



Mountain Researcher's (MoRe) Expressions

Expressions from the Himalaya:

❖ "Where Science Meets Experience" ❖



Director's Desk

Mountain Researcher's (MoRe) Expressions occupies a unique place within GBPNiHE's communication and outreach efforts, going beyond standard research outputs to capture the observations, experiences, perceptions,

reflections, and creative insights that arise from sustained time spent in the mountains. Much of what researchers encounter in the field doesn't always fit in academic publications. Yet these seemingly casual observations often enrich scientific understanding, spark new questions, and bring to light aspects of Himalayan ecosystems and communities that structured methods alone may not fully reveal.

Research in the Indian Himalayan Region is influenced as much by the terrain and its ecological intricacies as by the people, cultures, livelihoods, and traditions woven into it. GBPNiHE researchers move through these landscapes not merely with scientific precision, but also with curiosity, sensitivity, and a willingness to learn from whatever they come across outside formal research protocols. A shifting spring season, an unusual ecological encounter, a conversation with a mountain community, an unplanned field observation, or even a spark of artistic inspiration can all become part of a researcher's intellectual journey.

Volume 3(1), 2026, of MoRe Expressions draws together these varied dimensions of mountain research. The articles present in this volume remind us that meaningful mountain research comes not only from measuring and analyzing change, but also from observing, listening closely, and staying open to the landscapes and communities we engage with.

I extend my appreciation to all the researchers for sharing these experiences and perspectives, and for enriching the Institute's culture of scientific inquiry and communication. I would also like to acknowledge the dedicated efforts of the Editors of this volume and especially thank Er. Himanshu Joshi, for compiling and shaping this issue into its present form. I hope this volume inspires our researchers to keep documenting not just what they study, but also what they notice, experience, question, and learn along the way.

Editorial Team

Mountain research is rarely confined to what eventually appears in a scientific paper, technical report, map, or dataset. Between a research question and its formal documentation lies a much richer landscape of experiences—unexpected observations in the field, conversations with communities, encounters with biodiversity, changing environmental signals, practical challenges, moments of curiosity, and impressions that remain with a researcher long after the fieldwork is completed. Many of these experiences may not find a place in conventional scientific literature, yet they often shape how we understand the mountains and the questions we subsequently choose to pursue.

Mountain Researcher's (MoRe) Expressions was conceived as a platform for bringing these less-documented dimensions of research into the realm of scientific and institutional communication. It provides researchers with an opportunity to record and share observations, perceptions, field experiences, reflections, creative expressions, innovations, and other insights arising from their engagement with the Indian Himalayan Region. Volume 3(1), 2026, continues this endeavor by bringing together diverse expressions of researchers working across Himalayan landscapes and socio-ecological settings. The contributions reveal the mountains not merely as sites of scientific investigation, but as dynamic spaces of interaction, learning, adaptation, and discovery. They also demonstrate how careful observation beyond formal research protocols can complement scientific evidence, generate new questions, and enrich our understanding of complex mountain systems. Through MoRe Expressions, we seek to preserve these voices and experiences before they disappear into field notebooks, personal memories, photographs, or conversations. In doing so, the Newsletter provides a complementary window into the human and experiential dimensions of scientific inquiry while encouraging researchers to observe more closely, reflect more deeply, and communicate more creatively. The views and interpretations expressed in individual contributions are those of the respective authors and do not necessarily represent the views of the Editors or the Institute. We sincerely thank all contributors for enriching this volume and welcome comments and suggestions that can further strengthen MoRe Expressions as a platform for documenting the many dimensions of mountain research.



From Doubt to Discovery: My Experience with Hydroponics and Wastewater Reuse

Mohsina Afzal, LRC

Working on hydroponics using treated wastewater has been a meaningful and transformative experience for me. When I first joined the project, I felt excited to work on something innovative and important. The idea that plants could be grown hydroponically using treated wastewater fascinated me, especially because such solutions are valuable in water-scarce regions like Ladakh. In places like Leh, agriculture is constrained by harsh winters, poor soil, and a very short growing season. Hydroponics offers an important alternative because crops can be grown in a controlled environment while using water efficiently. Realizing that this technology could help improve local food production under such challenging conditions deepened my interest and motivation to work on the project. At the same time, I was a little hesitant. The thought of working with wastewater, even though it is treated, sounded slightly unpleasant at first, and I wondered whether it would be safe for plants.

I joined the project during the peak winter season in Ladakh, when temperatures were freezing. Although the harsh weather made the work more challenging, I was also motivated because it gave me a chance to learn how research is conducted under real, difficult conditions. The NFT (Nutrient Film Technique) system performed poorly due to the low temperatures in the polycarbonate house and the water. Even though the results were not encouraging at first, I remained hopeful and curious about how the system could be improved. I also had to constantly monitor parameters such as pH, EC, and TDS. The temperature and the pH were hard to maintain. These challenges ultimately taught me patience, persistence, and careful observation.

Gradually, as I spent more time working with the system, my hesitation disappeared. I realized that properly treated wastewater can actually be a useful resource rather than something unpleasant. One of the most satisfying parts of the experience was watching the lettuce (*Lactuca sativa*) and Swiss chard (*Beta vulgaris*) plants grow day by day. Seeing the roots develop in the nutrient solution without soil helped me understand plant growth in a very practical way. It was inspiring to see something considered waste helping support plant life.

Another unexpected challenge I faced was dealing with rats. They repeatedly came to the hydroponic setup (polycarbonate house) and ate the lettuce plants I had been carefully monitoring. It was upsetting to see the plants damaged overnight. I tried to keep them away, but when nothing worked, and they continued destroying the experiment, I



Figure: Drip-based hydroponic technique at Bombarh Leh, Ladakh

eventually had to kill them. It was a difficult decision, but necessary to protect the plants.

This experience taught me patience, responsibility, and the importance of sustainable resource use. Over time, I became more confident in managing the system and solving problems. What initially felt strange or uncomfortable slowly became meaningful work. Looking back, this journey was challenging but very rewarding. It helped me understand how research works in real conditions and strengthened my interest in sustainable agriculture and innovative farming technologies.



