Regional Rural-India Summit on Regenerative Agriculture, Water, and Energy for Climate Mitigation and Adaptation

Organised by The Indian Institute of Technology, Kanpur, The Pontifical Academies of Sciences (PAS), The Pontifical Academies of Social Sciences (PASS), Vatican City

November 3-4 2026, Hotel Taj Mahal, Lucknow (UP), India

The Regional Rural-India Summit on Regenerative Agriculture, Water, and Energy for Climate Mitigation and Adaptation will be held on 3–4 November 2026 at Taj Lucknow, Uttar Pradesh. The Summit is jointly convened by the Indian Institute of Technology Kanpur, the Pontifical Academy of Sciences, the Pontifical Academy of Social Sciences (Vatican City), and the Indian National Science Academy, with institutional coordination through the Kotak School of Sustainability at IIT Kanpur.

At a time when climate variability is increasingly influencing agricultural productivity, water availability, soil health, public health, and rural livelihoods, there is a pressing need to align scientific evidence with practical policy and implementation frameworks. Rising temperatures, monsoon variability, groundwater stress, and extreme weather events are creating interconnected pressures across agriculture–water–energy systems, particularly in climate-sensitive regions such as the Indo-Gangetic Plains. Strengthening resilience in these systems is central not only to environmental sustainability, but also to stabilizing farm incomes, reducing vulnerability, improving resource-use efficiency, and securing long-term rural prosperity.

The Summit will bring together distinguished dignitaries, eminent scientists, policy leaders, administrators, and practitioners from India and across the world to deliberate on pathways for regenerative transformation. The discussions will focus on integrating soil health, water stewardship, clean energy transitions, and climate-responsive agricultural planning into coherent strategies that are both scientifically robust and economically viable for farmers.
Key themes include monsoon science and agricultural planning; sustainable water and energy systems for regenerative farming; climate–agriculture–public health linkages; institutional capacity for adaptation; and innovation-driven solutions, including youth-led initiatives. Particular emphasis will be placed on identifying scalable, field-tested practices that can enhance productivity while reducing climate risk and input costs, thereby contributing to improved farmer incomes and healthier rural ecosystems.

As part of a broader series of regionally anchored science–policy dialogues convened internationally, the India Summit reflects the scale and diversity of rural India while contributing Indian experience and perspectives to global conversations on climate resilience. The deliberations are expected to generate actionable insights that strengthen policy coherence, inform implementation frameworks, and support sustainable, climate-responsive rural development at state and national levels.

Detailed Agenda

Program Title: Regional Rural-India Summit on Regenerative Agriculture, Water, and Energy for Climate Mitigation and Adaptation
Dates: November 3-4, 2026
Venue: Hotel Taj Mahal, Lucknow, Uttar Pradesh, India
Hosts: IIT Kanpur & PAS/PASS

Program Overview

The two-day Regional Rural-India Summit on Regenerative Agriculture, Water, and Energy for Climate Mitigation and Adaptation brings together leading scientists, policymakers, practitioners, youth innovators, and development partners to advance an integrated, evidence-based resilience agenda for India's climate-sensitive regions.

Day 1 focuses on scientific foundations, sectoral risks, and systems-level solutions.

Sessions explore the latest monsoon science and its implications for agricultural planning, followed by frontier research on climate risks across the Indo-Gangetic Plains. Discussions emphasize the interconnected effects of climate change on human health, water security, and economic resilience. A Special Address outlines scientific pathways for regenerative and climate-positive agriculture. Afternoon sessions cover climate adaptation finance, district-level leadership, best practices from Bundelkhand, Eastern UP, and the Ganga Basin, and strategies to develop low-carbon, resilient energy systems. The day ends with a youth-led Agri-Resilience Innovation Roundtable on adaptive solutions for water scarcity, heat stress, soil health, and digital extension.

Day 2 shifts to policy integration, state-led strategies, traditional knowledge, and global partnerships.

Sessions examine policy coherence across national, state, and local levels, followed by state-level strategies from East UP, and Bihar (a major part of the Indo-Gangetic plains) on scaling resilient and sustainable agricultural practices. Discussions highlight traditional knowledge, women-led community adaptation models, and global cooperation for climate resilience. The afternoon features community-driven innovations for livelihoods and nutrition, along with a forward-looking science–policy foresight session that sets India's long-term research and innovation agenda. The Summit concludes with a joint statement on climate adaptation and resilience in agriculture, outlining commitments and contributions to the Vatican Universal Protocol for Climate Resilience.

