

CLIMATE RESPONSIVE LAND GOVERNANCE IN SOUTH ASIA: REFLECTIONS FROM THE SUMMER SCHOOL 2026

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Abstract

Climate change has increasingly emerged as one of the most significant challenges affecting land governance systems across the globe. In South Asia, the impacts of floods, landslides, droughts, environmental degradation, and rapid urbanization are directly influencing land tenure security, disaster resilience, land-use systems, and the livelihoods of vulnerable communities. Recognizing the urgent need for integrated and climate-responsive approaches to land administration, the Land Management Training Center (LMTTC), Nepal, in collaboration with Landstack India and the International Land Coalition–Asia (ILC-Asia), organized the Summer School on Climate Responsive Land Governance from 21–26 April 2026 in Dhulikhel, Nepal. The programme brought together 23 participants and 25 distinguished resource persons from Nepal, India, Myanmar, and Australia representing government agencies, academic institutions, civil society organizations, and geospatial technology sectors. The six-day Summer School combined policy dialogue, academic learning, technological demonstrations, field-based observation, and collaborative action planning to strengthen regional understanding of the complex relationship between climate change, land governance, disaster management, and sustainable development. Major thematic areas included land tenure security, policy and institutional frameworks, GeoICT and digital land administration systems, gender-responsive governance, climate-induced displacement, and participatory land-use planning. This article presents the institutional background, structure, key thematic discussions, day-wise highlights, outcomes, lessons learned, and future implications of the Summer School. The article argues that climate-responsive land governance is essential for building resilient societies and that secure, inclusive, and technology-driven land administration systems are central to climate adaptation and sustainable development in South Asia.

1. Introduction

Climate change has fundamentally transformed the way governments, institutions, and communities understand land governance. Across the world, climate-induced disasters such as floods, droughts, landslides, glacial lake outburst floods, sea-level rise, and environmental degradation are affecting land-use systems, property rights, agricultural productivity, settlement patterns, and livelihoods. These impacts are particularly severe in developing countries where weak land administration systems, rapid urbanization, poverty, and social inequality already place significant pressure on land resources.

South Asia is among the regions most vulnerable to climate-related disasters. Countries such as Nepal, India, and Myanmar regularly experience floods, riverbank erosion, droughts, landslides, and extreme weather events that threaten communities and disrupt land tenure systems. Climate change has intensified vulnerabilities among smallholder farmers, indigenous groups, women, informal settlers, and marginalized populations who often lack secure access to land and resources.

In this context, climate-responsive land governance has emerged as a critical area of policy and practice. Climate-responsive land governance refers to the integration of climate adaptation, disaster risk reduction, environmental sustainability, social inclusion, and land tenure security into land administration systems and land-use planning processes. It emphasizes the need for resilient, inclusive, and adaptive governance mechanisms capable of addressing environmental risks while protecting the rights and livelihoods of vulnerable populations.

Recognizing these emerging challenges, the Land Management Training Center (LMTTC), Nepal, organized the Summer School on Climate Responsive Land Governance from 21 to 26 April 2026 at Dhulikhel, Kavrepalanchok. The programme was jointly organized in collaboration with Landstack India and the International Land Coalition–Asia (ILC-Asia), with support from Community Self Reliance Centre (CSRC) Nepal, UN-Habitat Nepal, Kathmandu University, Habitat for Humanity Nepal, the

University of Melbourne, Caritas Nepal, and the Ministry of Agriculture, Food and Rural Affairs (MAFRA) of the Republic of Korea.

The Summer School was designed as an intensive regional learning platform bringing together land professionals, policymakers, researchers, academics, civil society representatives, and technical experts to explore the intersections between land governance, climate change, disaster management, and sustainable development.

2. Objectives of the Summer School

The Summer School aimed to strengthen participants' understanding of climate-responsive land governance and equip them with multidisciplinary knowledge and practical skills to address emerging climate-related land challenges.