Among Thorns and Aromas: My Journey with Timur in Uttarakhand

Purnima Rawat, Project Associate-II, CEA&CC-HQ

During my field experience of collecting fruits of Timur (*Zanthoxylum armatum*) in Uttarakhand, I also came across its cultural and indigenous knowledge. The plant often blends into the surrounding vegetation, making it difficult to recognize, but its thorny appearance and clusters of small, aromatic fruits help in its identification and documentation. Harvesting its fruits is a careful and tedious task. The spiny stems required patience and steady hands, and I often relied on simple collection bags to collect the fruits. The sharp and citrus-like aroma of the fruits is a reminder of their culinary and medicinal importance in local households. The villagers I met along the way shared insights about the right harvest season, i.e., late summer to early autumn, and also shared their knowledge of how the fruits are used for culinary purposes



Figure: Timur (*Zanthoxylum armatum*)

and in traditional remedies. They also shared their views on decreased usage of the plant and how it is losing importance as a multipurpose species in Uttarakhand. These conversations added depth to my field experience, connecting ecological observation with cultural practice.

Rulung Glacier -Lessons from Ice and Silence

Mohd Ilyas, Junior Project Fellow, LRC

Some journeys do more than take us to a place—they change the way we see the world. My field visits to the Rulung Glacier in August and October 2025 were such journeys. Accompanied by friends and guided by Dr. Purushottam Kumar Garg, Glaciologist, I travelled not only into the high-altitude landscapes of the Trans-Himalaya, but also into a deeper understanding of nature, endurance, and myself.

Both expeditions began before sunrise, around 6:00 AM, from the Sumdo Lakfail hotel. The morning silence felt heavy and expectant, broken only by the sound of our footsteps and quiet conversations. We drove to the end of the road in the Rulung Valley, knowing that beyond that point, everything would depend on our own strength. The four to five hours of trekking that followed were demanding—steep slopes, rugged ground, and thin air tested every step—but with each climb, the outside world seemed to fade away. The valley slowly revealed its soul. Crystal-clear lakes, endless mountain ridges, and wide-open skies surrounded us. We stopped often, not because we were tired, but because the beauty demanded attention. The slopes were alive with Aster flowers, and the valley was overflowing with Delphiniums, stretching as far

as the eye could see. Calling it a valley of Delphinium felt not poetic, but honest. Among them grew medicinal plants, silent witnesses to centuries of survival. The chirping of birds, the cold wind on my face, and the continuous, powerful sound of the Rulung stream created a rhythm that felt timeless and calming. In those moments, the mountains felt alive. Reaching the campsite near the glacier brought a deep sense of humility. Standing on the moraines, looking down at the vast body of ice, I felt both awe and unease. The glacier was magnificent, yet fragile. Its silence spoke louder than words, reminding me of how slowly but surely it is changing.

The fieldwork focused on hydrological measurements, especially measuring stream velocity at an altitude of around 5700 m asl. Carrying equipment in such conditions was not easy. Because it was the peak trekking season and the horses were engaged elsewhere, we had no option but to rely on two donkeys to transport our essential supplies. The weather challenged us constantly. Rulung surprised us with hailfall, stinging our faces and hands, and reminding us that the mountains follow no calendar.



Our next goal was to study glacier mass balance, to understand how much ice the glacier was losing. We installed bamboo stakes, drilling into the hard ice so that future changes could be measured. Each drill into the glacier felt symbolic, as if we were marking time itself. The strong winds, mixed with snowfall, made it difficult to stand, let alone work. My hands went numb, my breath grew heavier, and yet, giving up never felt like an option. The harshness of the environment made the work feel urgent and meaningful.

By the end of these expeditions, I was physically exhausted, but emotionally transformed. The Rulung Glacier taught me patience, resilience, and respect for nature's power. It made the reality of climate change tangible—not as graphs or numbers, but as melting ice beneath my feet. These experiences strengthened my commitment to field-based research and left me with a profound sense of responsibility toward the fragile mountain environments that silently sustain life downstream.

Even now, when I think of Rulung, I remember the sound of



Figure: Moments from our field expeditions capture the silence, struggle, and beauty of the high mountains

the stream, the wind across the ice, and the feeling of standing before something ancient and slowly disappearing.

Asian Waterbird Census 2026: Avian Treasures of the Changthang Wetlands

Rinchen Dolker, LRC

I still remember the biting chill of those mornings in Changthang during the Asian Waterbird Census 2026. The landscape was stark with vast stretches of frozen marshes and snow-dusted mountains, but now and then, life revealed itself in the most unexpected ways. At Chumathang and Puga, the geothermal springs carved out little oases of open water, and it was there that we spotted herds of different species of waterfowl, like Ruddy Shelducks, Common Merganser, Gadwall, Bar-headed goose, gliding gracefully, glowing against the blue sky, and the wader species like solitary snipe, white wagtail, wall creeper, dotted along the shores. Our experience at the vast frozen wetland of Tsokar, glistening under the golden evening light, was elevated by the presence of the upland buzzard, a little owl, and a huge herd of Tibetan Argali, grazing along the lower slopes of the mountains. Hanle's marshes felt like a hidden sanctuary, with raptors circling and small songbirds breaking the silence among the caragana bushes of the inner valleys. Beneath the canopy of *Salix* trees at Hanle, our team trailed a distant melody until, for the briefest moment, a tiny Lapland Longspur revealed itself only to vanish in the blink of an eye. Knowing it was the first record for Ladakh and only the second for India

“Protecting them isn't optional; it's urgent”.



Figure 1: A flock of Common Mergansers at Puga



Figure 2: Lapland longspur (*Calcarius lapponicus*) at Hanle



Figure 3: Upland Buzzard (*Buteo hemilasius*) at Tsokar Wetland

filled the team with awe. It wasn't just a tick on a checklist; it was a reminder of how these high-altitude wetlands hold secrets waiting to be discovered. With the census nearing completion, I felt thrilled at our team's checklist of 47 bird species, yet humbled as the census wasn't just about counting birds, but about listening to what the wetlands were telling us, about how the Himalayas are changing.