Day 1, November 3

7:30 – 8:30: Badge Collection & Tea

Session 1: 9:30 - 10:30 (1 hour) Inaugural Plenary

On the Dais

Chief Guest :

- **Shri Surya Pratap Shahi, Hon'ble Agriculture Minister, Government of Uttar Pradesh**

Guests of Honour:

- **Shri Dinesh Pratap Singh**, Hon'ble Minister of State (Independent Charge) for Horticulture, Agricultural Marketing, Agricultural Foreign Trade, and Agricultural Exports Government of Uttar Pradesh,
- **Shri Jayendra Pratap Singh Rathore,** Hon'ble Minister of State (Independent Charge) Department of Cooperation, Government of Uttar Pradesh

Other Dignitaries:

- **Prof. Joachim von Braun**, President, Pontifical Academy of Sciences (PAS), Vatican City
- **Prof. Manindra Agrawal**, Director, Indian Institute of Technology Kanpur (IIT K)
- **Prof. Sachchida Nand Tripathi**, Dean, Kotak School of Sustainability-IIT Kanpur

10: 30 – 10 50 High Tea

Session 2: 10:50 - 11:35 (45 min) Spotlight

Session Chair : Shri Durga Shanker Mishra, Former Chief Secretary, Uttar Pradesh

- **Dr. Anil Prakash Joshi** Padma Bhushan; Environmentalist, green activist, and the founder of Himalayan Environmental Studies and Conservation Organization (HESCO) [Video Message]
- **Prof. Ashok Gulati**, Padma Shri; Distinguished Professor, ICRIER
- **Dr. Rajendra Singh** 'Jal Purush', Magsaysay Award Winner;
  Water Conservationist and Environmentalist.

Session 3: 11:40 - 12:00 (20 min) MAST- A Universal Protocol for Climate Resilience

Session Chair: Prof. Raghu Murtugudde, Professor Emeritus, University of Maryland, Visiting Faculty, KSS IIT Kanpur

- **Prof. Veerabhadran Ramanathan**, Council, PAS [Video Message]

- **Prof. Marcelo Suárez-Orozco**, Chancellor UMass Boston and Council, PASS [Video Message]

Session 4: 12:05 - 12:50 (45 min) The Indian Monsoon: Science, Variability, and Implications for Agricultural Systems

Session Rationale: Recent monsoon seasons in India have exhibited high variability including delayed onset, uneven rainfall, intense short bursts, and extended dry periods caused by factors such as El Niño, warming oceans, and changing land–atmosphere interactions. These changes have directly impacted sowing schedules, irrigation requirements, and crop yields across major agricultural areas.

With new evidence from IMD and leading Indian research institutions indicating increasing monsoon unpredictability, reliable sub-seasonal forecasts and climate models are becoming crucial tools for farmers and state agencies. This session will explore how advances in monsoon science can support smarter crop planning, water management, and risk preparedness, helping India develop more climate-resilient agricultural systems.

Session Chair & Moderator: **Prof. Sachchida Nand Tripathi**, Dean, Kotak School of Sustainability, IIT Kanpur

Panellists:

- **Prof. Dilip Ganguly**, Professor, Centre of Atmospheric Sciences, IIT Delhi
- **Dr. Marcella D'Souza,** Founder-Director of W-CReS (the WOTR Centre for Resilience Studies)
- **Prof. Raghu Murtugudde,** Professor Emeritus, University of Maryland, Visiting Faculty, KSS IIT Kanpur

Session 5: 12:55 - 13:45 (50 min) Regenerative Agriculture: Climate Solution

Session Rationale: Indian agriculture faces a pivotal moment. Traditional climate-smart agriculture and resilience strategies have helped manage variability and risk, but they fall short of fully restoring degraded soils, repairing hydrological systems, improving energy efficiency, and lowering emissions at the landscape level. Emerging scientific evidence and practice indicate that regenerative agriculture an approach that rebuilds soil health, boosts water retention and groundwater recharge, integrates biodiversity, and reduces greenhouse gases provides a more transformative pathway for climate adaptation and sustainability.

This session will bring together scientists, policymakers, innovators, and practitioners to explore scientific approaches for implementing regenerative agriculture in India. It will showcase how advances in soil science, hydrology, precision agriculture, clean energy integration, and digital monitoring can align with national missions (such as the National Mission for Sustainable Agriculture, soil health programs, and state climate action plans) to help farmers develop climate-positive food systems.

The session will examine how these science-based approaches can be turned into practical policies, investment strategies, and scalable practices allowing agriculture to not only adapt to climate change but also become a positive force for ecosystem restoration and climate mitigation.

