DUKE-HUC ECO-LEADERSHIP FIELDSCHOOL 2025

The Resilient Hindu Kush Himalaya (HKH) region

The Hindu Kush Himalaya (HKH) region, known also as the Third Pole[1], is one of the largest mountain systems in the world, extending from Hindu Kush in Afghanistan to hills and mountain systems of Myanmar. With 18.23% of its landmass under snow cover, the HKH has the largest reserves of ice outside the polar regions. The HKH region is home to 240 million people, with a further 1.65 billion people that reside along the river valley downstream. The region provides significant economic benefits to the 8 regional member countries (RMCs), through ecosystem services and livelihood opportunities. Its potential to bring prosperity and address sustainable development goals (SDGs) is very high.

However, the HKH region is facing major sustainability challenges from socio-economic and climate change impacts. To the vulnerable stakeholders (local communities, government, business and service providers), the impacts are real and devastating. The long-term impacts of such challenges are not only overheating atmosphere beyond 1.5 degree, but are also undermining development progress and exacerbating climate injustice. There's an urgent need for global-regional-local collaboration to restore and protect ecosystems and services, alongside safeguarding biodiversity and mountain economy, along with enhancing the capacity of the stakeholders to respond to risks. However, there's a huge gap in terms of understanding the emerging risks and availability of the relevant knowledge to take climate actions.

The HUC and its Eco-leadership fieldschool

The Himalayan University Consortium (HUC) is a network of universities, research institutions, and researchers and scholars in the Hindu Kush Himalayas (HKH) and outside the region. The HUC's mandates are to enable regional academic collaboration and nurture generations of scholar-leaders for sustainable mountain futures. The Consortium works to strengthen the connection between knowledge-

[1] Earth's main mountain massif in Asia, encompassing the Tibetan Plateau and surrounding areas including the Pamir-Hindu Kush mountain ranges in the west, the Hengduan mountains in the east, the Tienshan and Qilian mountains in the north and the Himalayas in the south (UNEP, 2022).

generating and decision-making institutions, creating new opportunities for inter- and trans-disciplinary and transboundary research collaboration and enhancing mountain-specific research.

The HUC Student Mobility and Faculty Exchange (SMFE) Task Force was established in April 2024 and met in the Royal Thimphu College, Thimphu, in November 2024. A Concept Note on ***Eco-Leadership Field School (ELFS): Advancing Resilient Practices in the HKH*** was endorsed by the HUC Steering Committee at its e-meeting in December 2024. The primary objective of ELFS is to empower local leaders, youth, and professionals with the knowledge and skills to implement environmentally responsive practices and policies, ensuring the ecological and social resilience of the HKH region. The ELFS has the following specific objectives:

1. Exposure to critical Planetary issues
2. Bridging technical knowledge with human experience
3. Encourage interdisciplinary exchange
4. Forster mutual respect and understanding, and
5. Address climate change impacts

The ELFS is structured to provide dynamic, hands-on, and interdisciplinary learning experience. It will collaborate with universities and research institutes within each field school host country to ensure alignment with local expertise, scientific resources, and academic network. EFLS will be hosted in rotating locations across selected transects within the HKH region, enabling participants to explore diverse ecosystems, cultural practices, and climate challenges.

International Centre for Integrated Mountain Development and Sustainable Mountain Tourism

ICIMOD is committed to promoting a greener, more inclusive, and climate-resilient HKH region, in support of the mandate of 8 RMCs, to address global and regional sustainable development mandates - Paris Climate Agreement, Sustainable Development Goals, and Moving Mountains 2030 Strategy. Its Sustainable Mountain Tourism Component (SMTC) focuses on generating and sharing knowledge to support mountain tourism stakeholders for effective decision-making in adapting and transforming livelihoods and economies in 8 RMCs. To do this, it brings together researchers, academia, industry, local community, and policymakers from the region and around the globe to co-generate and share knowledge, support evidence-based decision-making, and encourage regional and global collaboration.