From Crowds to Clouds: Tourism, Floods, and Air Pollution in Kullu–Manali

Sheetal Chaudhary, Senior Project Fellow, HRC

The Kullu–Manali region of the northwestern Himalayas is experiencing environmental stress due to a combination of rising air pollution, frequent floods, and overtourism. With a significant decline only during the pandemic, the nearly threefold increase in tourists (from ~1.45 million to ~3.8 million between 2006 and 2025) has led to heavy traffic, unplanned construction along riverbanks, increased waste production, all of which contribute to ecological imbalance and declining air quality. Emissions from cars, diesel generators, and construction projects increase Particulate matter (An increase in both PM10 and PM2.5 concentrations was observed during the study period) and black carbon levels increased (from ~1.8 $\mu\text{g m}^{-3}$ to 2.8 $\mu\text{g m}^{-3}$ from 2009 to 2025 respectively), especially during the busiest travel seasons and the winter months when atmospheric dispersion is at its lowest. However, the area's natural drainage capacity has been reduced by overdevelopment of infrastructure and encroachment along the River Beas, making it more vulnerable to periods of intense precipitation and flash floods (as flood type events increased from 4-6 events in 2006-2020 to 8-10 major events in 2021-2025). These floods release pollutants, silt, and debris into the air and water, in addition to damaging property and infrastructure. Given the combination of tourism pressure, climate variability, and fragile mountain terrain, the Kullu–Manali region urgently needs stronger environmental regulations, better urban planning, and sustainable tourism policies.



Figure 1: (a) Tourists and vehicle on the road to Rohtang pass in gulaba village, (b) flood damage in Kullu-Manali, and (c) The serene view from Manali Kullu, with the pink-blue hues of the Himalaya Mountains disappearing into the fog



Celebrating Biodiversity and Nature Elements: A Spring Festival in the Hills of Uttarakhand

Kalpana Rautela, CBCM-HQ

The people of the hills celebrate their local festivals by following their traditions. Most of the rituals and festivals are directly or indirectly connected to God, nature and their ancestors. They express their gratitude to God and to nature for giving them a safe life in synchrony with the environment. Phool Dei is one such festival known as the 'festival of Harvest and flowers', which is mainly associated with crops and celebrated in both the Kumaun and Garhwal region of Uttarakhand. It is celebrated on the first day of Hindu month of Chaitra. The festival mainly belongs to the arrival of spring and a celebration of children. On this day, children (called as Phulari) become the messengers of nature; they go from house to house in their village and offer flowers to the doorsteps called Dehri (main door), chanting in the local language, "Phool Dei Chamma Dei, Daine Dwar, Bhar Bhakar, Vo Dei Sei Namashkar, Puje Dwar," to bring good luck, prosperity, and protection to each household. At every door, the children pray for a good crop while offering flowers. In return, the people give them some rice and jaggery, and some money as a token of gratitude, and this rice and jaggery are mixed and ground and then cooked in ghee, garnished with sesame seeds. This is the signature dish of this festival which is called Sei (also known as Sai). This is a traditional sweet dish made from rice flour, jaggery (gur), Ghee and sesame seeds. This prasad is then offered to the folks.

The people believe that children are the purest-hearted people, so their prayers go directly to God. It is believed that if a child blesses your doorstep with flowers on this day, your granaries will remain full all year round. Days before the festival, children collect flowers in a Ringal (bamboo) baskets called as toperi/dhokeri. The main flowers used in the festivals are Silphar (*Bergenia ciliata*), Phyli (*Reinwardtia indica*), Mujhau (*Zephyranthes* sp.), Buransh (*Rhododendron arboreum*), Aru (*Prunus persica*), Sarson (*Brassica juncea*) and some seasonal wild flowers. *Rhododendron arboreum* is called as the state tree of Uttarakhand, and its flowers are used in the festival as a symbol of good luck, prosperity, and spring. Also, its flower juice is known to have medicinal properties, like reducing inflammation, controlling blood pressure, and also treating digestive issues. Its juice and squash are also sold by local communities for livelihood generation as well. Also, from an ecological point of view, the *Rhododendron* forests prevent soil erosion and provide habitat for birds, insects, and wildlife. At the same time, another flower used is *Bergenia ciliata*, which is commonly known as Pashanbhedha (meaning "stone breaker"), is a perennial herb found in the Himalayas at elevations between 1,900 and 2,600 meters. This plant holds cultural and medicinal importance in Ayurveda, used to treat kidney stones, fevers, urinary disorders, diarrhoea, coughs, and asthma. It also exhibits anti-inflammatory, antimicrobial, anti-diabetic, antioxidant, and anti-cancer properties. Similarly, *Zephyranthes* sp. (locally called as Majhau phool) is a bulbous perennial herb of the family *Amaryllidaceae*. Along with these, the yellow flowers of *Brassica juncea* (Mustard) are also used in this festival. Beyond its cultural significance, mustard has been used for thousands of years both as a spice and for medicinal purposes. Overall, these plant species hold a significant role in the local festivals, working as a bridge between the traditional wisdom and modern pharmacology while respecting nature. The Phool Dei festival of Uttarakhand serves as a beautiful reminder of our direct connection to nature and its elements. It teaches children that they are not just inheritors of the land, but its guardians.





Plants: The Natural clock of time

Sunita Bisht, CBCM-HQ

As civilization becomes more advanced, the connection with traditional and natural indicators of time is gradually losing its value. Plants are one of the such natural indicators that nature has blessed humans with. The beautiful *Ginkgo biloba*, a living fossil, has persisted through multiple mass extinction events in Earth's history, including those that caused the extinction of dinosaurs. In ginkgo trees, the fresh green leaves slowly change to yellow as autumn begins. With time, the leaves turn bright golden yellow indicating peak of autumn season. When winter arrives, the leaves fall completely, and the tree is left with only bare branches.



The delicate and varied patterns of ice crystals formed on plant surfaces indicate the intense chilling conditions of winter. While some plants appear dried and lifeless, others remain green and active, highlighting the diverse ways in which nature adapts and responds to similar climatic conditions.

The most beautiful spring season is best represented by the blooming of numerous plants, which brings an unspoken sense of relief and joy to people. While flowering plants display a wide variety of colourful patterns in nature like reddish-pink and white colour in different species of *Prunus*. Non-flowering gymnosperms, though they lack showy flowers like angiosperms, exhibit the initiation of distinctive cone-bearing patterns. Overall, nature has provided us with many indicators that, when observed carefully, reveal the passage of time.





Visit to Syahi Devi, Almora: A Journey Through Nature, Culture and Spirituality

Rashmi, CSED-HQ

Visiting Syahi Devi Temple near Almora was one of the most peaceful and memorable journeys I have experienced. The visit was not just a trek to a temple but a journey that allowed me to connect with nature, culture, and my own thoughts. The calm Himalayan environment, the dense forests, and the spiritual atmosphere together made the experience truly special.