Session Chair & Moderator: Prof. Ashok Gulati Distinguished Professor, ICRIER

Presentation by Prof. Abhay Gupta, Adjunct Professor, IIT Kanpur

Dr Rattan Lal, Distinguished University Professor of Soil Sciences, Ohio State University [Video Message]

Panellists:

- **Dr. Usha Barwale Zehr,** Executive Director, Grow Indigo Private Limited
- **Prof. V K Mishra,** Director, Institute of Agricultural Sciences, BHU

Lunch 13:45-14:45 (1 hour)

Session 6: 14:50 - 15:35 (45 min) Climate Change and Public Health in South Asia: Interlinked Heat, Air Quality, and Water Risks, Integrated Solutions, and Community Resilience

Session Rationale: Climate change is heightening public health risks across South Asia, a region already characterised by high population density, climate-sensitive livelihoods, and stressed health and water systems. Intensifying heat extremes, shifting monsoon behaviour, deteriorating air quality, and more frequent water-related disasters are driving significant health impacts from heat stress and dehydration to respiratory illnesses, vector-borne diseases, and nutrition-related vulnerabilities. Recent events across the region including record-breaking heatwaves in India, Pakistan, and Bangladesh, prolonged humidity stress, urban air pollution episodes, and climate-linked outbreaks of dengue, cholera, and diarrhoeal diseases underscore how environmental changes directly affect farmers, informal workers, and low-income communities.

Climate impacts on agriculture such as crop losses, irrigation stress, soil degradation, and disruptions to food supply chains further compound public health risks by affecting household nutrition, income stability, and occupational safety.

This session explores these interlinked climate–health–agriculture–water challenges, drawing on emerging solutions from across South Asia, including heat-health action plans, climate-informed disease surveillance, early warning systems, nutrition-sensitive and climate-smart agriculture, clean energy for health and farm systems, and improved community-led water management. By convening experts from health, agriculture, water, and climate science, the session aims to advance coordinated, region-wide approaches that protect vulnerable populations, strengthen food and health systems, and build climate-resilient communities across South Asia.

Session Chair: Dr. Usha Barwale Zehr, Executive Director, Grow Indigo Private Limited

Keynote Speakers:

- **Prof. Örjan Gustafsson** Professor of Biogeochemistry at Stockholm University, the Bolin Centre of Climate Research, member of Royal Swedish Academy of Sciences and the Pontifical Academy of Sciences
- **Dr. Ashish Jha**, Senior Fellow, Belfer Center, Harvard Kennedy School & Co-Founder & CEO, Bio Radar
- **Dr. Soumya Swaminathan**, Chairperson M S Swaminathan Research Foundation and former Chief Scientist and DDG, WHO [Online through Zoom]

Session 7: 15:40 – 16:00 (20 min)

Session Chair: Prof. Sachchida Nand Tripathi, Dean, Kotak School of Sustainability, IIT Kanpur

- **Special Address by Dr. Sanjeev Gupta,** Vice Chancellor, Chandra Shekhar Azad University of Agriculture and Technology (CSAUT), Kanpur
- **Special Address by Mr. Himanshu Nivsarkar,** Senior EVP and Head of CSR, Kotak Mahindra Bank

Break 15 Min

Session 8: 16:20 – 17:05 (45 min) Local Leadership in Action: Mayors and District Administrators for Resilient Agriculture: Best practices from UP on heat-stress management, water harvesting, and farm diversification

Session Rationale: Local governments play a pivotal role in translating climate adaptation strategies into action on the ground. Across **Bundelkhand, Eastern Uttar Pradesh, and the Ganga Basin**, district administrations and community-led efforts are demonstrating scalable models for resilience. In **Bundelkhand**, initiatives supported by the **International Water Management Institute (IWMI)** and local authorities in **Banda** are restoring groundwater through bunds, ponds, and soak pits reviving landscapes long affected by drought. In the **Ganga Basin**, programs under the **National Mission for Clean Ganga (NMCG)** are advancing integrated water and land management to enhance agricultural sustainability. Recent global dialogues, including the **UN Ocean Conference (2025)**, underscore the growing importance of empowering local leaders as catalysts for climate-resilient development. This session will showcase best practices and identify ways to strengthen local governance, investment, and institutional capacity for resilient agriculture in India's most climate-sensitive regions.