The specific objectives included:

- Enhancing understanding of the relationship between land governance, climate change, and disaster management.
- Examining global and regional policy frameworks related to climate-responsive land administration.
- Promoting regional knowledge exchange among land professionals and institutions.
- Demonstrating technological innovations and GeoICT applications in land governance.
- Encouraging gender-responsive and inclusive approaches to land administration.
- Supporting participants in developing action plans for their respective institutions and countries.
- Building a regional network of professionals committed to climate-responsive land governance.

3. Participants and Resource Persons

A total of 23 participants attended the programme, including 18 participants from Nepal and 5 international participants from

India and Myanmar. Participants represented government agencies, universities, civil society organizations, research institutions, and private geospatial sectors.

The Summer School also brought together 25 distinguished resource persons from Nepal, India, and Australia. The faculty included government officials, university professors, researchers, land policy experts, GIS specialists, climate experts, civil society leaders, and practitioners working in land rights and disaster resilience.

The multidisciplinary nature of the participants and resource persons created a highly interactive learning environment that encouraged dialogue between policy, technology, academia, and grassroots experiences.

4. Structure and Methodology

The Summer School adopted a multidimensional learning approach that combined theoretical discussions with practical application. The programme methodology included:

- Expert lectures and thematic presentations.
- Policy discussions and academic reflections.
- Participant case-sharing sessions.
- Hands-on GeoICT and GIS demonstrations.
- Group discussions and collaborative learning.
- Field-based observation and experiential learning.
- Action planning and regional networking.

The programme was structured around six thematic days, each focusing on specific dimensions of climate-responsive land governance.

5. Day-wise Highlights of the Summer School

Day 1: Climate Risks and Land Governance

The Summer School formally commenced on 21 April 2026 at the Land Management Training Center, Dhulikhel. The opening ceremony was chaired by the Executive Director of the Land Management Training Center, while the Secretary of the Ministry of Land Management, Cooperatives and Poverty Alleviation graced the occasion as the Chief Guest. The ceremony was attended by senior government officials, representatives of partner organizations, resource persons, and participants. The inaugural session introduced the overall objectives and expectations of the programme. An exhibition of traditional and modern surveying instruments was also organized at LMTC on the opening day, providing participants with insights into the evolution of surveying technologies. Serene Ho from University of Melbourne, Australia delivered keynote speech during opening ceremony.



Figure 1: Opening Ceremony of Summer School 2026

First session of the first day was delivered by Mr. Ganesh Prasad Bhatta focusing on land governance concepts and good governance principles in land administration. Participants discussed transparency, accountability, public participation, and institutional effectiveness in land management systems.

Warm-up sessions with introduction and mapping expectations from summer school was facilitated by Janak Raj Joshi, Pranab Choudhury and Dharma Raj Joshi showcasing the importance of climate-responsive land governance and enabled participants to share their expectations and learning objectives for the program.

One of the major highlights of the first day was the discussion on the "Land Use–Tenure–Climate Nexus," led by Mr. Pranab Choudhury. The session emphasized that land is not only an economic resource but also a social and cultural relationship deeply connected with identity, livelihoods, and environmental sustainability. The discussion explored how climate change affects land tenure systems, especially among vulnerable communities. Case studies from Nagaland and shifting cultivation systems were presented to illustrate customary land governance practices and community stewardship.

Dr. Serene Ho delivered a session on systems thinking and climate change impacts. The discussion introduced participants to the interconnected relationships between environmental systems, social systems, and land governance structures.

Day 2: Policy and Institutional Frameworks

The second day focused on policy frameworks and institutional dimensions of land governance. Participants explored global frameworks such as the Sustainable Development Goals (SDGs), Fit-for-Purpose Land Administration (FFP), the Framework for Effective Land Administration (FELA), and the Land Governance Assessment Framework (LGAF). Mr. Janak Raj Joshi highlighted the importance of global policy frameworks in addressing land governance challenges, informality, and sustainable development.