I started my journey early in the morning when the winter air was cold and refreshing. The drive towards the base of the trek passed through beautiful hill roads surrounded by small villages and terraced fields. The morning sunlight slowly touched the mountains, creating a golden glow across the landscape. As I approached the starting point of the trek, I felt both excitement and curiosity about the journey ahead.

The trail began with a gradual uphill climb. Initially, the path looked simple, but the steady ascent soon started testing my stamina. However, the cool mountain breeze and peaceful surroundings made the climb enjoyable rather than tiring. As the trail climbed higher, the forest occasionally opened into beautiful viewpoints. From these points, I could see deep valleys, scattered villages, and distant mountain ranges. Each viewpoint felt like a reward after walking through the dense forest.

One of the most breathtaking moments of my journey was seeing the snow-covered Himalayan peaks from near the temple area. Standing there and looking at the vast Himalayan range made me feel small yet deeply connected to nature. After completing the climb, I finally reached the Syahi Devi Temple. The temple is located on a peaceful hilltop plateau surrounded by forest and open sky. As I entered the temple area, I felt a sudden sense of calmness and spiritual energy. The gentle ringing of temple bells and the devotional atmosphere created a soothing environment. The idol of Goddess Katyayani Devi looked powerful and kind. Dressed in bright clothes and flowers, she gave a feeling of protection and strength. Nearby, Goddess Kalika Devi's shrine felt intense and powerful, symbolizing courage and protection from negativity.

After offering prayers, I sat quietly near the temple courtyard. From that point, the Himalayan peaks stretched

across the horizon, glowing softly under the winter sunlight. The silence around me attached with occasional temple bells created a deeply meditative atmosphere. The forest, mountains, and temple felt connected, as if nature itself was part of the spiritual experience. As I prepared to leave, I turned back once more to look at the temple. The quiet structure standing amidst the forest felt timeless and eternal. The journey had given me more than scenic beauty or trekking satisfaction; it had offered moments of deep emotional and spiritual connection.

Walking down the trail, I carried with me the sound of temple bells, the image of the sacred idols, and a feeling of peace that stayed long after the trek ended. The visit to Syahi Devi became more than a travel memory — it became a personal spiritual experience that will remain close to my heart.





Rise in Winter Forest Fires: A Dangerous New Pattern

Paras Upadhyaya, CSED-HQ

Climate change is no longer a distant scientific debate for the people of the Kumaun region of Uttarakhand. For those of us who study the environment and those who live in the mountains, the evidence is now unfolding right before our eyes on our farms, in our forests, and even in our water sources. As a researcher observing the ecological patterns of Ranikhet, Almora, and surrounding areas, I have been witnessing the changes becoming more rapid and more alarming with every passing year.

If we look back at the last 5–10 years, the weather seasons in the Kumaun Himalayan region have become increasingly unpredictable. Winters that once arrived steadily in late November now stretch uncertainly into January till mid of February. The winter rains have declined sharply, directly affecting the macro and micro-climate, agriculture, forest moisture, precipitation, spring rejuvenation and biodiversity. Summers have become hotter, drier and longer. Monsoon rainfall has turned erratic as some years witnessing cloudbursts and landslides, other years experiencing worrying longer dry spells.

This winter season (2025–26) has been one of the most unusual one which I have seen in the region. December and January remained unexpectedly sunny and warm, with barely any winter rain. People in Almora and Ranikhet were surprised to see the days that felt more like late autumn than mid-winter. Then came an even more unexpected event. On the day of Vasant Panchami, traditionally marking the beginning of spring, the region witnessed the first snowfall

of the season. A snowfall arriving directly after such a dry and warm winter, without any previous rain shower is a clear indicator of a disrupted climatic cycle. For farmers, late snowfall offers no benefit to winter crops, and for forests, the prolonged dry phase before the snow significantly heightens vulnerability to fires.

One of the most serious impacts of these warm and dry winters has been the increasing frequency of forest fires in the early winter months. In the past, forest fires were predominantly a summer phenomenon, peaking in April and May when pine needles accumulate and temperatures rise. But now, forest fires are being reported as early as December and continuing through January and February months that were once considered too cold and moist for fire outbreaks. The dry winter, long drier spells, continuous sunlight and lack of moisture in the soil and vegetation have created conditions where even a small spark can trigger widespread burning.

Additionally, shifting flowering patterns have also become an unexpectedly vivid sign of climatic disruption in the region. *Rhododendron* (Buransh), the iconic Himalayan bloom, is now appearing much earlier than it traditionally did across parts of Kumaun. Flowers that typically brighten the landscape in March–April are being seen as early as January, reflecting not just an early bloom but a deeper disturbance in the ecological rhythm that these mountains have followed for generations. Same is the case with *Prunus* and *Pyrus* blooms which have appeared in the January itself.

The Kumaun Himalaya is entering a phase of accelerated climatic stress. The changes we are witnessing today in Almora, Ranikhet, and nearby areas are not isolated incidents they are part of a larger climatic shift, which needs our consideration in long-term research.

When the Mountains Speak Softly

Vivek Singh, CSED-HQ

The mountains do not shout. They speak softly. And sometimes, if we slow down enough, we can hear them.

During my recent field visits, I realized that research in the Himalaya is not always about data sheets or structured observations. It is about moments. About people. About silences that carry stories. I remember walking through a small village where life moved at a different pace.





Children were playing near terraced fields, elders sat outside their homes warming themselves in the winter sun, and women carried bundles of firewood with practiced balance. Everything looked calm, almost timeless.

But beneath this calmness, there are quiet struggles. One afternoon, I saw an elderly woman lying outside her house in the sunlight. She had slipped from the stairs earlier that day and had injured her head and foot. There was no panic around her, only concern in the eyes of her family. What struck me deeply was not just the injury, but the distance. The nearest proper medical facility was nearly 20 kilometres away.

In mountain terrain, 20 kilometres is not a short drive; it is a challenge. Roads are narrow, transport is limited, and time feels heavier. That moment stayed with me.

We often speak of development in terms of roads, markets, digital access, and infrastructure. But standing there, I felt how fragile life can be in these regions. A simple fall

becomes a serious situation when healthcare is far away. The mountains offer breathtaking beauty, but they also test resilience every single day. At the same time, I saw something powerful community strength. Neighbours gathered. Someone arranged a vehicle. Others brought water and comfort. In the absence of systems, people become the system.

