking discussions. Dr. Neetu Mallik concluded the session by announcing the Best Paper Presentation Award, which was presented to **Sushant Sharma** for his exceptional contribution.

Technical Session – 1B

Theme: *Ecological Sustainability and Livelihood Adaptations in the Himalayan Region*
Time: 3:00 PM – 4:30 PM, **Venue:** Seminar Hall, Chemistry Department

Session Leadership:

Keynote Speaker: Prof. Mary Tahir (Department of Geography, Jamia Millia Islamia)
Chair: Prof. Poonam Sharma (Department of Geography, Shaheed Bhagat Singh College, University of Delhi)
Co-Chair: Dr. Tulika Sanadhya (Department of Geography, Dr. Bhim Rao Ambedkar College, University of Delhi)
Session Coordinator: Dr. Vijendra Pandey (Department of Geography, Kirori Mal College, University of Delhi)
Rapporteur: Dr. Anita Singh (Department of Botany, ARSD College, University of Delhi)


The session commenced with a contextual introduction by the Session Coordinator, Dr. Vijendra Pandey, who highlighted the significance of ecological sustainability and livelihood adaptations in the fragile Himalayan ecosystems. He then felicitated the distinguished dignitaries: Prof. Mary Tahir, Prof. Poonam Sharma, Dr. Tulika Sanadhya, and Dr. Anita Singh.

Keynote Address:

Prof. Mary Tahir delivered the keynote lecture titled *"Integrating Indigenous Knowledge and Ecology: Alder Tree Management for Sustainable Livelihoods in the Eastern Himalayan Region."*
She emphasized that the states of Nagaland, Manipur, Meghalaya, and Mizoram are rich in traditional agroforestry systems centered on *Alnus nepalensis* (Alder tree), often integrated with shifting cultivation (Jhum). This system, she noted, contributes significantly to soil enrichment, reduces the fallow period, enhances water retention, mitigates erosion on steep terrain, and supports biodiversity.

Prof. Tahir provided insights into the **gender dimensions** of Alder-based agroforestry, highlighting the active participation of women in planting, pruning, and managing the trees. Women also derive economic benefits through fuelwood collection, fodder supply, and handicraft-based income generation. She underscored the importance of youth involvement in sustaining traditional agroforestry systems through eco-tourism, forest-based entrepreneurship, and local curriculum integration. Additionally, she referenced policy-level support from institutions such as **NAFED** (National Agricultural Cooperative Marketing Federation of India Ltd.) and **ICIMOD** (International Centre for Integrated Mountain Development), both of which have encouraged agroforestry and indigenous knowledge integration.

Participant presentations included:

I. **Ram Manohar, Prof. BindhyWasini Pandey:** *Traditional Ecological Knowledge for Sustainable Agriculture in Lahaul Valley*
II. **Sourabh Yadav, Aparna Vincent:** *Politics of Knowledge in Climate Governance*
III. **Dewansh Kumar, Vishal Kumar Agrawal, SubhakantaMohapatra :** *Antecedents and Consequences of Ghost Villages in Uttarakhand*
IV. **Hemlata, Gaurav, Shreya Aneja and Jyoti:** *Forest Fire Crises in Srinagar Valley*
V. **Piyush Ojha, Alok Tiwari, Kavita Arora :** *Decent Work and Employment in Garhwal Himalayas*
VI. **Abhay Kumar Singh, Prof. Bindhy Wasini Pandey, Honiya Dakpe:** *Impacts of Urban Growth and Tourism in Western Himalayas*

VII. **Pawan Kumar, Preeti Sachar:** *Planning for Agricultural Development in Sikkim Himalaya*
VIII. **Mishra Mayank Vijay:** Sustainable Farming and Water Management in the Himalayas: Integrating Tradition with Modern Practices
IX. **Dr. Mamta Arora and Ms. Mansha Verma:** Smoke in the Sacred Woods: The Impact of Uttarakhand ™s Increasing Forest Fires
X. **Dr. Jai Pratap Singh:** Traditional Ecological Knowledge and Water Management: A Sociological Perspective on Sustainability
XI. **Shreya Aneja**: Forest Fire Crises in Srinagar Valley Of Uttarakhand: Causes, Impacts and Mitigation Strategies

Technical Session – 1C

Theme: Cryosphere–Atmosphere Interactions: Implications for Global Climate Systems
Time: 3:00 PM – 5:15 PM, **Venue:** Room 503, Kanad Bhawan

Session Leadership:

Keynote Speaker: Prof. Subhakanta Mohapatra (Department of Geography, IGNOU)
Chair: Dr. Jairam Singh Yadav (Scientist-C, Wadia Institute of Himalayan Geology, Department of Science and Technology, Government of India)
Co-Chair: Dr. Amrita Bajaj (Department of Geography, Shaheed Bhagat Singh College, University of Delhi)
Session Coordinator: Dr. Gaurav Gauri (Department of Geography, Indraprastha College for Women, University of Delhi)
Rapporteur: Dr. Om Jee Ranjan (Department of Geography, Miranda House, University of Delhi)

The session commenced with a warm welcome and felicitation of the panel members—Prof. Subhakanta Mohapatra (Keynote Speaker), Dr. Jairam Singh Yadav (Chair), Dr. Amrita Bajaj (Co-Chair), and Dr. Om Jee Ranjan (Rapporteur)—by the Session Coordinator, Dr. Gaurav Gauri.

The keynote address by Prof. Subhakanta Mohapatra focused on the theme **"Cryosphere–Atmosphere Interactions: Implications for Global Climate Systems."** He delivered a compelling and informative presentation highlighting the interconnectedness of glacial dynamics and global climate regulation. Emphasizing the ecological and socio-economic consequences of glacial melt, Prof. Mohapatra underscored the crucial role of the cryosphere in freshwater storage, noting that glaciers hold approximately 70% of the world's freshwater. Despite this, only about 10% of the Earth's surface is currently covered by glaciers or ice sheets, a figure rapidly declining due to climate change.

He further presented data illustrating the extent of Himalayan cryospheric regions, which cover approximately 33,050 km² and provide 8.6 million m³ of freshwater annually. He discussed implications such as Arctic amplification and diminishing snow cover in the Himalayas, and informed the audience that the year 2025 has been declared the **UN International Year of Glacier Preservation (IYGP)**—a timely global recognition of glacial fragility.

Paper Presentations by Participants:

- **Ambrish, Prof. BindhyWasini Pandey, Prof. V. S. Negi:**
  Dynamics of Land Use/Land Cover Change in Nubra Valley, Ladakh, India
  This study analyzed the evolving patterns of land use and land cover in the Nubra Valley, examining how such changes impact local ecology and human settlements in a high-altitude cryospheric environment.
- **Rajeev K. Ranjan:**
  Spatio-Temporal Dynamics of Land Use and Land Cover Changes and Their Impacts on Environmental and Socio-Economic Resilience in the Leh District of the Ladakh Region
  The presenter provided a detailed geospatial assessment of LU/LC changes in Leh,

linking these changes to environmental vulnerabilities and socio-economic adaptability among the local communities.

- **Naina Singh, Dr. Om Jee Ranjan:**
  Spatio-Temporal Analysis of Glacier Retreat and Advance: A Case Study of the Bara Shigri Glacier, Himachal Pradesh
  This paper presented longitudinal satellite-based data to evaluate the retreat dynamics of the Bara Shigri Glacier, correlating cryospheric changes with regional climate variations.
- **Amulya Saxena:**
  Mapping Resilience: Geospatial Policies for Climate Adaptation
  The presentation focused on integrating geospatial technologies into climate resilience frameworks, offering policy recommendations for adaptive governance in fragile cryospheric zones.

The session concluded with reflections by the Chair and Co-Chair, who appreciated the scholarly contributions and emphasized the urgency of interdisciplinary research in understanding cryosphere-climate interactions. The session was well-attended, with active engagement from participants, researchers, and students.

Technical Session – 1D

Theme: *Advanced Remote Sensing in Climate Vulnerability Assessments*
Time: 3:00 PM – 5:15 PM, **Venue:** Room 504, Kanad Bhawan

Session Leadership:

Keynote Speaker: Dr. Netrananda Sahu (Department of Geography, Delhi School of Economics, University of Delhi)
Chair: Prof. Vishwaraj Sharma (Department of Geography, Shaheed Bhagat Singh College, University of Delhi)
Co-Chair: Dr. Karuna Shree (Kirori Mal College, University of Delhi)
Session Coordinator: Dr. Suman Das (Department of Geography, Kirori Mal College, University of Delhi)
Rapporteur: Dr. Gourav Nain (Department of Geography, Shaheed Bhagat Singh College, University of Delhi)

The session commenced promptly in Room 504, Kanad Bhawan, with a focus on the application of *advanced remote sensing techniques in assessing climate vulnerability*. The panel comprised distinguished geographers and scientists, chaired by Prof. Vishwaraj Sharma and co-chaired by Dr. Krishna Kumar. The session was coordinated by Dr. Suman Das and documented by Dr. Gourav Nain.

The keynote lecture was delivered by **Dr. Netrananda Sahu**, who presented on the topic **"Spatio-temporal Onset Characteristics of the Indian Summer Monsoon Rainfall (ISMR) and Climate Variability."** Dr. Sahu's address explored the temporal variability and spatial distribution of the ISMR, shedding light on critical indicators influencing its onset and progression. He emphasized the need to integrate remote sensing tools with climate datasets to better understand long-term variability and to forecast vulnerabilities in agricultural and water resource systems.