A session by Mr. Brij Agrawal examined land administration systems in South Asia and discussed legal reforms, digital technologies, blockchain applications, and modernization approaches.

Participants also learned about Nepal's Land Issues Resolving Commission through a presentation by Mr. Susheel Dangol. The session discussed constitutional provisions, land distribution procedures, and challenges related to landless communities.

Another important session by Dr. Subash Ghimire focused on land markets and property valuation systems. Discussions highlighted the growing challenges of land valuation in rapidly urbanizing and climate-vulnerable regions.

The day also included participant case-sharing sessions where participants presented experiences related to informal settlements, women's land rights, land markets, and community land issues from their respective countries and institutions.

Day 3: Tools, Technologies, and GeoICT Applications

The third day concentrated on technological innovation and GeoICT applications in climate-responsive land governance. Mr. Raja Ram Chhatkuli presented a case study on sustainable land management practices in Dang district, emphasizing climate-smart land use, livelihood security, and sustainable resource management.

A major highlight of the day was the session on GeoICT in land governance delivered by Mr. Tanka Prasad Dahal. Participants

explored GIS, Land Information Systems (LIS), spatial decision support systems, and geospatial data management.

Mr. Shekhar Gaikwad presented several innovative land administration systems implemented in Maharashtra, India, including Mahabhulekh, MahaBhunaksha, e-Mojni, e-FerFar, e-Registration, and SVAMITVA.

The Roshi River Basin case study presented by Mr. Ram Kumar Sapkota, Mr. Bigyan Banjara, and Mr. Grishma Pradhan demonstrated how GIS and remote sensing technologies can be used to analyze flood impacts, restore distorted parcel boundaries, and support post-disaster land management.

Participants also engaged in discussions about digital cadastral systems, flood mapping, geospatial analysis, and technological approaches for disaster preparedness.

Day 4: Field Visit to Melamchi Valley

Melamchi Valley is a scenic mountain valley in Sindhupalchok District, Bagmati Province, located northeast of Kathmandu. The valley is traversed by the Melamchi River and is known for its rich natural environment, agricultural landscapes, and cultural heritage. It is also nationally significant as the location of the Melamchi Water Supply Project, which supplies drinking water to the Kathmandu Valley. In 2021, Melamchi Valley experienced a devastating debris-laden flood that caused widespread damage to settlements, infrastructure, and agricultural land, highlighting the increasing risks of climate-induced disasters and the need for resilient land governance and disaster risk management.

The field visit to Melamchi Valley on 24 April 2026 was one of the most impactful components of the Summer School. Melamchi Valley experienced catastrophic flooding in 2021 that caused extensive damage to settlements, infrastructure, agricultural land, and local livelihoods. The field visit provided participants with direct exposure to the realities of climate-induced disasters and their impacts on land governance systems.

Participants observed altered river courses, damaged land parcels, community displacement, and rehabilitation efforts. Interaction sessions with disaster-affected communities allowed participants to hear firsthand experiences regarding land loss, recovery challenges, and resilience. Melamchi Municipality conducted a presentation explaining the impacts of the disaster, lessons learned, and the implementation of early warning systems and precautionary measures.



Figure 2: Interaction with disaster-affected communities

Participants also visited the source area of the Melamchi Drinking Water Project and discussed the relationship between watershed management, climate change, and land-use planning. The field visit transformed theoretical concepts into practical understanding and reinforced the importance of adaptive and resilient land governance mechanisms.

Day 5: Social Dimensions of Land Governance

The fifth day focused on social inclusion, gender-responsive governance, participatory planning, and community stewardship.

Dr. Reshma Shrestha delivered a session on pro-poor and gender-responsive land governance, emphasizing the importance of integrating Gender Equality and Social Inclusion (GESI) principles into land administration systems. Participants discussed how women, indigenous peoples, informal settlers, and marginalized groups are disproportionately affected by climate change and insecure land tenure.