The Himalaya teaches us that sustainability is not only about forests and biodiversity. It is also about human dignity. It is about ensuring that people who protect these landscapes have access to basic services like healthcare, education, and safety. As researchers, we walk into villages carrying notebooks and cameras. But we often walk back carrying questions that statistics cannot answer. The mountains do not demand sympathy. They demand attention. They ask us to look beyond the scenery and understand the lives that unfold within it.

Sometimes, research is not about finding solutions immediately. It is about learning to listen.





Morning view of Mohal-Khad during routine monitoring

Saptarshi Bharati, Junior Project Fellow, HRC

In the scenic landscape of Himachal Pradesh, my daily field routine begins along the banks of Mohal-Khad, a tributary of the Beas River. As a researcher at GBPNiHE-HRC, water sampling from this mountain stream is one of my responsibilities. Yet, beyond the measurements and instruments, Mohal-Khad has become a living classroom—one that teaches lessons far beyond hydrological parameters.

Each sampling day started with a structured protocol. Water samples are collected systematically, after which I measure physicochemical parameters including pH, electrical conductivity, total dissolved solids (TDS), salinity, dissolved oxygen, sediment load, and other essential chemical properties. These parameters help us understand the ecological health and seasonal dynamics of the stream. However, the field is never just about numbers, as I approach the sampling site in the early hours, the rhythmic flow of Mohal-Khad creates a natural cadence—almost like a rhythm that accompanies the day's work. The melodious calls of native bird species echo through the valley, forming an acoustic landscape that no laboratory can replicate. These moments transform routine monitoring into an immersive ecological experience. On the way to the stream, I often encounter school-going children with hopeful, curious eyes. Their presence is a reminder that mountain ecosystems are not isolated from society—they sustain futures. Sometimes local villagers approach me with questions. They ask why the climate feels different now, why water flow patterns seem altered, and why seasons no longer behave as they once did. Many of them share reflections from memory and tell me earlier the surroundings were purer.

Interestingly, they also acknowledge the underlying cause—rapid, human-induced development. These conversations have gradually become an integral part of my fieldwork. While my instruments measure dissolved oxygen and sediment concentration, these conversations are also equally important to understand and mitigate environmental changes. Often, villagers ask how they can help protect “our mother nature.” In response, I try to share simple, implementable suggestions—reducing plastic use, conserving spring sources, preventing direct waste discharge into streams, protecting riverine vegetation, and supporting local conservation initiatives. Though small, these dialogues represent a bridge between research and responsibility.

Gradually, I have realized that environmental monitoring in the Himalaya is not merely a technical exercise. It is



relational, it connects science with society, data with memory, and measurement with meaning. Standing beside Mohal-Khad, holding sampling bottles and instruments, I am reminded that mountain streams are more than hydrological systems, each day the stream tells us a different story, carriers of ecological balance, cultural memory, and intergenerational hope.

Through systematic research and community awareness, my work is a modest effort toward safeguarding this fragile mountain ecosystem. In the continuous flow of Mohal-Khad, I see both warning and resilience “an invitation to act responsibly, while there is still time”.



A Vibrant Tsomgo Lake of Sikkim Himalaya is under Anthropogenic Threat

Lakpa Tamang, SRC

Generally, wetlands are defined as area of saturated land-water interface. It supports distinct biological diversity with enormous ecosystem service potential, for instance water supply, flood control, a carbon buffer etc. Globally accepted, wetlands located above 3000 meters are considered as High-Altitude Wetlands (HAWs). One such culturally ingrained HAW, Tsomgo Lake, is located in Gangtok district, Sikkim, at an elevation of 3753 meters. The lake area spread over 24 hectares with a catchment area covering 279 hectares. It is a glacial trough lake formed within a depression created by glacial erosion and subsequent retreat. The lake is an open hydrological system, with 13 streams feeding it, and an outlet that gives rise to the Lungtse Chu River. The residents of Chipsu village, located downstream of the lake, directly depend on lake water for drinking and domestic purposes. The lake is also important in terms of breeding grounds for migratory waterfowls, carbon sequestration, recreational activities and tourism among others. Earlier, Tsomgo Lake used to freeze during the winter months; however, in recent years, due to reduced seasonal snowfall, the lake often remains unfrozen. Local residents have also reported delayed snowfall, typically occurring from mid-March this year earlier it used to be from February. Field observations during a visit to Tsomgo

Lake in February, 2026 indicated that only one stream, with a discharge of $0.016\text{m}^3/\text{s}$, was contributing to the Lake's inflow, potentially leading to a significant reduction in water volume. Out of 288 mapped wetlands, in Sikkim 07 High altitude lakes (Gurudongmar, Tsomgo, Elephant Lake, Manju I&II, Chola Lake, Menmecho lake, Hangu lake) are open for tourist recreational activity. Among these wetlands Tsomgo experience highest influx of tourist with nearly 50% of annual tourist, out of total state visiting tourist.

The increased tourist into the area has led to construction of various recreational centers like Rope way, view point, cafeteria, footpath in the catchment, which has increased the rate of sedimentation into the lake and generation of more single use plastic waste in this fragile eco-sensitive zone. The above figure 1 indicates the rise in percentage of annual tourist visiting Tsomgo Lake out of total state visiting tourist. The data plotted for more than a decade indicates a rising trend in tourist influx. Major tourist visits are observed from (October to May) to witness seasonal snowfall and freshly overlaid layers of primulas and *Rhododendron* bloom. The increasing tourist into the area means direct deposition of carbon soot from vehicular



Figure 1: Showing Annual tourist footfall of Tsomgo Lake



Figure 2: Showing Tsomgo Lake and receded lake water mark

movements in nearby glacier area accelerating the rate of snow and glacier melt.

The disturbances in the wetland system can be observed from the absence of glaciers in the catchment area, degrading water quality, tonnes of waste, few instances of snowfall and increasing builtup area. The shrinkage in lake area is also observed due to heavy sedimentation and lack

of winter precipitation which led to significant receding of lake water. On an average 358mg/L of sediment is getting deposited into the lake annually.

In figure 2 red line indicates the water level line, the maximum lake water level mark is represented by line 1 and line 2 represents the point of receded water level mark. During field visit only it was observed that water has receded by about 200 meters of length from initial 1 mark to current 2 water level mark. A significant decrease in volumes of water in Tsomgo lake puts pressure on inhabitants dependent on drinking water and downstream agricultural-dependent populations during lean periods. The degradation in lake water quality is also observed due to domestic effluents and yak manure seepages into the lake water system. A major algal bloom on the north-west corner of the lake was observed marked with red dot on the figure. Therefore, it is really high time to take necessary actions and policy changes regarding controlled tourist flow, construction activity and waste management around sources of fresh water lakes or high altitude wetlands. The same situation is evident from across Himalayan lakes and in need of urgent continuous monitoring system to preserve freshwater sources.