In Bangladesh, Bhutan, Nepal, and Pakistan, tourism is recognized as a priority to bring economic growth and prosperity. Respective governments also stress the need to make tourism sustainable, environmentally friendly, and beneficial for the local community. However, these RMCs are vulnerable to the impacts of overtourism and climate change. For example, increased tourism growth and activities are putting strain not only on ecosystem services and key resource base (water, energy, biodiversity), but also increasing greenhouse gas emissions. This is increasing temperature which is causing Himalayan glaciers to melt. Similarly, climate change impacts – drought, forest fires, avalanches, flash floods, and landslides are devastating the lives and livelihoods of tourism stakeholders. However, the stakeholders suffer from inadequate knowledge resources (data and analysis, policies, plans, handbooks, manuals, etc), which leads to a lack of means and their ability to take appropriate actions.

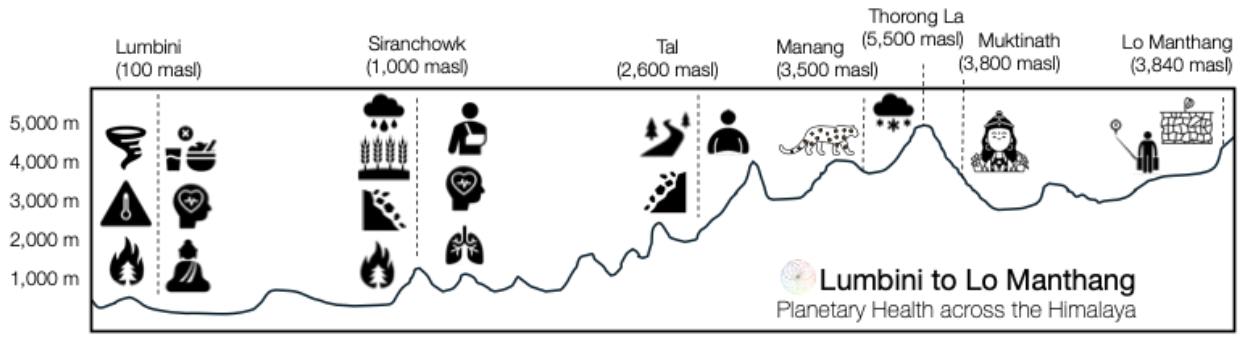
To address these issues, SMTC is initiating the "Bridging Knowledge-Action Gap" program. The program focuses on knowledge co-generation, brokering and dissemination aspects, enabled through capacity building of the key stakeholders (industry, research and academia, training institutes, government and local community) through global, regional and local collaboration.

Duke University Climate&Health+

Duke University is the premier institution that integrates environmental science, engineering and health (along with policy, business, law and even divinity) to address the problems associated with complex global changes. The topographic, climatic, ecologic, economic and cultural diversity of Nepal offers a singular living laboratory for students from Duke and the Himalayan region to see these intersections in all real-world messiness. Under the auspices of Duke's Climate Commitment, a **Climate & Health+** project aims to benefit Environment and Global Health students at Duke and Duke Kunshan, as well as students of public policy, engineering, and biology and pre-med students from across various majors of these institutions.

Lumbini to Lo Manthang (L2L) – Planetary health across the Himalaya

The 2025 Fieldschool, titled *Lumbini to Lo Manthang (L2L): Planetary health across the Himalaya* caters to a diverse group of undergraduate students from environment, engineering, the humanities and health of Duke, Duke Kushan, member universities of the HUC and policymakers from the RMCs of the HKH region aiming to **examine how global change is impacting human health and well-being.** The fieldschool highlights the critical need for this diverse set of stakeholders - students, faculty members and policymakers - to understand the acute impacts of climate change on health and environmental and socio-economic well-being and the diverse climate zones of Nepal provide an excellent natural laboratory.