Mr. Amba Jamir presented community stewardship experiences from Nagaland, focusing on shifting cultivation systems and local community perspectives on climate resilience.

Professor Achut Wagle delivered a special session on the economic dimensions of land-use planning, discussing land use, land misuse, and land abuse.

Mr. Prakash Joshi facilitated discussions on participatory and risk-sensitive land-use planning approaches, including multi-hazard analysis and federal land-use systems.

The final session of the day by Mr. Pranab Choudhury examined the relationship between renewable energy, carbon markets, and land governance. Discussions highlighted concerns about land grabbing, displacement, and the protection of community rights in large-scale energy and carbon market projects.

Day 6: Action Planning and Way Forward

The final day of the Summer School focused on future strategies, regional cooperation, and action planning.

Mr. Deepak Sanan led discussions on land administration debates in South Asia, including challenges associated with presumptive and conclusive titling systems.

Another important session by Mr. Pranab Choudhury explored tenure due diligence and climate-responsive governance beyond traditional land records. The discussion highlighted the importance of understanding recorded realities, observed realities, and lived realities.

A high-level panel discussion on transboundary climate impacts brought together experts including Mr. Madhusudhan Adhikari, Dr. Sunil Babu Shrestha, Dr. Suresh Dhakal, and Mr. Deepak Sanan. The panel explored institutional gaps, displacement challenges, tenure security issues, and policy reform needs in South Asia.

Participants then presented group action plans focusing on climate-responsive land governance strategies for their respective countries and institutions.

The programme concluded with a formal closing ceremony and certificate distribution led by Mr. Janak Raj Joshi, Executive Director of LMTC. Participants shared reflections, learning experiences, and future commitments.

6. Major Outcomes of the Programme

The Summer School achieved several important outcomes:

- Enhanced understanding of climate-responsive land governance concepts among participants.

- Improved knowledge of GeoICT, GIS, remote sensing, and digital land administration systems.
- Strengthened regional collaboration and South–South knowledge exchange.
- Increased awareness regarding gender-responsive and inclusive land governance.
- Practical exposure to post-disaster land governance through the Melamchi field visit.
- Development of action plans for institutional and policy implementation.
- Creation of a regional network of professionals committed to climate-responsive land governance.

The programme also reinforced the understanding that climate resilience requires integrated approaches combining technology, policy reform, institutional coordination, and community participation.

7. Challenges and Future Directions

Despite significant progress, participants identified several continuing challenges in South Asia's land governance systems. These include institutional fragmentation, outdated land records, weak policy coordination, rapid urbanization, informal settlements, limited technical capacity, and increasing climate risks.

Participants emphasized the need for:

- Stronger integration between land governance and climate policies.
- Expansion of digital land information systems.
- Improved tenure security for marginalized populations.
- Strengthened disaster preparedness and recovery systems.
- Greater investment in geospatial technologies and climate-sensitive land-use planning.
- Continued regional cooperation and knowledge exchange.

Future programmes should focus on research collaboration, policy advocacy, advanced technical training, and community-centered climate adaptation strategies.

8. Conclusion

The Summer School on Climate Responsive Land Governance represented a timely and significant regional initiative for advancing dialogue, knowledge exchange, and institutional collaboration on climate-responsive land administration in South Asia. By bringing together professionals from government agencies, universities, civil society organizations, and technical sectors, the programme successfully created a multidisciplinary platform for understanding the complex relationship between land governance, climate change, disaster resilience, and sustainable development. The programme demonstrated that climate-responsive land governance is not solely a technical or administrative concern but a broader developmental challenge closely connected with social justice, environmental sustainability, and human resilience. Secure land tenure, inclusive governance systems, community participation, digital innovation, and regional cooperation emerged as central pillars for building climate resilience.

The field-based learning experiences in Melamchi Valley particularly highlighted the urgent need for adaptive land administration systems capable of responding effectively to climate-induced disasters and protecting vulnerable communities.