Paper Presentations by Participants:

- **Tanvi, Dr. Akhilesh Kumar Mishra:**
  Evaluating the Impact of Climate Change Due to Urbanization Using Geospatial Technologies in the Ziro Valley, Arunachal Pradesh
  This study employed satellite data and geospatial analysis to assess how rapid urbanization is contributing to local climate anomalies and ecological disturbances in the ecologically sensitive Ziro Valley.
- **Sakshi, Dr. Ashwani Kumar Agnihotri:**
  Longitudinal and Temporal Thermal Patterns of the Yamuna River Using Google Earth Engine
  The presenters showcased an innovative use of Google Earth Engine to map and analyze thermal variations along the Yamuna River corridor, correlating surface temperature changes with urban expansion and industrial activities.
- **Brijesh Kumar Mishra, Ritesh Kumar, Dr. Aruna Paarcha:**
  Spatio-Temporal Analysis of Land Use and Land Cover Changes from 1999 to 2021: A Case Study of Bengaluru
  This paper presented a two-decade LULC analysis of Bengaluru, highlighting the transition from peri-urban landscapes to high-density urban zones, and discussed implications for heat stress, hydrological imbalances, and climate vulnerability.

The session concluded with remarks from the Chair and Co-Chair, who commended the quality of the research presented and emphasized the relevance of advanced geospatial tools in assessing, mitigating, and planning for climate vulnerability. The session drew strong interest from students, researchers, and faculty, sparking interdisciplinary discussions on methodological innovations in remote sensing.

Technical Session – 2A

Theme: *Geo-analytics for Ecosystem-Based Disaster Risk Reduction (EcoDRR)*
Time: 5:45 PM – 7:00 PM, **Venue:** Main Hall, Kanad Bhawan

Session Leadership:

Keynote Speaker: Prof. Haroon Sajjad (Department of Geography, Jamia Millia Islamia)
Chair: Prof. S. K. Bandooni (Department of Geography, Shaheed Bhagat Singh College (Evening), University of Delhi)
Co-Chair: Dr. Vishal Warpa (Department of Geography, IGNOU)
Session Coordinator: Dr. Vijay Pandey (Department of Geography, Indraprastha College for Women, University of Delhi)
Rapporteur: Dr. Ashwani Kumar Agnihotri (Department of Geography, Shaheed Bhagat Singh College, University of Delhi)

The Technical Session 2A, centered on *Geo-analytics for Ecosystem-Based Disaster Risk Reduction (EcoDRR)*, was held in the Main Hall of Kanad Bhawan. The session began with a warm welcome extended by **Dr. Vijay Pandey**, who introduced the esteemed panel and set the context for the theme.

The keynote address was delivered by **Prof. Haroon Sajjad**, who presented an engaging and thought-provoking talk on the pressing challenges of climate change and its interconnectedness with ecosystem resilience. His address focused on EcoDRR principles, emphasizing the importance of ecosystem-based approaches in mitigating disaster risks. He also discussed strategies such as crop diversification and selection of climate-resilient crops, with particular reference to the **Sundarban Delta System**. The presentation was marked by an engaging narrative and interactive delivery style. Prof. Sajjad concluded his talk with the powerful reminder: *"We can't stop disasters, but we can certainly mitigate their impact."*

Prof. S. K. Bandooni offered concluding reflections on the keynote, highlighting its relevance to current climate adaptation challenges, and invited the paper presenters to commence their contributions.

Paper Presentations by Participants:

I. **Dr. Shweta Rani, Guddu Kumar:**
Spatial Analysis and Floodplain Zoning for Sustainable Flood Risk Management in Tirhut Division, Bihar
This study employed spatial modeling techniques to assess flood-prone zones and propose zoning frameworks for sustainable risk reduction.

II. **Anubhav Mamodiya, Ashish Mani, Abhijeet Kumar, Sonu Gurjar, Dr. Abhay Shankar Prasad:**
Vulnerability and Adaptation Assessment for Analyzing Flood Susceptibility in the Kosi River Basin, Bihar, India
The paper presented a comprehensive vulnerability analysis using socio-economic indicators and hydrological modeling to identify adaptation needs.

III. **Madhuri Meena, Prof. Seema Sahdev:**
Assessment of Landslide Susceptibility in the Himalayan Region: A Case Study of the Rishikesh–Yamunotri Corridor

This research focused on landslide-prone zones using remote sensing and GIS techniques, proposing mitigation strategies for a key pilgrimage route.

IV. **Rayees Ali, Haroon Sajjad, Tamal Kanti Saha:**
Assessment of Flood Susceptibility Using Remote Sensing Data and Machine Learning Models in the Upper Jhelum Sub-catchment, India
A robust integration of machine learning with remote sensing was demonstrated to delineate flood-susceptible areas with high accuracy.

V. **Pooja Chauhan, Mamata Ngangom:**
Assessment of Vegetation Drought Vulnerability in the Luni River Basin, Rajasthan Using GIS and Google Earth Engine
This study highlighted the potential of GEE in real-time drought monitoring, emphasizing eco-restoration in semi-arid regions.

VI. **Nikita Vijay, M. R. Resmi, Gaurav Chauhan:**
Long-Term Surface Water Variability in the Banni Grasslands of Kachchh, India: A Remote Sensing Perspective
The presentation underscored the dynamics of ephemeral water bodies and their ecological significance in arid ecosystems.

Special Recognition:

The session concluded with the **Best Paper Presentation Award** conferred to **Rayees Ali** for his paper *"Assessment of Flood Susceptibility Using Remote Sensing Data and Machine Learning Models in the Upper Jhelum Sub-catchment, India."*

A formal **vote of thanks** was extended by **Dr. Vijay Pandey**, followed by a motivational *shayari* (poetic couplet) delivered by **Prof. Haroon Sajjad**, leaving the audience inspired and intellectually enriched.

Technical Session – 2B

Theme: *Geospatial Insights into Sustainable Land Use Planning*
Time: 4:45 PM – 6:15 PM, **Venue**: Seminar Hall, Department of Chemistry

Session Leadership:

Keynote Speaker: Prof. Jitendra Shukla (Department of Geography, Ranchi University)
Chairs: Prof. Punyatoya Patra (Department of Geography, Aditi Mahavidyalaya, University of Delhi) and Dr. Usha K. Pathak (Department of Geography, Kalindi College, University of Delhi)
Co-Chair: Dr. R. K. Abhay (Department of Geography, Dyal Singh College, University of Delhi)
Session Coordinator: Dr. Avijit Mahala (Department of Geography, Swami Shraddhanand College, University of Delhi)
Rapporteur: Dr. Rajan Maurya (Department of Geography, Indraprastha College for Women, University of Delhi)



The session commenced with a formal welcome and felicitation ceremony for the dignitaries on the dais. Dr. Avijit Mahala extended a warm welcome to all panelists and participants and initiated the proceedings of the session.


The keynote address was delivered by **Prof. Jitendra Shukla**, who presented a scholarly discourse on the theme *Geospatial Insights into Sustainable Land Use Planning*. He emphasized the urgency of adopting sustainable development frameworks, particularly through the integration of Artificial Intelligence (AI) and Machine Learning (ML) with geospatial technologies. Highlighting case studies such as land-use changes in Jalpaiguri (2000–2020), he demonstrated the transformative impact of geo-analytics in planning. He further discussed the role of community-centric models like Participatory GIS (PGIS) and underscored biodiversity conservation anhd climate resilience through examples such as the mapping of Pathari Rao Elepant-Tiger corridors and Brazil's AI-driven afforestation strategies. He concluded his address by referencing future innovations such as the upcoming NASA–ISRO Synthetic Aperture Radar (NISAR) mission, which aims to enhance our understanding of Earth's dynamic processes.

Prof. Punyatoya Patra addressed: Geospatial technologies have emerged as indispensable tools in ensuring spatial justice and optimizing land use strategies. By integrating scientific precision with policy frameworks, they facilitate evidence-based planning and sustainable development, especially in ecologically fragile and densely populated regions.

Dr. Usha K. Pathak motivated the paper presenters and presented her remarkable view that sustainable land use planning necessitates a nuanced understanding of human-environment interactions, and geospatial insights empower us to visualize, model, and mitigate complex land-

related challenges. As we navigate the path toward resilience and equity, these technologies serve as a bridge between research and real-world impact.

Following several insightful paper presentations were delivered by researchers and scholars:

I. **Sant Prasad and Prof. BindhyWasini Pandey**: *Analysis of Diurnal Surface Temperature Variations for the Assessment of Surface Urban Heat Island Effect: A Case Study of Varanasi City, India*
— A detailed study on SUHI effects using satellite-derived LST data and temporal patterns.

II. **Ritu Singh, Prof. Suresh Chand Rai, and Dr. Prabuddh Kumar Mishra**: *Identification of Groundwater Potential Zones Using Geospatial Approach in Hindon River Basin, Uttar Pradesh*
— Highlighted groundwater mapping using integrated GIS and remote sensing techniques.