Brahmatal: Where Meadows Whisper Stories of the Himalayas

Pooja Rawal, CLWRM-HQ

BRAHMATAL

◆ TREK ◆



LOCATION

Brahmatal Trek,
Lohajung – Chamoli District,
Uttarakhand



TRAVEL DATES:

28 September – 2 October 2025



INTO THE HIMALAYAS —

Where the Journey Teaches Before the Destination

We began our journey from Almora, riding two-wheelers towards Lohajung—the gateway to the Brahmatal trek. By late afternoon, we reached Deval, a small town wrapped in mountain silence. However, silence isn't always peaceful in the Himalayas. Massive landslides triggered by days of heavy rain had blocked the road ahead.

This moment was my first real reminder:

The mountains are changing — climate-induced disasters are now frequent.

We waited near a roadside shop. Local villagers offered us tea and a temporary shed to rest under. Their warmth, even in uncertainty, felt more comforting than any luxury. Two hours later when the road opened, darkness had already taken over the valley. We resumed our journey and reached Lohajung late at night—cold, tired, but excited.

Day 1: Trek to Bekal Tal — Into the Forest World

The trail began early next morning. We trekked 6 km, climbing through dense forests echoing with bird calls and



the crunch of fallen leaves. Our first halt was Bekal Tal, a quiet lake surrounded by forest.

A flock of sheep had gathered near the lake, returning from high-altitude summer grazing. We watched as the shepherd guided them down—his entire life synced with the rhythm of seasons and meadows.

That night, rain tapped on the tent roof. Our guide told us stories of native wildlife—Himalayan black bears and elusive snow leopards—reminding us that we were guests in their home.

Day 2: Above the Tree Line — Meadows Like Open Skies
Morning rain softened into mist. At 8 am, we resumed our journey.

The landscape changed dramatically. As we crossed 12,000 feet, the tree line faded behind us and the meadows opened like a green sea. Buransh (*Rhododendron*) trees stood in patches, marking the boundary between forest and alpine grasslands.

At Jhandi Top (approx. 12,150 ft), a small Shiva temple welcomed us. From here, a 360° panorama unfolded:

- Aali Bugyal
- Bedni Bugyal
- Countless rolling meadows touching the horizon

Far beyond, snowy Himalayan peaks shimmered, floating above the clouds.

Towards Brahmatal — A Sacred Lake in the Clouds

Fog began to rise from the valleys, drifting like moving curtains. After trekking 2.5 km through meadows

blooming with tiny alpine flowers, we reached a small temple dedicated to Lord Brahma. Locals believe that Lord Brahma meditated here, giving the lake its name—Brahmatal.

The lake appeared suddenly, like a secret revealed.

Still, deep, and untouched—reflecting the sky and our exhaustion.

A second flock of nearly 300 sheep grazed nearby, guarded by just three Tibetan Mastiffs—known locally as Bhotiya kukkur. Despite being intimidating protectors of the herd, they approached us with gentle curiosity. Their presence made the night feel safe, even though bears and leopards are common in these forests.

Final Descent — Clouds, Lessons, and Goodbyes

On the final morning, the sky was crystal clear. As we started descending, clouds formed rapidly and engulfed the meadow. For 2–3 hours we waited at Jhandi Top, watching the mountains hide and reveal themselves again and again.

When we finally reached Lohajung, tired and mud-splattered, one feeling stayed:

Nature rewards those who wait.

Environmental Reflection

The Brahmatal trek showed me beauty, but it also revealed concern.

- Landslides due to extreme rainfall are no longer rare—they are becoming the norm.
- Impacts of tourism are visible—plastic and abandoned



trekking waste in some stretches.

- Meadows are delicate ecosystems; overgrazing and trekking pressure can disturb them.

Yet, I also saw hope in the locals—guides who instruct trekkers to carry their waste back, shepherds who protect their grazing lands, and villagers who teach us to take only memories and leave only footprints.

A Message to Fellow Travelers

The Himalayas are not a destination.

They are a responsibility.

- Carry back every piece of plastic.
- Do not disturb wildlife habitats.
- Support local communities — stay local, eat local, respect local culture.

Because if the mountains take care of us, we must take care of them too.

The Cedar's Wait: Notes on an Anomalous Winter

Abhishek Sikdar, Junior Project Fellow, CSED-HQ

In the Central Himalaya, winter used to arrive in a clear, predictable pattern, not as a sudden surprise. Looking back at my notes from November 2019, the weather followed an orderly path. First, there were warning signs: two or three days of steady rain and thunder. Then, the temperature dropped, and the landscape settled down. Finally, the snow arrived with precipitation. It felt like a natural next step, allowing the soil and plants to adjust together.

The winter of 2025–26, however, was very different. For most of the season, the mountain slopes had no snow. It was simply dry and cold. The usual warning signs were missing; there was no long rain, no thunder, and no gradual slide into winter. When snow finally fell on January 23, 2026, it was sudden and short. It fell on dry ground without the preparation we saw in earlier years. Instead of a steady rhythm, this felt like a “flash” winter that broke the usual schedule of the region.

To a casual observer, late snow might just look like strange weather. But for the forest, the seasons act like a set of rules for life. This is especially true for the *Cedrus deodara* (Roxb.) G.Don (Himalayan Cedar). This important tree relies on a specific winter schedule to reproduce. Pollination happens in late autumn (October–November), but fertilization waits until spring (April–May). The months in between

December through February are not just a waiting period. The trees need this long time of cold temperatures, known as the chilling requirement, to prepare themselves to produce seeds successfully.

What worries me with the 2025–26 winter is that this cold window has become too short as the real winter has been delayed until late January and occurs in short bursts and the trees might not get enough cold exposure. This creates a timing anomaly the trees are following an ancient evolutionary schedule, but the climate is changing the rules. If these anomalous winters become a normal trend, the trees may fail to produce seeds, meaning fewer new trees regeneration in these ancient forests.