The three-week field-based programme will in the Terai region (100 masl) and end at the Tibetan Plateau (4,000 masl) and will involve two flights, many hours in Jeeps, and a 4-day trek over the Thorong La pass (5,400 masl) before visiting the storied Kingdom of Lo during the annual Tiji Festival. The starting point of the journey is Lumbini, the birthplace of The Buddha, in the hot, flood-prone Terai region (100 m

above sea level) to participate in a NGO-run health camp near the epicenter of the 2015 Gorkha earthquake (1,000 masl), then take a new road into the heart of the Himalaya to learn how global change is impacting biodiversity in this home of blue sheep, pallas cats and the elusive snow leopard (3,500 masl). Students and faculty members will then trek over an alpine pass (5,416 m) to a storied Hindu pilgrimage site (3,800 masl) and ending at the Tibetan Plateau in the rainshadow of the Annapurna range where 3,000 year old villages (Dhye and Sam Dzong) are being relocated due to climate change. At each stop, fieldschool members will examine climate data, meet with local officials and gain insights from Nepali and foreign researchers and experts on the nexus of global change (climate + land use/land cover), development and human health and well-being. Fieldschool participants will also learn how locals are navigating more sustainable solutions to their challenges in the Planetary Health framework.

Learning Objectives

Each stop along the **Climate & Health+** transect will consider how global change is impacting the health and well-being of communities in these broad geographic regions. Students in the first iteration will help us design a course where participants will be better equipped to

- Understand the **complex interactions between communities and environmental changes** in geology, water resources, atmosphere and biodiversity;
- What are the factors that contribute to **climate disaster risk and response**, and how this understanding informs more **sustainable solutions for resilience building**;
- How the **environmental determinants of health and well-being** can be attributed to the various aspects of these rapidly changing systems;
- Document examples of **sustainable land restoration practices** that support the natural systems that provide much-needed ecosystem services to communities;
- Better understand the **trends around development, human migration, tourism, urbanization, transportation and food systems**;
- How **indigenous knowledge, religion and ethnicity** impact people's understanding of disasters and how these views impact sustainable solutions;
- **Engaging with community stakeholders** including youth groups, women's groups, religious leaders, business leaders/entrepreneurs, politicians and policymakers.

The Co-Organizers

The fieldschool organizers consist of an experienced team of natural scientists, engineers, healthcare researchers, and local cultural experts who recognize the importance of understanding how these diverse fields come together to address an array of existential problems associated with climate disruption. In addition to Duke University, the HUC and ICIMOD local institutional partners in Nepal are

the Institute of Himalayan Risk Reduction, Forum for Energy and Environment Development, National Trust for Nature Conservation (NTNC), and Varagung Muktichhetra Rural Municipality (VMRM).

The Participants

Participants are undergraduate students, enrolled from Duke University and Duke Kunshan (DKU) Environment, Engineering and Global Health, the faculty members and policy makers from Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan, and from Nepal-based institutions. Female students and students from under-represented communities are strongly encouraged to apply.

For effectiveness and efficiency, the field school does not exceed 25 participants in total, all-inclusive.

Financing Modality

The fieldschool is financed on a resource-sharing basis. Duke University provides funding for its students and faculty members and those from Nepal. Students and faculty members from the HUC, where applicable, will provide full or partial funding for their participation, with partial support as part of the collaboration between ICIMOD's Sustainable Mountain Tourism Component (SMTC) and HUC Thematic Working Group on Mountain Tourism and Heritage.

An estimated cost for the 3-week field school per person is USD2,500/- covering all Nepal-based activities, exclusive of international return airfare, visa and travel insurance.

Interested faculty members from HUC member universities are welcome to participate on a weekly basis, at a cost starting from USD1,200/-.