III. **Shivani Yadav, Shikha Yadav, Rashmi Singh**: *Assessing the Feasibility and Socio-Environmental Benefits of Rooftop Farming in the West District of Delhi*
— An urban sustainability initiative, evaluating green rooftop farming in a metropolitan setting.

IV. **Sheetal Sharma**: *Evaluating Urban Expansion in Kasol Valley, Himachal Pradesh, India*
— Focused on the changing urban morphology and its environmental implications in a sensitive ecological zone.

V. **Arvind Kumar and Prof. BindhyWasini Pandey**: *Land Use and Land Cover Change Detection in Pauri Garhwal District, Uttarakhand Using Remote Sensing and GIS*
— Analyzed spatial-temporal shifts in LULC and their impact on the Himalayan ecosystem.

VI. **Mahjabeen, Nisa Suhanee, and Dr. Aruna Paarcha**: *Urbanization and Its Impact on LULC and LST: A Case Study of Bengaluru*
— Explored rapid urban growth and corresponding changes in land use and land surface temperature.

VII. **Saransh and BindhyWasini Pandey**: *Land Use Land Cover Change and Its Impacts on Livelihood Security and Sustainability in the Upper Beas Basin, Himachal Pradesh, India*
— Focused on the intersection of environmental change and socio-economic sustainability in a mountain river basin.

The session concluded with appreciative remarks by the Chair and Co-Chairs, who commended the depth and diversity of the presentations. The technical session successfully highlighted the pivotal role of geospatial science in shaping land use planning frameworks for a sustainable future.

Technical Session – 2C

Theme: *Spatial Dynamics of Carbon Sequestration and Emission Mitigation*
Time: 4:30 PM – 6:30 PM, **Venue:** Room 503, Kanad Bhawan

Session Leadership:

Chair: Prof. Bashabi Gupta (Department of Geography, Miranda House, University of Delhi)
Co-Chair: Dr. Prabuddh K. Mishra (Department of Geography, Shivaji College, University of Delhi)
Session Coordinator: Dr. Arti Sharma (Department of Geography, Miranda House, University of Delhi)
Rapporteur: Dr. Roshni Beri (Department of Geography, Indraprastha College for Women, University of Delhi)

Session Overview:

Technical Session 2C, held in Room 503 of Kanad Bhawan, centered on the pressing theme *"Spatial Dynamics of Carbon Sequestration and Emission Mitigation."* The session began with a keynote address by **Prof. Bashabi Gupta**, who delivered a comprehensive and insightful presentation. Her discourse highlighted the role of spatial analysis in understanding carbon fluxes and emphasized the integration of geospatial technologies in monitoring, managing, and mitigating carbon emissions. She underscored the importance of regional carbon budgeting, forest-based sequestration strategies, and urban emission mapping in the context of global climate change mitigation frameworks.

Presentation by Participant:

I. **Prastha Rajoria**: *The New dimension in Tourism Ashwnin, Punkej Kurmar Assessing the spatial-temporal changes in LULC and the impact of LST on Lahual and Spiti Himachal Himalaya.*
II. Monika Vij, Pratibha Tomar and Saloni Bahri: *Heat Wave Adaptation Strategies in Urban Living: A Case Study of Delhi, India*
III. Sourav Bhadwal: *Application of Machine and Deep learning-based game theory for evaluating the impact of green infrastructure on air quality in NCT Delhi, India*

Session Conclusion:

The session concluded with a formal vote of thanks by **Prof. Bashabi Gupta**, followed by closing observations from **Dr. Prabuddh K. Mishra**, who commended the relevance of the presentations and emphasized the need for continued research at the intersection of spatial sciences and climate action.

Technical Session – 2D

Theme: *Indigenous Knowledge and Spatial Mapping for Climate Resilience*
Time: 4:30 PM – 5:30 PM, **Venue:** Room 504, Kanad Bhawan

Session Leadership:

Keynote Speaker: Prof. Gaurav Kalotra (Department of Geography, Panjab University, Chandigarh)
Chair: Prof. Jagbir Singh (Department of Geography, Swami Shraddhanand College, University of Delhi)
Co-Chair: Dr. Karuna Shree (Department of Geography, Kirori Mal College, University of Delhi)
Session Coordinator: Dr. Prastha Rajoria (Department of Geography, Aditi Mahavidyalaya, University of Delhi)
Rapporteur: Dr. Shikha Yadav (Department of Geography, Miranda House, University of Delhi)

The session featured a rich blend of academic scholarship, field-based insights, and interdisciplinary approaches highlighting the integration of traditional knowledge systems into modern climate resilience frameworks.

The keynote address was delivered by **Prof. Gaurav Kalotra** (Panjab University, Chandigarh), who provided a compelling discourse on the imperative role of indigenous knowledge systems in shaping sustainable environmental strategies. He emphasized the significance of spatial mapping and GIS technologies in documenting and preserving indigenous practices to tackle climate vulnerabilities across varied geographies.

Presentations Overview:

I. **Honiya Dakpe and Prof. Bindhy Wasini Pandey** presented on *"Indigenous Traditional Knowledge and Sustainable Agricultural Practices: A Study of the Tagin Tribe in Upper Subansiri District, Arunachal Pradesh,"* highlighting the community's resilience through centuries-old agricultural traditions and localized knowledge systems.

II. **Bindu Murmu and Dr. Jitendra Shukla** shared a conceptual review on *"Climate Resilience through Indigenous Knowledge: Spatial Mapping Practices and Their Applicability to Santhal Pargana Division, Jharkhand,"* focusing on GIS-based documentation of tribal environmental strategies.

III. **Shubham Bishnoi and Nirmala Singh** presented *"Sacred Landscapes and Sustainable Futures,"* discussing the alignment of indigenous environmental stewardship with Sustainable Development Goals (SDGs), using case studies from tribal regions.

IV. **Kirti Rai, Abhay Shankar Prasad, and Prof. Bindhy Wasini Pandey** elaborated on *"From Past to Future: Integrating Traditional Water Management in Smart Climate-Resilient Cities Using Geospatial Data,"* underlining the fusion of ancestral water practices with urban planning.

V. **Cheetar Mal Meena** offered a comparative analysis titled *"Traditional Water Management and Drought Mitigation in Afghanistan: An Overview,"* examining indigenous adaptation mechanisms in arid environments.

VI. **Shreyasi Biswas, Ritika Kajla, and Om Jee Ranjan** presented *"Traditions vs. Transformation: Survival Battle of Nature, Culture and Future at the Sundarbans Delta, West Bengal,"* exploring the socio-cultural and ecological implications of developmental interventions in fragile deltaic ecosystems.

VII. **Wangshirenla Aier and Om Jee Ranjan** delivered an insightful presentation titled *"Evolving Landscapes: A Socio-Temporal Analysis of Kisama Heritage Village through the Lens of the Hornbill Festival,"* discussing the interface of heritage conservation, community identity, and environmental sustainability.

VIII. Rajeev K Ranjan: *Spatio-temporal Dynamics of Land Use and Land Cover Changes and Their Impacts on Environmental and Socio-Economic Resilience in the Leh District of the Ladakh Region*

The session concluded with valuable reflections from the Chair and Co-Chair, who emphasized the urgent need to incorporate traditional wisdom into contemporary climate policy and urban planning. The session fostered a vibrant exchange of ideas and highlighted indigenous communities as pivotal actors in shaping resilient, sustainable futures.

Cultural Session Report

Date: Day 1 | **Time:** 7:00 PM – 8:25 PM
Venue: Kanad Bhawan (Main Hall)

As twilight descended upon the University Enclave, **Kanad Bhawan transformed into a sanctum of sound and story**, echoing the footsteps of tradition and the whispers of centuries-old artistic expressions. The cultural evening unfolded like a vibrant tapestry—woven with **classical elegance, poetic fire, and folk vibrance**, showcasing the symbiotic harmony between geography, tradition, and cultural sustainability.

Opening Act: Classical Grace and Devotion

7:20 PM – Bharatanatyam (Invocation Performance)

The curtains rose to the evocative rhythm of *nattuvangam* as a solo Bharatanatyam dancer took center stage. Her every gesture—anchored in *bhava, raga, and tala*—brought to life the devotional mystique of the sacred feminine, portraying divinity with poise and power.

7:24 PM – Flute Recital

The serene cadence of the flute soon followed, as bamboo met breath in a meditative duet. The performance transported the audience to the banks of the Yamuna, conjuring the eternal Krishna and the quiet stir of leaves, lakes, and longing.

7:33 PM – Bharatanatyam (Continuation)

The classical ambiance deepened with another mesmerizing Bharatanatyam sequence, drawing thematic threads from temple sculptures to living rhythm—each anklet's echo a footnote in India's sonic history.

Literary Resonance and Storytelling

7:38 PM – Poem on the Mahabharata

A powerful poetic narration unfolded next, centered on the epic *Mahabharata*. With oratory flair and literary gravity, the poet brought forth ancient dilemmas—of duty, war, dharma, and destiny—reminding all that climate, like conscience, must find balance amid chaos.

7:47 PM – Kathak Performance
A Kathak dancer took the stage, with lightning footwork, rhythmic *tatkaar*, and mesmerizing *chakkars*, weaving tales from Krishna to Kathavati, and embodying the geography of motion itself—fluid yet grounded, celestial yet earthly.