When I first recorded these seasonal changes in 2019, I was a student observing nature with curiosity. Today, as a seasoned researcher, noticing such a sharp change in such a short time is thought provoking. It shows that climate change is no longer just a prediction for the future. It is happening right now, fast enough to be seen in just a few years of observation.

These experiences show why handwritten field notes are still valuable alongside modern technology. Weather stations can measure temperature and rainfall, but they often miss the “feel” insight of the season such as whether the rain came before the snow, or how the forest reacted. The quiet, dry slopes before the sudden snow in January were a warning signal. They suggest that the Himalayan winter, once predictable, is breaking apart. We need to watch, document, and understand these changes more closely than ever.





When a Tiger Walks the Road: Lessons from Mehao, Arunachal Pradesh

Bishal Kumar Majhi, NERC

In the forested landscapes near Mayodia Pass in Mehao Wildlife Sanctuary, a recent human–tiger encounter has drawn attention to the fragile and often misunderstood relationship between people and wildlife in Northeast India. The incident, in which a person from Arunachal Pradesh Police lost his life and a tiger was later found dead nearby, has raised concern across communities, researchers, and forest authorities alike. Within two days, a sub-adult female tiger was found dead nearby, with evidence of a gunshot injury. Later analysis of collected samples indicated that the same tiger was likely involved in the earlier incident. While these events are closely linked in time and space, understanding them requires careful observation rather than quick assumptions. Yet beyond the immediacy of the event lies a deeper story, one that speaks of changing landscapes, shifting animal behaviour, and the urgent need for informed coexistence.

For local communities, the situation felt unusual and alarming. Tigers are not new to these forests, and people have lived alongside wildlife for generations with very few such incidents. However, in the weeks leading up to this event, several sightings of a tiger near roadside areas had been reported, including posts shared on social media. After the incident, a sense of panic spread among residents. Almost daily, reports of tiger sightings began to emerge from different locations. Yet, when these sites were visited and verified, most of them showed no evidence of tiger presence. This not only reflected the heightened fear among people but also made field investigations more challenging, as time and effort had to be spent verifying multiple unconfirmed reports.

From an ecological perspective, such behaviour is not entirely inexplicable. The forests in this region are increasingly experiencing fragmentation, creating challenges for animal movement. For a young tiger or a female with cubs, navigating these landscapes can be difficult. Roads, though risky, may sometimes offer easier movement routes through otherwise dense and uneven terrain. At the same time, areas near roads can provide access to prey such as stray dogs or livestock (such as Mithun), which are often easier to hunt than wild prey deep inside forests. However, this proximity is usually temporary. Disturbance levels are high, and such areas do not provide secure long-term habitat. Increased interaction between humans and wildlife in these zones raises the likelihood of conflict, even when neither intends it.

Following the incident, a field assessment was conducted by the North-East Regional Centre of the GB Pant National

Institute of Himalayan Environment as part of an ongoing project on tiger landscape ecology and genetics in Northeast India. The research team visited the site to better understand the situation on the ground. Scat samples were collected for genetic analysis, and camera traps were installed to monitor wildlife movement in and around the Mehao WLS. These methods, though non-invasive, provide valuable insights into species presence, movement patterns, and habitat use. Fieldwork in Mehao presents its own set of challenges. The terrain is steep and undulating, with dense vegetation and limited accessibility. Reaching sampling locations requires considerable effort and time. Yet, beyond these physical constraints, the human dimension remains equally important.

The human dimension of the situation proved to be equally complex. Many local communities in the region depend on forests for their daily activities and often move through these landscapes carrying firearms for personal safety, which is a long-standing practice in these remote areas. When camera traps were installed as part of the monitoring effort, concerns naturally arose. People feared that images capturing them with firearms might lead to unintended legal consequences, even though their intent was not linked to wildlife harm. At the same time, rumours began circulating that the tiger had been brought from outside as part of a plan to declare a tiger reserve in the region. Such perceptions, though not supported by evidence, reflected underlying anxieties and mistrust. These factors created hesitation and, at times, limited cooperation during fieldwork. Addressing this required careful engagement rather than enforcement. Efforts were made to explain that camera traps are scientific tools used to understand wildlife movement and improve safety for both people and animals, not instruments of surveillance. Building this understanding was essential to ensure that conservation actions are seen as collaborative rather than restrictive.

Capacity-building was another important component of the response. Training programmes were conducted for forest personnel (i.e., range officers and beat guards) to strengthen skills in camera trap installation, scat sample collection, and safe field practices. Strengthening local capacity ensures that monitoring efforts can continue effectively and that responses to future situations are better informed. One of the most valuable tools in understanding such events is genetic analysis. By analysing DNA from scat samples, researchers can identify individual animals and even trace their origins within populations. Over time, this information can help map movement patterns, identify dispersal routes, and understand



how animals navigate fragmented landscapes. Such insights are crucial for anticipating potential conflict zones and planning preventive measures.

Interestingly, camera traps installed after the incident have not recorded any recent tiger presence. This suggests that the animal's use of the roadside landscape may have been temporary, possibly linked to movement or other ecological factors. It also highlights how dynamic wildlife behaviour can be, especially in a rapidly changing landscape.

The broader lesson from Mehao is not about a single incident, but about the larger context in which it occurred. Protected areas in Northeast India are embedded within lived-in landscapes, where human activity and wildlife

movement often overlap. Roads passing through or near such areas further increase the chances of interaction. Careful regulation of movement, particularly during high-risk periods, can play an important role in reducing such risks. Equally important is the role of awareness. Understanding wildlife behaviour, recognising signs of animal presence, and adopting precautionary measures can help communities navigate these shared spaces more safely. Conservation, in such contexts, is not just about protecting wildlife; it is about enabling coexistence. The forests of Mehao continue to support a rich diversity of life. Incidents like this, though tragic, offer an opportunity to reflect, learn, and adapt. With a combination of scientific research, community engagement, and thoughtful management, it is possible to reduce risks and strengthen the delicate balance between people and wildlife.





A Chilli, A Choice, A Change: A Woman's Story from Dzongu

Neekita Sharma Kafley, SRC

"It's a small chilli, but for us, it makes a big difference."

I still remember her saying this with a gentle smile as she sorted freshly harvested Dalley Chillies on a bamboo mat outside her home in Dzongu. It was a quiet afternoon. The hills were covered in mist and the village moved at its usual slow pace. It seemed like an ordinary moment but it reflected an important change taking place in many households. In Dzongu, Dalley Chilli has always been part of daily life. It is grown in kitchen gardens, along field edges, and in small patches near homes. For a long time, it was not seen as a source of income. Families used it for cooking, shared it with neighbours, and sometimes sold small amounts in local markets. It remained outside the focus of livelihood discussions.