Annex 1. Itinerary

Days	Dates		Themes	Night Stay
1	14 (evening)-16 May (morning) - Students' Arrival in Kathmandu			
2	16 May	Friday	Welcome & Orientation	Kathmandu
3	17 May	Saturday	Storytelling	Kathmandu
4	18 May	Sunday	Nepal geography and health issues	Kathmandu
5	19 May	Monday	Mountain Living Lab Godavari & ICIMOD	Kathmandu
6	20 May	Tuesday	half day lecture and go around	Kathmandu
	LUMBINI - PALPA - POKHARAROUTE			
7	21 May	Wednesday	Religious diversity	Lumbini
8	22 May	Thursday	Wetland ecosystem and ground water	Lumbini
9	23 May	Friday	Geology and geomorphology; development	Tansen, Palpa
10	24 May	Saturday	Health in the lower hills	Tansen, Palpa
11	25-May	Sunday	Travel and Chill	Pokhara
12	26-May	Monday	NBS, EBA, Lake ecosystem Services system	Pokhara
13	27-May	Tuesday	NTNC presentaion. Visit forestry campus or medical college	Pokhara
	MARPHA-KAGBENI- GHAMI-LOMANTHAN ROUTE			
14	28 May	Wednesday	Arid climate survival	Marpha
15	29 May	Thursday	@Marpha and visit around Marpha, Horticulture, agriculture, cooperatives, Hydropower	Marpha
16	30 May	Friday	Travel to Lomanthan observing - Ghami - Tsaran- changes of vegitation and landscape formaiton by wind erosion, experiencing cold arid region	Marpha
17	31-May	Saturday	Travel to Muktinath via Kagbeni obseving the flood damages and stay night @kagbeni	Kagbeni

18	1-Jun	Sunday	Observe Ghami Village, and its landscape and vulnerability, interact with people on culture, tourism , Agriculture and livelihood	Ghami	Trevel to Ghar observe, lansc landscap
19	2-Jun	Monday	Climate migration, livelihood and health	Lomanthan	Travel to loma settlements an
20	3-Jun	Tuesday	Climate migration, livelihood and health	LomanThan	visit climate ref Semjong, go a settlemetn and locals on finidn economy and c
21	4-Jun	Wednesday	Climate migration, livelihood and health	Lomanthan	Visit Korala Bo Lomanthan set with the locals climate, health,
22	5-Jun	Thursday	Observation of the landscape and biodiversity	Tatopani	observe landsc geological form
23	6-Jun	Friday	Travel from Tatopani to Pokhara	Pokhara	observation of slope stabilizai protection
24	7-Jun	Saturday	Flight back to Kathmandu	Kathmandu	Flight from Pok

Annex 2. Faculty Members

Name	Institution	Country
Prof. Brian McAdoo*	PlanetLab, Duke University	USA
Dr. Karen Sudmeier-Rieux*	TH Köln, University of Applied Sciences, Cologne	Germany/ France
Prof. Basanta Adhikari*	Institute of Engineering, Tribhuvan University	Nepal
Prof. Binbin Li*	Duke Kunshan University	China
Dr Sunil Joshi*	Kathmandu Medical College	Nepal
Dr. Chi Huyen (Shachi) Truong	Himalayan University Consortium/ ICIMOD	Nepal
Dr. Anu Kumari Lama	ICIMOD SG2 AA-C Tourism	Nepal
Dr. Sanjay Devkota	Institute of Himalayan Risk Reduction	Nepal
Asst. Prof. Kamal Raj Gosai	Central Department of Environmental Science, Tribhuvan University, and Resources Himalaya Foundation	Nepal
Mr. Tom White	Photographer & scholar, University of Edinburgh, Future Studies Group	U.K./ Singapore

Mr. Purna Chandra Lal Rajbhandari	Freelance, formerly Asian Disaster Prevention Center and UNEP	Nepal
Mr. Prem Kunwar	Karma Treks Foundation	Nepal
Lysa MacKeen	Duke Global Health Institute, Senior Associate Director for Experiential Learning	USA