Cultural Geography on Stage: Folk Dances of India

At **7:53 PM**, the hall came alive with **a dazzling procession of India's regional dance traditions**, each a living archive of ecological expression, community rituals, and geographical identity:

- ✓ **Kashmir** – Graceful folk movements reflecting the poetic beauty of the valley.
- ✓ **Gujarat** – Spirited *Garba* and *Dandiya Raas*, echoing circular rhythms of community and celebration.
- ✓ **Kerala** – A serene blend of classical and folk dance narrating temple traditions and harvest festivities.
- ✓ **Himachal Pradesh** – *Nati*, performed in synchronized circles, mirrored the alpine terrains and tribal harmony.
- ✓ **Assam** – *Bihu*, performed with infectious joy, capturing the pulse of spring and agrarian hope.
- ✓ **Arunachal Pradesh** – *Galo* tribal dance revealed ancestral strength and forest-rooted customs.
- ✓ **West Bengal** – *Dhunuchi Naach*, with dancers swirling incense, channeled Durga's sacred energy.
- ✓ **Haryana** – Haryanvi folk dance brought rustic rhythm and vibrant community storytelling.
- ✓ **Punjab** – *Bhangra*, bursting with masculine energy, symbolized the heartbeat of harvesters.
- ✓ **Uttarakhand** – Songs and steps from *Kumaon* and *Garhwal* revealed tales of mountains and faith.

- ✓ **Rajasthan** – *Ghoomar*, with swirling *ghagras*, brought forth royal femininity and Marwar elegance.
- ✓ **Maharashtra** – *Lavani*, fierce and flirtatious, married rhythm with social commentary.
- ✓ **Odisha** – *Sambalpuri* dance dazzled with its vibrant costumes and synchronized folk formations.
- ✓ **Bihar** – *Jijhiya*, a ritualistic women's dance, expressed resilience and devotion in rural nightscapes.

Curtain Call: A Tribute to Indian Diversity: The Spirit of Bharat in Motion

8:20 PM – Closing Applause

The cultural session concluded with thunderous applause and standing ovations. Delegates from across the globe witnessed how **India's intangible cultural heritage**—rooted in geography, shaped by ecology, and passed through generations—remains one of the most enduring models of **sustainable, inclusive, and embodied wisdom**. The cultural program stood not merely as entertainment but as an **aesthetic extension of the conference's core themes**—sustainability, diversity, harmony, and resilience. It was a **reminder that the Earth does not belong to us; we belong to it—and our cultures are its most poetic maps.**

Dinner (8:00 PM Onwards)

The evening seamlessly transitioned into a traditional Indian dinner, allowing participants to reflect on the **spirit of unity in diversity**—through both flavor and festivity.

Thus ended Day 1 of the International Conference, where the intellect of the day met the imagination of the night—bridging science with spirit, and analysis with art.

DAY 2 (9th April)

PLENARY SESSION II

Theme: *Climate Resilience and Sustainable Development*
Time: 9:30 AM–11:30 AM
Venue: Kanad Bhawan (Main Hall)

Session Leadership:

- **Chair:** Prof. Anuradha Banerjee (CSRD, JNU)
- **Session Coordinator:** Prof. Vijay Kumar Baraik (Department of Geography, IGNOU)
- **Rapporteur:** Dr. Abhay Shankar Prasad (Department of Geography, Dyal Singh College, University of Delhi)

Introduction by the Chair – Prof. Anuradha Banerjee

Prof. Anuradha Banerjee inaugurated the session with a warm welcome and a compelling introduction to the central theme: *"Climate Resilience and Sustainable Development."* She emphasized the urgent need to build resilient communities, restore ecosystems, and future-proof economies in the face of intensifying climate challenges. Drawing attention to the unequal vulnerabilities between the Global North and Global South, she raised pertinent questions about how climate resilience can be harnessed as a driving force for sustainable and inclusive

development. In her thought-provoking opening, she remarked: *"Climate resilience must not merely be a response, but a guiding pathway—one that leads to sustainability, equity, and an environmentally secure future."*

Her address set a powerful tone for the session, grounding the discussion in both global realities and geographical relevance.

Presentations by Distinguished Speakers:

Prof. A. R. Siddiqui (Allahabad University) delivered an insightful address, underscoring the foundational role of **geography in advancing climate resilience**.

He strongly advocated for the inclusion of geography as a core subject in **UPSC examinations for the Indian Forest Service**, recognizing its centrality to environmental governance.

He emphasized the need to account for **geographical variability** in climate studies and drew attention to the value of **IBIS (Indian Biosphere Information System)** as a national-level ecological knowledge repository. Prof. Siddiqui also highlighted the **critical application of geospatial tools**, especially in **data-scarce regions** like Varanasi and Lucknow. Notably, he pointed to the rising significance of **emerging subfields** such as *dendrogeomorphology*, which offer deeper insights into environmental change. He concluded by outlining **three essential research pillars** that must guide future scholarly inquiry:

- **Multi-scalar interpretations of climate phenomena**
- **Critical analysis of data characteristics**
- **Ensuring authenticity and validity of data sources**

His address offered a nuanced, geospatially grounded perspective on integrating eographical science into climate resilience frameworks.

Prof. Sahab Fazal (Aligarh Muslim University)
Challenging conventional notions of "development," the Prof. Sahab Fazal observed:
"A handful of nations have advanced—fuelled largely by unchecked CO_2 emissions."
Key insights included:

- Emphasis on *resource degradation* rather than mere depletion, pointing to the qualitative decline of ecological assets.
- A call for *climate justice* through shared global responsibility, particularly urging accountability from the Global North.
- The *urgent need for equitable technology transfer* to empower the Global South in adapting to and mitigating climate risks.

Prof. Mary Tahir (Jamia Millia Islamia)

Prof. Mary Tahir Focused on practical climate-resilient strategies, the speaker highlighted:

- Creation of **compost pits using garden waste**
- **Greywater recycling** for non-potable uses
- Use of **wood as a sustainable alternative to glass** in construction

Citing global success stories such as Bangkok and Paris, the speaker also outlined critical implementation challenges:

- Persistent **data deficiencies**
- **Limited engagement from the private sector**
- **Fragmented governance frameworks**
- The strain of **rapid and unplanned urban expansion**

Dr. Shubhi Mishra (Consultant, UNDP)

Dr. Shubhi Mishra delivered one of the most compelling presentations of the session brilliantly weaving together ecological theory and climate governance. She metaphorically likened **resilience to a deeply rooted tree** flourishing within the **Planetary Boundaries Framework** and the **Doughnut Economic Model**, symbolizing a balanced coexistence of human development and Earth's ecological ceiling.

Key Insights from Her Address:

- **Reframed Climate Change as a "Polycrisis":** Dr. Mishra emphasized that climate change is no longer a singular environmental issue but an interwoven web of crises—spanning biodiversity loss, water stress, urban heat islands, and socio-economic inequalities.
- **Call for Indigenous, Context-Specific Solutions:** She strongly advocated for **integrating local and indigenous knowledge systems** into climate strategies, highlighting their cultural resilience and ecological alignment with specific geographies.
- **Urgency Coupled with Wisdom:** Underscoring the importance of **balanced urgency**, she stated: *"Speed is essential in climate action, but not at the cost of sustainability."* Her words underscored the need for fast yet **ethically grounded transitions**, avoiding short-sighted techno-fixes.
- **Bridging Academia and Policy:** She made a forceful appeal for **institutional synergy between academia, policy-making bodies, and community stakeholders** to ensure research translates into real-world, place-based climate actions.

Dr. Mishra's address stood out for its **visionary clarity, scientific depth, and geographical relevance**, making a persuasive case for **inclusive, resilient, and contextually rooted pathways to climate resilience**.

Concluding Remarks by Co-Chair – Prof. Vijay Kumar Baraik

Prof. Vijay Kumar Baraik strongly advocated for the establishment of an Indian Geographical Services, underscoring the indispensable role of geographers in national development—especially in advancing geoinformatics and spatial governance.

Drawing from his insights on the **Chotanagpur Plateau**, he highlighted critical research gaps in this ecologically and culturally rich region, urging for:

- **Interdisciplinary collaboration** to bridge science, society, and sustainability
- **Integration of academic research with policymaking** for evidence-based decisions
- **Mainstreaming climate resilience** into the core of sustainable development strategies

The session concluded on a powerful note, echoing a **unified call for localized, inclusive, and actionable climate resilience frameworks** rooted in regional geographies and indigenous wisdom.

Technical Session – 3A

Theme: ***Cryosphere–Atmosphere Interactions: Implications for Global Climate Systems***

Time: 12:00 PM – 2:15 PM, **Venue:** Kanad Bhawan (Main Hall)

Keynote Speaker: Dr. Rakesh Bhambri (Scientist-C, Wadia Institute of Himalayan Geology, Dehradun)
Chair: Prof. Ritu Ahlawat (Department of Geography, Miranda House, University of Delhi)
Co-Chair: Dr. Manish Kumar (Department of Geography, Central University of Haryana)
Session Coordinators: Mr. Chatter Singh (Research Scholar, Department of African Studies, University of Delhi), Dr. Ganesh Yadav (Department of Geography, Kalindi College, University of Delhi)
Rapporteur: Dr. Atithi Pant (Department of Geography, Kalindi College, University of Delhi)

Session Introduction:

Mr. Chatter Singh opened the session by introducing the theme and emphasizing the cryosphere's crucial role in regulating Earth's climate. He underlined the urgency of scientific research in glacierized regions, especially within the Himalayan ecosystem, in the context of accelerating climate change.