Figure 3: Group Photo after closing ceremony

Importantly, the Summer School strengthened regional networking and established the foundation for a growing community of practice dedicated to climate-responsive land governance in South Asia. As climate change continues to intensify environmental and social vulnerabilities across the region, institutions such as LMTC and its partner organizations have an increasingly important role in promoting policy innovation, technical capacity building, collaborative research, and inclusive land governance practices. The Summer School ultimately reaffirmed that resilient and equitable land governance systems are essential for achieving climate adaptation, disaster resilience, and sustainable development goals in South Asia and beyond.

9. Brief information of Organizers & Supporting Partners

Organizers

Land Management Training Center (LMTC)

The Land Management Training Center (LMTC) is Nepal's premier institution for education and capacity building in land management and geomatics under the then Ministry of Land Management, Cooperatives and Poverty Alleviation. Since its establishment in 1968, it has trained more than 13,000 land professionals through various training programs and academic collaborations. LMTC is certified with ISO 9001:2015 for Quality Management, reflecting its commitment to excellence in professional education.

Landstack, India

Landstack is an international organization dedicated to promoting sustainable, inclusive, and people-centered land governance. It connects experts and institutions to strengthen land tenure security through research, technology, policy support, and capacity building. Its work emphasizes gender equality, climate resilience, and the empowerment of Indigenous peoples, women, and youth.

International Land Coalition (ILC) Asia

ILC Asia is the regional platform of the International Land Coalition, a global alliance promoting people-centered land governance. It brings together 59 organizations across 14 Asian countries to advance secure and equitable land rights. The network supports collaboration, advocacy, and knowledge sharing to strengthen land governance across the region.

Supporting Partners

Community Self Reliance Centre (CSRC) is a prominent civil society organization in Nepal dedicated to promoting land rights, agrarian reform, and social justice for marginalized and vulnerable communities. The organization works extensively on issues related to land tenure security, community empowerment, policy advocacy, and sustainable livelihoods, particularly supporting landless farmers, indigenous peoples, and disadvantaged groups across the country.

Kathmandu University is one of Nepal's leading academic and research institutions, recognized for its contributions in higher education, innovation, and interdisciplinary research. The university plays an important role in advancing studies in geomatics engineering, environmental science, climate change, land administration, and sustainable development, while also fostering collaboration between academia, government, and development partners.

UN-Habitat Nepal is the Nepal country programme of the United Nations Human Settlements Programme (UN-Habitat), which supports sustainable urbanization and inclusive human settlements. Its work in Nepal focuses on urban resilience, housing, land governance, climate adaptation, disaster recovery, and improving living conditions for vulnerable and low-income communities through policy support and technical assistance.

Ministry of Agriculture, Food and Rural Affairs is the government ministry responsible for formulating and implementing policies

related to agriculture, rural development, food security, and natural resource management in the Republic of Korea. The ministry also supports international cooperation initiatives aimed at sustainable agriculture, rural resilience, and climate-responsive development practices.

Habitat for Humanity Nepal is a non-profit organization working to ensure safe, adequate, and affordable housing for vulnerable communities in Nepal. In addition to housing support, the organization is actively engaged in disaster resilience, land and property rights, climate adaptation, and community development initiatives, particularly for low-income and disaster-affected populations.

University of Melbourne is a globally recognized research-intensive university known for its excellence in climate research, urban planning, sustainability studies, and land administration. The university contributes internationally through research, innovation, and policy engagement on issues related to climate resilience, environmental governance, and sustainable development.

Caritas Nepal is a national social service organization working in the areas of humanitarian assistance, disaster response, climate resilience, social inclusion, and community development. Through partnerships with local communities, government agencies, and international organizations, Caritas Nepal supports vulnerable populations by promoting sustainable livelihoods, resilience building, and social protection initiatives across Nepal.

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