Session Chair: Prof. V K Mishra, Director, Institute of Agricultural Sciences, BHU

Keynote Address: Mr. Durga Shanker Mishra, Former Chief Secretary, Uttar Pradesh

Speakers

- **Mr. Gaurav Chaudhary,** Chairperson of District Panchayat, Meerut
- **Ms. Pramila Pandey**, Mayor, Kanpur
- **Mr. Gaurang Rathi,** District Magistrate, Jhansi

17:10 onwards Networking

18:30 – 19:30 pm Cultural Program by Kalanidhi – The Centre for Performing Arts, Kanpur

Guest of Honour: Shri Jayendra Pratap Singh Rathore, Hon'ble Minister of State (Independent Charge) Department of Cooperation, Government of Uttar Pradesh

19 30 onwards: Dinner

Day 2, November 4

Session 1: 9:15 - 10:00 (45 min) Climate Resilience and Global Faith Initiatives

Session Chair : Shri Durga Shanker Mishra, Former Chief Secretary, Uttar Pradesh

Keynote Speakers

- **His Eminence Cardinal Peter Turkson,** Chancellor, PAS & PASS

Session 2: 10:05 - 10:50 (45 min) Climate and Clean Energy Transitions: Pathways to Low-Carbon, Climate Resilient Communities

Session Rationale: India's clean energy transition is accelerating at an unprecedented pace, driven by rapid growth in renewables, declining storage costs, national commitments to net-zero, and an urgent need to address intensifying climate risks. Yet the shift to low-carbon energy is no longer only a mitigation imperative—it has become central to building climate-resilient communities, especially in regions facing extreme heat, rising electricity demand, water scarcity, and agricultural vulnerability.

Recent developments highlight the scale and importance of this transformation. The emergence of solar-powered irrigation, climate-smart cold chains, clean energy for health facilities, and battery-enabled rural microgrids is reshaping both agricultural systems and community services. The expansion of green hydrogen, distributed renewables, and energy-efficient technologies is opening new pathways for decarbonisation while enhancing reliability and reducing climate-exposure risks for farmers, households, and local economies. At the same time, increasing heatwaves and peak power loads underscore the need for adaptive, decentralized, and resilient energy systems that can protect livelihoods, power essential services, and enable climate-safe food production.

This session explores how integrated climate and clean-energy strategies can support India's transition to low-carbon, heat-resilient, and socially inclusive communities. It will examine frontier innovations, financing mechanisms, and policy shifts shaping this space—ranging from renewable-powered water systems and agri-value chains to energy access for health, education, and local governance. By bringing together energy planners, climate scientists, resilience practitioners, and state leaders, the discussion will highlight actionable pathways for scaling clean energy solutions that reduce emissions, enhance adaptive capacity, and strengthen community well-being across climate-vulnerable regions.

Session Chair: **Ms. Reema Nanavaty**, Director/former General Secretary, Self-Employed Women's Association (SEWA)

Keynote Speaker:

- **Dr. Ajay Mathur,** Professor of Practice in the School of Public Policy at IIT Delhi, Former Director General, ISA

Panellists:

- **Dr. K. Srinivas Reddy,** V Balaraman Chair Professor, Department of Mechanical Engineering, IIT Madras [Online through Zoom]
- **Prof. Amarendra Edpuganti,** Department of Sustainable Energy Engineering, IIT Kanpur
- **Mr. Hemant Dhamija,** DGM Biofuel, Hindustan Petroleum Corporation Limited (HPCL)

Session 3: 10:55 - 11:40 (45 min) Traditional Knowledge and Community-Led Adaptation

Session Rationale: In the drought-prone landscapes of Bundelkhand and the transitional agro-ecologies of the Terai region, locally-rooted adaptation strategies are proving critical to farm-level resilience. Community-driven efforts such as water harvesting using check dams and ponds have helped recharge groundwater and restore cropping potential in Bundelkhand. With climate variabilities increasing vulnerability—especially for women-led and indigenous farming systems—this session will spotlight initiatives that integrate traditional knowledge, women's networks and community institutions into climate-smart agriculture planning. It will explore how grassroots models of soil-water conservation, agro-forestry and local seed systems can be scaled and embedded in formal policy pathways to strengthen adaptation at the village and block levels.

Session Chair & Moderator: Mr. Deo Datt Singh, Director -Operations, People's Action for National Integration **(**PANI)

Panellists:

- **Ms. Reema Nanavaty**, Director/former General Secretary, Self-Employed Women's Association (SEWA)
- **Ms. Naseem Shaikh**, Chief Executive Officer (CEO), SSP- Swayam Shikshan Prayog
- **Ms. Manjari Upadhyay,** President, Jijiwisha Society

Break: 15 min

Session 4: 12:00 - 12:20 (20 min) Climate-Driven Migration

Session Rationale: India is increasingly witnessing climate-linked migration driven by recurring floods, droughts, heat stress, groundwater depletion, and declining agricultural viability across several regions. Climate pressures in vulnerable geographies such as the Indo-Gangetic Plains, coastal belts, drought-prone districts, and Himalayan ecosystems are intensifying livelihood insecurity and accelerating rural-to-urban migration.