Keynote Address: Dr. Rakesh Bhambri

Dr. Rakesh Bhambri's keynote address offered deep insights from field-based research on the **Gangotri Glacier**, presenting critical perspectives on cryospheric processes and climate risks in the Himalayas. Key highlights included:

- The evolution and retreat dynamics of **debris-covered glaciers**, revealing alarming trends in glacial thinning.
- A focused analysis of **surge-type glaciers** like the **Yazghil Glacier** in the Karakoram, underscoring their erratic behavior and implications for forecasting.
- The rising threat of **Glacial Lake Outburst Floods (GLOFs)**, exacerbated by both climatic and tectonic vulnerabilities.
- The accelerating impact of **anthropogenic pollutants**, notably **black carbon**, on glacier melt rates.
- A strong call for **glacier-specific research protocols**, recognizing the Himalayas' vast morphological diversity and the need for localized adaptation strategies.

Research Presentations by Participants

A diverse range of studies further enriched the session, offering multidimensional perspectives on glaciology, policy, and climate variability:

1. **Abhinav Rai & Pankaj Kumar:** *Monitoring Glaciers in the High Himalaya: A Case Study of the Chandra River Basin, Himachal Pradesh, India*
   The study utilized remote sensing and field data to track glacier retreat patterns and discussed implications for water security in the western Himalayas.
2. **Om Kumar:** *Tracking the Last 11,000 Years of Glacial and Monsoonal Variability in the Himalayas*
   This presentation offered a paleoclimatic reconstruction using ice core proxies and sedimentological evidence to analyze Holocene climate variability.
3. **Rikuto Ito:** *Japan's ODA in the Eastern Himalaya Region: A Constructivist Approach*
   A geopolitical and development-oriented analysis of Japan's official development assistance, emphasizing environmental diplomacy in fragile mountain ecologies.
4. **Aman Rai, Prabuddh Kumar Mishra & Reet Kamal Tiwari:** *Glacial Retreat in the Chandra River Basin, Western Himalayas*
   Presented glaciological data and digital elevation models (DEMs) to highlight the spatio-temporal retreat of glaciers and associated risks.
5. **Vaaruni Agrawal, Anjitha Krishnakumar, Lucky Kumari Singh, Ganesh Yadav, Prerna Siwach:** *Climate Variability and Cryospheric Decline: A Case Study of Gangotri Glacier in the Indian Himalayas*
   A collaborative and interdisciplinary approach examining glacier sensitivity to temperature and precipitation variability.
6. **Sourav Suman**
   Comprehensive Spatio-Temporal Observations for a Sustainable Future in Dalhousie
   Focused on climate monitoring and data-driven sustainability models for mid-altitude cryospheric zones.

Conclusion

This technical session provided a **rigorous and thought-provoking platform** for scholars and scientists to examine the **complex linkages between the cryosphere and global climate systems**. The critical insights shared by Dr. Rakesh Bhambri and the innovative research presented by participants contributed to a nuanced understanding of glacier-climate interactions, policy implications, and the urgency of environmental stewardship in fragile mountain ecosystems.

Technical Session – 3B

Theme: *Geospatial Policies for Enhancing Climate Change Adaptation*
Time: 12:00 PM – 2:30 PM, **Venue:** Seminar Hall, Department of Chemistry

Keynote Speaker: Prof. Praveen Kumar Pathak (Centre for the Study of Regional Development, Jawaharlal Nehru University)
Chair: Prof. Anupama Hasija (Department of Geography, Shaheed Bhagat Singh College [Evening], University of Delhi)
Co-Chair: Prof. Preeti Sachar (Department of Geography, Swami Shraddhanand College, University of Delhi)
Session Coordinators: Dr. Sant Prasad (Department of Geography, Shivaji College, University of Delhi) & Dr. Prerna Siwach (Department of Geography, Kalindi College, University of Delhi)
Rapporteur: Dr. Anuradha Shankar (Department of Geography, SPM College, University of Delhi)

Session Summary:

The Technical Session 3B focused on the pivotal theme *"Geospatial Policies for Enhancing Climate Change Adaptation."* The session commenced with a warm welcome and introduction of the panel by the session coordinators. The esteemed panel comprised Prof. Praveen Kumar Pathak (Keynote Speaker), Prof. Anupama Hasija (Chair), Prof. Preeti Sachar (Co-Chair), and Dr. Anuradha Shankar (Rapporteur).

The keynote address was virtually delivered by Prof. Praveen Kumar Pathak, who expressed sincere gratitude to the organizers. His presentation offered an insightful narrative on the critical role of geospatial policies in enhancing climate change adaptation. Tracing the demographic surge since the 1950s, Prof. Pathak highlighted how rapid population growth intensified the demand for food, water, and housing—accelerating environmental stress and resource depletion.

He underscored the urgent need to fortify institutional frameworks, particularly environmental ministries, to integrate geospatial intelligence in policymaking. Advocating for data-driven regional planning and climate-resilient infrastructure, he called for targeted interventions in water management and sustainable urban development.

With a thought-provoking remark—**"Recognition is the first step toward resolution"**—Prof. Pathak emphasized that acknowledging the multifaceted realities of climate change is essential for designing effective and place-specific adaptation strategies.

Following the keynote, Chairperson Prof. Anupama Hasija enriched the discussion by highlighting the interconnectedness between climate-sensitive policy frameworks and human-induced environmental changes. She advocated for the integration of community-driven initiatives with governmental strategies to build long-term climate resilience.

Paper Presentations:

1. **Ravi Dass and M. L. Meena** – *Shaping the Future of Food Security in the Indo-Pacific: A Study of Collaborative Strategies for Climate Change Adaptation*
2. **Chandrakanta and Deeksha Modgil** – *Sustainable Cities in India: Analyzing Climate Change Policy Framework*
3. **Rituraj Pegu** – *Thermopolitics of Precarity: Spatial Justice and Heat Adaptation Among Delhi's Informal Waste Pickers*
4. **Monika Vij, Pratibha Tomar, and Saloni Bahri** – *Heat Wave Adaptation Strategies in Urban Living: A Case Study of Delhi, India*
5. **Shreya Mishra and Shubhi Misra** – *Climate Resilience and Sustainable Development: A Critical Analysis of India's Environmental Policies in the Context of Panchamrit*
6. **Bhupesh Kohli and Bhogendra Pathak** – *Geospatial Analysis of Social Media Dynamics in Enhancing Disaster Mitigation and Climate Resilience in Delhi*
7. **K. Vandan Raini** – *Urban Climate Resilience Strategies: From Groundwork to Policy Making*
8. **Anita Tagore** – *Mapping Eco-Tourism Policy in India: Challenges and Opportunities*
9. **Sanshita Pathak, Dr. Usha Pathak, Dr. Geeta Kumari, and Dr. H. K. Singh** – *Cross-Border Cooperation in Himalayan Forest Conservation: A Study of Sino-Nepal and India-Nepal Collaborative Efforts in the Eastern Himalayas*

Session Conclusion:

At the conclusion of the paper presentations, the Session Coordinator announced the *Best Paper Presentation Award*, which was conferred upon **Mr. Rituraj Pegu** for his insightful research on

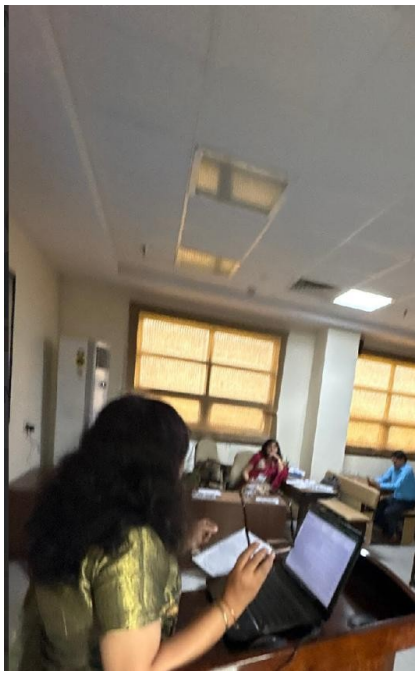
"Thermopolitics of Precarity: Spatial Justice and Heat Adaptation Among Delhi's Informal Waste Pickers."

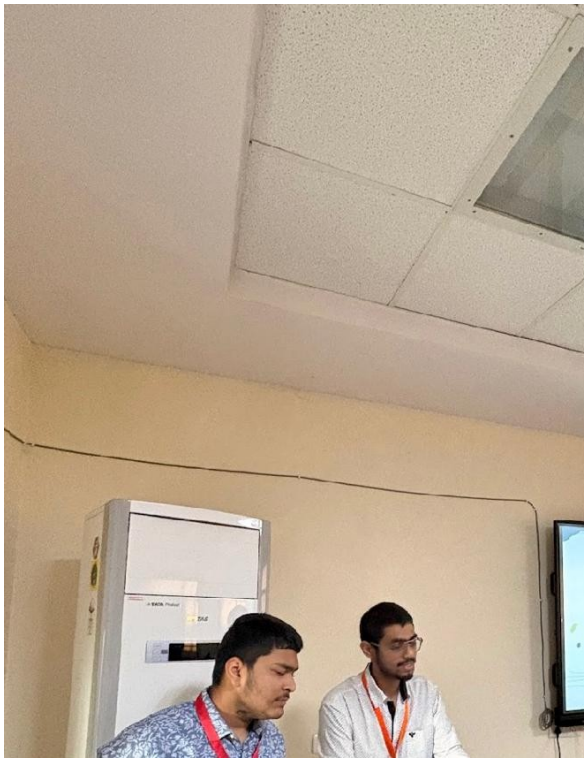
The session successfully underscored the critical importance of geospatial policy frameworks in climate change adaptation and fostered rich academic dialogue on sustainable development, justice, and environmental governance.

Technical Session – 3C

Theme: *Geospatial Techniques in Monitoring Climate-Induced Health Risks*
Time: 12:00 PM – 1:30 PM, **Venue:** Room 503, Maharshi Kanad Bhawan

Keynote Speaker: Dr. Cherring Tandup (University of Jammu)
Chair: Prof. Swati Rajput (Department of Geography, Shaheed Bhagat Singh College, University of Delhi)
Co-Chair: Dr. N. P. Singh (Department of Geography, SBSC Evening, University of Delhi)
Session Coordinator: Dr. Prem Prakash (Department of Geography, Aditi Mahavidyalaya, University of Delhi)
Rapporteur: Dr. Mamta Arora (Department of Geography, Aditi Mahavidyalaya, University of Delhi)





The session commenced with a compelling keynote address by Dr. Cherring Tandup on the theme **"Climate Change, Rural Livelihood, and Adaptive Strategies in the Zanskar Himalaya Region."** He underscored the critical ecological role of the Himalayas in global climate regulation and highlighted the escalating vulnerabilities of rural communities in the Zanskar region amidst a rapidly changing climate.

Dr. Tandup presented the development of a comprehensive climate-livelihood database and offered a methodological framework integrating regional and global temperature trend analysis. He shed light on the disproportionate impacts of climate change based on landholding patterns, the declining resilience of traditional agricultural systems, and the economic strain on tourism in Ladakh. As a forward-looking measure, he advocated for the adoption of canal irrigation to enhance agricultural viability and emphasized the urgent need to improve temporal connectivity in Zanskar as a cornerstone of sustainable, climate-resilient development.

Participant Presentations:

- **Nishant Kumar Pandey & Rakesh Verma**
  Spatial Temporal Analysis of AQI, Pre and During COVID Era Using Geospatial Technology: A Case Study of Delhi
- **Kriti Tiwari & Prof. Vaneeta Chandna**
  Navigating the COVID-19 Crisis: A Spatial and Socioeconomic Analysis of Health Impacts in Ballia District, Uttar Pradesh
- **Anu Priya & Prof. Bindhya Wasini Pandey**
  Trend Analysis of Climate Parameters in the Chenab Valley, Himachal Pradesh, Himalaya
- **Bhavya Pareek, Charvi Yadav, Usha K. Pathak & Dr. Geeta Kumari**
  Geospatial Intelligence in Public Health: Mapping Heatwave-Induced Disease Risks in Haryana (2020–2024)
- **Prof. Kavita Arora**
  Geopolitical Understanding of Trans-Border Biodiversity Conservation in the Trans-Himalayan Biogeographic Zone
- **Shreyash Pathak, Shubhranshu Pathak & Dr. Anita Singh**
  Protecting Wildlife from Space: The Role of Geospatial Data in Preventing Biodiversity Loss
- **Deepanshi, Anindya, Seema Sahdev, Monika Bassi & Punam Sachdev**
  Analysis of Air Quality in Delhi: Examining the Effects of Urbanization on Particulate Matter Concentration (June 1, 2023 – May 31, 2024)

The session fostered rich academic dialogue, marked by interdisciplinary insights, critical reflections, and the effective integration of geospatial technologies in public health and environmental research. Each presentation contributed meaningfully to the central theme by offering unique regional case studies and methodological innovations.

The session concluded on an intellectually invigorating note, with the Chair and Co-Chair commending the presenters for their in-depth research and encouraging continued scholarship in the domain of geospatial approaches to climate-induced health challenges.

Technical Session – 3D

Theme: *Integrated Geospatial Frameworks for Sustainable Water Resource Management*
Time: 12:00 PM – 1:30 PM, **Venue:** Kanad Bhawan, Room 504

Keynote Speaker: Prof. M. L. Meena (Head, Department of Geography, Central University of Haryana)
Chair: Prof. Seema M. Parihar (Department of Geography, Kirori Mal College, University of Delhi)
Co-Chair: Dr. Aruna Paarcha (Department of Geography, Jamia Millia Islamia)
Coordinator: Ms. Madhuri Meena (Department of Geography, Dyal Singh College, University of Delhi)
Rapporteur: Dr. Usha Rani (Department of Geography, Shivaji College, University of Delhi)

The session commenced with a formal welcome and felicitation of the panel members, followed by a keynote address by **Prof. M. L. Meena**, who offered a critical reflection on the integration of geospatial technologies for sustainable water resource management. Prof. Meena emphasized the role of human behavior in water mismanagement, citing everyday practices—such as not finishing a glass of water—as symbolic yet significant contributors to resource wastage. He asserted that while policies are essential, meaningful change begins with sustainable habits.

He further elaborated on historical and contemporary patterns of water usage, predicting that by **2030**, the global demand for water will double relative to supply. By **2050**, regions within the temperate zone, including India, are projected to face severe water stress. Prof. Meena underscored the potential of remote sensing and GIS in addressing these challenges, referencing successful applications in the **Kenya River Basin** as a model for integrated water management.

Research Presentations:

- **Bikash Manna & Dr. Shweta Rani**: *Assessing Climate Change and Groundwater Depletion Using GIS-Based Machine Learning for Sustainable Water Management in Purulia District, West Bengal*
- **Abhishek Shakya & Dr. Akhilesh Mishra**: *Geospatial Site Suitability Analysis for Green Infrastructure in Central Delhi: A Resilient Approach to Urban Flooding*
- **Ashutosh Mishra & Prabuddh Kumar Mishra**: *Assessing the Impact of Climate Change on Groundwater in Prayagraj Using GIS and Remote Sensing*
- **L.D. Nadeesha Nilmini Jayawardhana**: *Flood Risk Assessment in Kalutara District Using GIS and Remote Sensing Technology, Sri Lanka*
- **Manish Kumar, Naresh Kumar Verma, Neeraj Singh, Sourav Bhadwal**: *GIS-based Hydrochemical Characterization and Human Health Risk Assessment of Groundwater Quality in Southwestern Haryana, India*
- **Gaurav, Siddharth Rana, Bhawna Siwach & M. S. Panwar**: *Hydrological Dynamics and Sustainability of Springs in Tehri Garhwal, Uttarakhand: A Case from the Indian Himalayan Region*
- **Harendra Kumar Singh, Neetu & Anita Singh**: *Water Security in Delhi: Crisis, Politics and Sustainable Resource Management*

The session featured a series of data-driven, interdisciplinary presentations exploring innovative geospatial solutions to address water-related challenges across varied geographical contexts. Engaging discussions followed each presentation, with the chair and co-chair commending the diversity of perspectives and the scientific depth of the research. The session concluded on an optimistic and solution-oriented note, emphasizing the need for scalable geospatial frameworks in ensuring sustainable and equitable water resource governance.

Technical Session – 4A

Theme: Climate-Smart Agriculture through Geospatial Innovation
Time: 3:00 PM – 4:30 PM, **Venue:** Kanad Bhawan (Main Hall)

Keynote Speaker: Prof. Suresh Chand Rai (Department of Geography, Delhi School of Economics, University of Delhi)
Chair: Dr. Awani Kumar Singh (Senior Scientist, Horticulture Division, ICAR-IARI, Pusa)
Co-Chair: Dr. Deep Narayan Pandey (Special Centre for Disaster Research, Jawaharlal Nehru University)
Session Coordinator: Dr. Sheetal Sharma (Department of Geography, Aditi Mahavidyalaya, University of Delhi)
Rapporteur: Dr. Neha Arora (Department of Geography, Miranda House, University of Delhi)

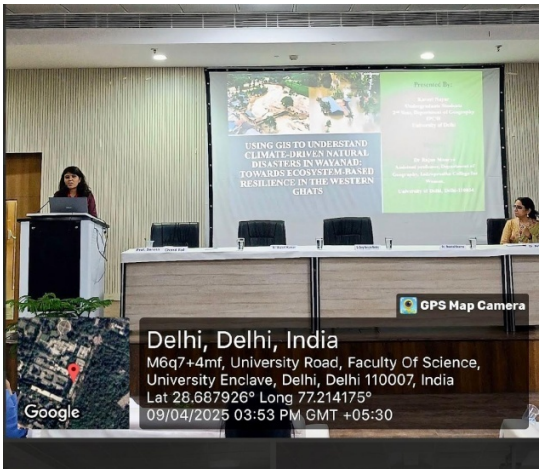
The session commenced with a warm welcome extended to the esteemed panel members. Dr. Sheetal Sharma introduced the **keynote speaker**, **Prof. Suresh Chand Rai**, setting the tone for an engaging and insightful discussion on the theme **"Climate-Smart Agriculture through Geospatial Innovation."**

Prof. Rai delivered a compelling keynote address on the topic **"Food and Livelihood Security in the Changing Climate of the Himalayas."** He emphasized the crucial role of climate in shaping geographical and agricultural patterns and delved into a detailed case study of the **Sikkim Himalayas**. Highlighting the temperature rise in the region—**from 0.6°C to 1.3°C between 1975 and 2006**—he discussed how this climatic shift adversely affects agricultural productivity, ecosystem stability, and food security.