This session will examine the emerging patterns of climate-driven mobility in India, its implications for agriculture, urban systems, public health, and social equity, and the policy and adaptation strategies required to build resilient communities and sustainable livelihoods.

Special Addresses:

- **Prof. Sudhir Chella Rajan,** Professor at the Department of Humanities and Social Sciences at the Indian Institute of Technology Madras and Coordinator of the Indo-German Centre for Sustainability
- **Prof. R.B. Bhagat**, Visiting Professor, Institute for Human Development, New Delhi, Former Professor and Head of the Department of Migration and Urban Studies at the International Institute for Population Sciences (IIPS), Mumbai. [Online through Zoom]

Session 5: 12:20 - 13:05 (45 min) Science–Policy Foresight for Climate Adaptation and Resilience

Session Rationale: India's accelerating climate risks from intensifying heat and erratic monsoons to pressures on agriculture, water, health, and energy systems demand a forward-looking, science-driven adaptation strategy. With rapid advances in climate modelling, AI-enabled forecasting, resilient crops, public-health surveillance, and decentralized clean energy, the country now has an unprecedented opportunity to shape a long-term research and innovation agenda that strengthens national resilience.

This session brings together science leaders and policymakers to identify the next decade's priorities for climate adaptation research spanning climate science, agri-resilience, heat-health systems, water security, nature-based solutions, energy transitions, and community resilience. The discussion will focus on strategic foresight, institutional readiness, and the pathways needed to integrate cutting-edge science into policy, planning, and implementation across India's climate-sensitive regions.

Session Chair: Prof. Örjan Gustafsson Professor of Biogeochemistry at Stockholm University, the Bolin Centre of Climate Research, member of Royal Swedish Academy of Sciences and the Pontifical Academy of Sciences

Presentation : Prof. Cecilia Tortajada, Honorary Professor, School of Social and Environmental Sustainability | University of Glasgow, UK [Online through Zoom]

Keynote Speakers

- **Ms. Purvi Mehta**, Senior Advisor, Global Center for Adaptation
- **Prof. Jayant Singh,** Chair Professor, IIT Kanpur
- **Prof. Gopal Chandra Kundu,** Director of R&D and Professor of Biotechnology at Kalinga Institute of Technology, Convener INSA Chapter – Bhubaneshwar

Lunch 13:15 - 14:15 (1 hour)

Session 6: 14:20 - 15:05 (45 min) Youth-Led Consultation Roundtable on: Adaptive solutions for water scarcity, heat stress, soil health, and digital extension in UP

Session Rationale: Uttar Pradesh is rapidly emerging as a hub for **agri-tech innovation**, driven by strong government support for entrepreneurship and technology-led solutions. With a **₹1,000 crore Startup Fund** and **63 incubation centres across 23 districts**, the state is nurturing young innovators to address critical challenges in **water scarcity, soil health, and digital extension**. Leveraging its diverse agro-climatic zones, UP provides an ideal testing ground for scalable, climate-smart technologies, from IoT-based water management and AI-driven crop advisory tools to soil monitoring and precision agriculture systems. This youth-led roundtable will bring together early-stage entrepreneurs, researchers, and grassroots innovators to co-develop adaptive solutions aligned with national initiatives such as the **Indian Digital Ecosystem for Agriculture (IDEA)** and the **Pitch-Pilot-Scale Challenge** under AMRUT 2.0. By linking innovation with local needs, the session aims to chart a roadmap for **youth-driven resilience** in UP's agricultural transformation.

Session Chair & Moderator: Mr. Anant Chaturvedi, Founder Vikalp

Panellists:

- **Mr. Aneesh Jain,** Founder Gram Unnati

- **Ms. Sanjivini Sharma,** Founder Kanpur Ploggers Foundation
- **Mr. Sri Harsha,** Founder & MD Kritsnam Technologies [Online through Zoom]

Session 7: 15:10 - 16:10 (1 hour) Valedictory Session; Charting the Way Forward

On the Dias

- **Prof. Joachim von Braun**, President, PAS
- **Prof. Manindra Agrawal**, Director, IIT Kanpur*
- **Prof. Sachchida Nand Tripathi**, Dean, KSS-IIT Kanpur

16:20 Onwards: Media Interaction and Refreshments

End..