His address underscored how changes in precipitation and glacial dynamics, coupled with rising temperatures, challenge the traditional agrarian systems of the Himalayas. He also emphasized the need for farmer awareness and adaptive strategies to mitigate climate risks. Prof. Rai outlined three primary objectives of his research:

1. **Impact Assessment**: Analyzing methodologies and datasets to assess the impact of climate change on agriculture.
2. **Land Use Analysis**: Reviewing the land use pattern, highlighting that 47% of the region is under forest cover while 11% constitutes Net Sown Area (NSA).
3. **Consumption Patterns**: Evaluating land consumption and the evolving patterns of food security in Sikkim.

The keynote concluded with a call to promote **organic farming**, **community-based adaptation**, and the **strengthening of forestry practices** for long-term climate resilience.



Research Presentations by Participants:

1. **Pushalal Ganesh, Prof. B. W. Pandey & Pankaj Kumar**: *Crop Pattern Assessment in the Mahananda River Basin, Bihar*
2. **Teja Ram Nitharwal**: *Effects of the Indira Gandhi Canal on Dairy Farming: Opportunities and Challenges in Rajasthan's Arid Zone*
3. **Jyoti Rai**: *Geospatial Innovations for Biodiversity Conservation, Climate Resilience, and Sustainable Development Across Multi-Domain Ecosystems*
4. **Mohammed Shan N & Pritam Chand**: *Comparative Analysis of DSM Generation Using IDW and Triangulation Method in UAV Photogrammetry*
5. **Kaveri Nayar & Rajan Maurya**: *Using GIS to Understand Climate-Driven Natural Disasters in Wayanad: Towards Ecosystem-Based Resilience in the Western Ghats*

Each presentation contributed valuable perspectives on the integration of geospatial technologies with agriculture, environmental resilience, and climate-smart practices. Discussions ranged from crop pattern changes and biodiversity conservation to technological interventions in disaster-prone zones.

The session concluded with brief remarks by **Prof. B. W. Pandey**, who appreciated the innovative approaches shared and acknowledged the relevance of integrating science, policy, and grassroots action in the realm of climate-smart agriculture. The session ended on an optimistic note, highlighting the transformative role of geospatial innovation in ensuring food and livelihood security amidst changing climatic conditions.

Technical Session – 4B

Theme: Geospatial Practices for Monitoring Ecosystem-Based Climate Mitigation
Time: 2:30 PM – 4:00 PM, **Venue:** Seminar Hall, Department of Chemistry

Keynote Speaker: Dr. Rupesh Gupta (Department of Continuing Education & Extension, University of Delhi)
Chairs: Dr. Geeta Kumari (Department of Geography, Kalindi College, University of Delhi) and Dr. Akhilesh Kumar Mishra (Department of Geography, Kalindi College, University of Delhi)
Co-Chairs: Dr. Cheetar Mal Meena and Dr. Swati Thakur (Department of Geography, Dyal Singh College, University of Delhi)
Session Coordinator: Dr. Rajeev Ranjan (Department of Geography, BRAC, University of Delhi)
Rapporteur: Dr. Bharat Ratnu (Department of Geography, Shivaji College, University of Delhi)

The session commenced with an enlightening address by Dr. Rupesh Gupta, the keynote speaker and session chair, who introduced the overarching theme: "Geospatial Practices for Monitoring Ecosystem-Based Climate Mitigation." Dr. Gupta underscored the pivotal role of geographers in addressing contemporary environmental challenges and emphasized the growing importance of

geospatial technologies in analyzing climate-induced phenomena such as Urban Heat Islands (UHI), land surface temperature anomalies, and ecological stressors. His address set a critical foundation for exploring spatial solutions to climate mitigation through ecosystem-based approaches.

Research Presentations by Participants:

1. **Aakash Upadhyay**
   Spatio-Temporal Analysis of Land Use/Land Cover Change and Climatic Variability Using Geospatial Techniques in the Sikkim Himalaya, India
   – The study investigated the relationship between LULC dynamics and climatic shifts in the ecologically sensitive Himalayan region.
2. **Lucky Kumari Singh, Vaaruni Agrawal, Anjitha Krishnakumar, Awadh Narayan Choubey, Ganesh Yadav, Shalini Shikha, Prerna Siwach, Nidhi Gandhi Behl**
   Analysing Urban Sprawl and Its Impact on Environmental Dynamics in the Steel City of Jamshedpur, India
   – A multi-author collaborative study that explored the urban expansion in Jamshedpur and its implications for environmental sustainability.
3. **Prof. Priyanka Puri**
   Mumbai Metropolitan Region: SUHII Analysis (2003–2018) Through Surface Imperviousness, LULC (2022), and LCZs (2019) Using Google Earth Engine
   – This highly appreciated study applied advanced remote sensing tools and Google Earth Engine to examine urban heat trends in India's financial capital.
4. **Syed Irtiza Majid and Manish Kumar**
   Assessment of Geo-Environmental Influences on the Spatial Variability of Soil Organic Carbon Stock Across India Using Geo-Statistical Methods and Explainable AI
   – The presentation introduced the novel use of AI tools in soil carbon stock analysis, demonstrating interdisciplinary innovation.
5. **Suraj Dev and V. S. Negi**
   Assessment of Forest Fire Risk Zonation in Chaubattakhal Tehsil, Uttarakhand, India
   – This study presented spatial risk mapping for forest fire hazards, offering policy-relevant insights for ecological conservation.
6. **Kiran Dabas**
   Urban Sustainability: A Case Study of NCT Delhi
   – A focused case study assessing the sustainability challenges of Delhi using geospatial parameters and socio-environmental indicators.

Following the presentations, **Dr. Swati Thakur**, Co-Chair of the session, provided concluding remarks, appreciating the **diverse methodological frameworks** applied by the participants—from metropolitan-scale urban assessments to ground-level ecological evaluations. She encouraged attendees to draw inspiration from the innovative research strategies presented during the session.

The **Vote of Thanks** was delivered jointly by **Dr. Rupesh Gupta** and **Dr. Bharat Ratnu**, expressing gratitude to the speakers, delegates, and organizing committee for their active participation and intellectual contributions.

Best Speaker Award:
Prof. Priyanka Puri was recognized as the **Best Speaker of the Session** for her compelling and methodologically advanced presentation on the **Mumbai Metropolitan Region's urban heat and land-use dynamics.**

Valedictory session

Time: 4:45 PM – 7:00 PM , Venue: *Kanad Bhawan (Main Hall)*
Session Coordinator: *Dr. Geeta Kumari, Department of Geography, Kalindi College, University of Delhi*

Commencement: Invocation, Lighting of the Lamp & Welcome of Guests



The Valedictory Session unfolded with a serene and spiritually uplifting invocation, followed by the ceremonial lighting of the lamp—a timeless symbol of knowledge, awakening, and auspicious beginnings. As the flames danced, illuminating the hall with an aura of reverence and hope, esteemed dignitaries were warmly received with floral tributes and mementos of appreciation. This graceful opening set a dignified and celebratory tone, marking the culmination of a transformative two-day international conference that bridged innovation and insight across global geospatial and environmental landscapes. The atmosphere was charged with reflection, gratitude, and an enduring commitment to the ideals of scholarship, sustainability, and global cooperation.

Valedictory Report: Seminar Summary

Presented by: *Dr. Usha Kumari Pathak*, *Conference Convenor*

Dr. Usha Kumari Pathak, Convenor of the Conference, presented a compelling and intellectually rich valedictory report that encapsulated the essence of the international seminar. With geographical precision and academic depth, she illuminated the conference's core themes—geospatial innovations, biodiversity conservation, climate resilience, and sustainable development—positioning them within both regional realities and global imperatives. She emphasized the integrative framework that brought together cutting-edge geospatial technologies, ecological wisdom, and policy foresight across diverse ecosystems, from the fragile Himalayas to coastal zones. Dr. Pathak praised the transdisciplinary engagement of scholars, researchers, and policymakers, highlighting the dialogues that transcended borders and disciplines. Her report reflected not only the academic rigor of the technical sessions but also the conference's strategic contribution to fostering geo-intelligence, participatory conservation, and sustainable environmental futures on an international scale.

Chief Guest Address

Prof. Balaram Pani
Dean of Colleges, University of Delhi

Guest of Honour

Prof. Sanjay Roy
Dean, Faculty of Social Sciences, University of Delhi

Prof. Sanjay Roy delivered a profound and evocative address that underscored the intrinsic harmony between nature, simplicity, and sustainability. Drawing upon the enduring spirit of the Chipko Movement—a grassroots ecological uprising rooted in the Himalayan forests—he illustrated how geographical landscapes and community consciousness converge in powerful resistance to environmental degradation. He called for a renewed civic ethic that embraces place-

based ecological responsibility, urging society to reconnect with the wisdom of indigenous and local geographies.

Prof. V.K. Paliwal
Principal, Dyal Singh College, University of Delhi

Prof. V.K. Paliwal offered a sharp geopolitical and technological analysis of satellite navigation systems, highlighting India's decisive move toward self-reliance through the integration of its indigenous NavIC system. By contextualizing this within the global geospatial architecture—historically dominated by Western GPS platforms—he emphasized the strategic importance of indigenous spatial intelligence in empowering India's automotive, agricultural, and disaster management sectors. His insights spotlighted how geographic data sovereignty is becoming a cornerstone of national resilience and innovation.

Prof. Bijayalaxmi Nanda
Principal, Miranda House, University of Delhi

Prof. Bijayalaxmi Nanda brought a deeply human and geographic dimension to the discourse, focusing on the pivotal role of women as ecological sentinels in climate-vulnerable regions. Citing the inspiring story of Mrs. Raut from Odisha's coastal belt, she traced how women-led conservation efforts, rooted in intimate knowledge of local ecologies, are catalyzing community-based forest regeneration and coastal resilience. Her address celebrated the often-overlooked cartographies of care—where gender, geography, and grassroots action coalesce to shape climate justice.

1. **Prof. Rajiv Gupta**
   CEO, Institution of Eminence (IoE), University of Delhi

Prof. Rajiv Gupta issued a compelling call to action against the backdrop of a rapidly warming planet, reminding the audience that 2024 has marked a record in global heat anomalies, with 2025 projected to intensify the crisis. Anchoring his message in climate geography and intergenerational responsibility, he underscored the indispensable role of students and young researchers in crafting evidence-based environmental policies. He

envisioned universities as crucibles for geo-conscious leadership and policy innovation, shaping resilient futures through informed and engaged scholarship.

2. **Prof. Bindhy Wasini Pandey**
Director, Centre for Himalayan Studies, University of Delhi

Prof. Pandey delivered a compelling geographic narrative that bridged field-based exploration with disaster resilience. He vividly recounted the landmark digital mapping expedition in Leh (2018), commending the visionary leadership of Omji Ranjan and his team for producing high-resolution geospatial datasets of Himalayan district blocks—an endeavor that now serves as a model for terrain-specific planning in fragile mountain ecosystems. Drawing from the catastrophic Super Cyclone that struck Odisha in 1999, Prof. Pandey spotlighted the state's globally recognized disaster preparedness model and underscored how the integration of satellite imagery, GIS-based forecasting, and ground-truthing can transform vulnerability into resilience. His reflections resonated with the conference's core mission—to fuse geospatial innovation with sustainable development across diverse ecogeographic zones.

Prof. Balaram Pani
Dean of Colleges, University of Delhi

In a powerful and visionary valedictory address, Prof. Balaram Pani encapsulated the spirit and scientific significance of the conference. He illuminated the transformative role of **data analytics and geospatial intelligence** in decoding the complex dynamics of forest ecosystems, particularly in the face of accelerating climate change and biodiversity loss. Highlighting the power of spatial data in policy formulation and ecosystem monitoring, he emphasized how precise, interdisciplinary insights are now indispensable to the stewardship of our planet's ecological fabric.

Prof. Pani praised the conference's exceptional thematic convergence—linking **biodiversity conservation, climate resilience, and sustainable development**—and noted how it succeeded in breaking disciplinary silos through a harmonious blend of geography, environmental science, technology, and indigenous knowledge. He lauded the enthusiastic participation of young scholars, researchers, and educators, underscoring that such dialogues are not only shaping academic frontiers but also forging **solutions for real-world environmental governance**.

Commending the tireless and visionary efforts the Convenor, Dr. Usha Kumari Pathak, organizing team, faculty, and student volunteers, he declared the conference a landmark in academic collaboration, one that would echo in institutional memory as a **model for knowledge-driven environmental action on a global scale**.

Special Acknowledgement

Mr. Bhogendra Pathak, *Senior Journalist and Media Expert*

Mr. Pathak delivered a stirring tribute to the conference's resounding success. With the eloquence of a seasoned observer and the insight of a geo-political chronicler, he lauded the confluence of **academic brilliance, geographic relevance, and policy-driven dialogue** that defined the two-day international conclave.

He offered deep gratitude to every architect of this scholarly odyssey—eminent dignitaries, coordinators, speakers, and tireless volunteers—whose collective spirit transformed a vision into a vibrant forum of global resonance. With particular reverence, he applauded the **visionary leadership of Prof. Balaram Pani**, whose steadfast support and strategic foresight elevated the conference to a new paradigm of excellence. Equally, he honored **Prof. Bindhy Wasini Pandey** for her intellectual stewardship and her unwavering commitment to Himalayan scholarship, which anchored the event in deep geographic and cultural consciousness. Mr. Pathak described the conference as a "**cartographic compass of contemporary research**," mapping not just terrain, but ideas—charting pathways for sustainable futures through geospatial thought and global collaboration.

Felicitation: Best Presentation Awards

To honour outstanding scholarship and presentation skills, **Best Presentation Awards** were conferred upon stellar participants from each technical session. These awards recognized originality, depth of research, clarity of communication, and the relevance of topics to the central theme.

Awardees:

1. *Technical Session 1A:* **Mr. Sushant Sharma**
2. *Technical Session 1B:* **Mr. Dewansh Kumar**
3. *Technical Session 1C:* **Ms. Naina Singh**
4. *Technical Session 1D:* **Mr. Brijesh Kumar Mishra**
5. *Technical Session 2A:* **Mr. Rayees Ali**
6. *Technical Session 2B:* **Ms. Ritu Singh**
7. *Technical Session 2C:* **Ms. Prastha Rajoria**

8. *Technical Session 2D:* **Ms. Shreyasi Biswas**
9. *Technical Session 3A:* **Mr. Om Kumar**
10. *Technical Session 3B:* **Mr. Rituraj Pegu** and **Ms. Sanshita Pathak**
11. *Technical Session 3C:* **Ms. Kriti Tiwari**
12. *Technical Session 3D:* **Mr. Bikash Manna** and **Dr. Shweta Rani**
13. *Technical Session 4A:* **Ms. Kaveri Nayar**
14. *Technical Session 4B:* **Dr. Priyanka Puri**

These awards reflected the conference's commitment to nurturing excellence and fostering young academic voices.

Vote of Thanks

Prof. Bindhy Wasini Pandey, *Director, Centre for Himalayan Studies, University of Delhi*

At precisely 5:47 PM, Prof. Bindhy Wasini Pandey took the podium with heartfelt grace to deliver a deeply resonant **Vote of Thanks**, encapsulating the spirit of collaboration, gratitude, and scholarly purpose that defined the international conference. He began by **expressing sincere gratitude to ICSSR** for their generous funding and to **NHPC and the Institution of Eminence**

(IoE), University of Delhi, whose unwavering support provided the essential foundation upon which this grand academic edifice was built.

Prof. Pandey paid special tribute to **Prof. Balram Pani**, the esteemed Dean of Colleges, University of Delhi, for his visionary encouragement and enduring mentorship—calling him the intellectual fulcrum whose faith and support elevated the stature and impact of the conference. She equally celebrated the inspiring leadership of the convenor, **Dr. Usha Kumari Pathak**, whose scholarly rigor, meticulous organization, and unrelenting passion transformed a concept into a transformative global academic dialogue.

He extended warm appreciation to the galaxy of **distinguished speakers, academic stalwarts, and institutional leaders**, whose voices enriched the conference with clarity, conviction, and cross-disciplinary insight.

Acknowledging the **organizing teams—on stage, off stage, and behind the scenes**, Prof. Pandey commended their seamless coordination, creative energy, and tireless effort. He lavished praise on the **volunteers and student coordinators from Kalindi College and the Centre for Himalayan Studies**, who brought youthful enthusiasm and commitment to every detail.

Prof. Pandey offered particular recognition to the scholars and professors representing **17 esteemed universities**, including **JNU, Jamia Millia Islamia, IGNOU, NEHU, and Indira Gandhi University**, whose academic diversity embodied the conference's interdisciplinary ethos. He also thanked the **international delegates**, whose presence and perspectives enriched the proceedings with a truly global academic spirit.

In closing, Prof. Pandey described the event as "**a symphony of minds and disciplines, where geography met governance, technology merged with tradition, and the Himalayas echoed with the promise of a sustainable future.**" With warmth and hope, He celebrated the vibrant participation, dynamic dialogue, and the enduring pursuit of impactful knowledge that made the conference not just a success—but a landmark in academic engagement.

National Anthem & Formal Conclusion

The conference drew to a majestic close with the resonant strains of the National Anthem, stirring every heart with a profound sense of unity, resolve, and national pride. As the final note lingered in the air like a solemn vow, the hall stood still—wrapped in a collective spirit of gratitude and purpose. Delegates and dignitaries departed not with farewells, but with a renewed commitment—to advance research, nurture global collaborations, and safeguard the delicate balance of our planet's ecosystems. In that timeless moment, the conference transcended its academic frame to become a call to conscience, a celebration of intellect, and a pledge to protect the Earth for generations yet to come.

THANKS