BUT SITTING WITH HER THAT DAY, I BEGAN TO SEE A DIFFERENT STORY.

She told me how she started paying more attention to her chilli plants over the past few years. "Earlier, we didn't think much but now we know it has value" she said. Using seeds saved from her own harvest and applying manure prepared at home, she began to manage the crop more carefully. There are no major investments involved. Just a shift in perspective. What followed was not a sudden transformation, but a gradual change one that any economist would recognise not in numbers, but in behaviour. The plants began yielding steadily and she started selling both fresh and dried chillies in the local market. The income was not large but it was regular. "I don't have to ask for money every time," she said softly. "I can manage small things on my own." That sentence stayed with me. Similar experiences are being seen among other women in the area. Dalley Chilli fits well into their daily routines. It grows alongside daily responsibilities, requires minimal external inputs, and provides returns over time. From an economic perspective, it is a low-cost and low-risk option. But in everyday life, it is something more it gives a sense of independence however small it may seem.



Figure 1: Photographs captured by the author showing Dalley Chilli fruiting, cultivation fields, harvesting, traditional weighing practices, and sun drying methods



The recognition of Dalley Chilli through its Geographical Indication tag has also influenced how farmers view the crop. When asked about it, she simply said that it shows their chilli is unique to their place. This sense of identity is gradually changing how farmers value what they grow. In her village, a women's group has started small efforts to process chillies. They are drying, grinding, and making pickles. These activities are still at an early stage, but they show interest in value addition and better income opportunities. There are challenges. Farmers face pest problems, irregular rainfall, and changing market prices. However, they continue to adapt. Knowledge is shared through everyday interactions among farmers. This experience shows that change in rural areas does not always come through large investments. Sometimes, it begins with small decisions and better use of local resources. In Dzongu, Dalley Chilli is slowly becoming part of that change, supporting livelihoods in a steady and practical way. And maybe that is where real rural entrepreneurship begins.

This story from Dzongu is just one small example, but similar efforts across Sikkim show what is possible. The recent export of GI tagged Dalley Chilli to the international market reflects the same journey that begins at home with small changes in how farmers see their crops. What was once grown only for daily use is now reaching bigger markets. This shows that with belief, effort, and the right support, even simple crops can create new opportunities. It also gives a clear lesson that the same can be done with other local crops.

प्रकृति में ईश्वर की अनुभूति

नम्रता शर्मा, एचआरसी

जब भी भगवान को समझना चाहा,
सोचा — पालनहार, तत्त्व, निर्गुण, न्यारा,
ये सब प्रकृति के अलावा और कौन हो सकता है?
जिसका होना ही मधुर हो, मनोरम हो,
धरा पर रखा हर एक कदम
आत्मीयता का एहसास कराता हो।

अविरल जल की धारा,
पावन वायु का स्पर्श,
स्वच्छ अन्न का वरदान —
इन्हीं से तो जीवन संभव हो पाता है।
यहाँ हर एक चीज़ है संतुलित, है सटीक,
मानो कोई कलाकार
अपनी अनुपम कला रच गया हो।

तभी अक्सर सोचा करती हूँ —
जब भी भगवान को समझना चाहा,
तो यही जाना —
प्रकृति ही भगवान का रूप है।
पर एक प्रश्न मन में ठहर सा जाता है —
क्या कलाकार अपनी कृति को जन्म देता है?
या फिर कृति ही
कलाकार को जन्म लेने का माध्यम बनाती है?

समय को धीमा तो किया जा सकता है,
पर समय पर विजय संभव नहीं।
वैसे ही जैसे नदी पर बाँध तो बनाया जा सकता है,
पर उसके बहाव को रोका जाए —
तो क्या वह अपना रास्ता स्वयं नहीं बना लेती?
शायद कलाकार कला को जन्म देता है,
या फिर कला ही
कलाकार को बनाती है जन्म लेने का ज़रिया।

Heart says about heart

Pooja Bisht, CEA&CC-HQ

I am heart, I am the beating part.

I am also a blood-pumping part I do not want to do something hard

I live on the left on your body side.

Without any fight.

I am happy, if I am beating rhythmically.

Don't take stress, I can say clearly.

Sometimes I occur on the right side of your body site.

My right side is systemic, left pulmonary

You have to know both necessary.

I have a dual nature with special pumping functions

It is called double circulation.

I have to isolate blood pure, impure in these left and right sites, without any extra diet.

My heart muscle's contraction being systole.

While rhythmic relaxation will be diastole

I am beating rhythmically if contraction and relaxation run properly.



I am pumping blood rhythmically, if I have heart beat regularly

I am myogenic, I am not panic

If nerve impulses run, I am neurogenic.

I have a myogenic conduction system,

Then I have to reach, beat to the heart for the junction, I have four chambers

I have two Auricle and two ventricles.

I have arteries, I have a vein with clear frame.

I am arteries, I can flow blood from the heart

I am vein, I can bring blood impure from the organ part.

So I am heart, with these junctions that is all my function

If you want to keep me happy

You have to take food healthy.

You have to do yoga regularly

So don't take oily, don't take fatty.

Otherwise, I will become ill.

So how can I run these functions as well

If you don't improve your habit of cell.



The Time Within the Tree

Kanha Dalakoti, Project Associate-II, CEA&CC-HQ

High in the mountains, calm and free,

Stands an old and ancient tree.

For many years it watched the land,

Rooted deep in soil and sand.

Storms have passed and rivers run,

Cold dark nights and rising sun.

Yet through it all the tree would grow,

Slow and steady, sure and slow.

Inside its trunk the rings are made,

Light and dark in gentle shade.

Each new year another line,

Marking growth through passing time.

Rainy years leave circles wide,

Dry years press the rings inside.

Warmth and cold both leave a sign,

Written there in wooden line.

Scientists read these rings with care,

Finding climate signals there.

Matching patterns far and near,

They trace the story year by year.

So every tree that stands so tall

Is more than wood and bark and all.

It holds a record deep and free—

The quiet clock of history.



It's Okay to Take a Pause

Kalpna Rautela, CBCM-HQ

This is dedicated to every hardworking woman who is always pushing forward, winning, losing, trying, and growing. Never forget that all of it is important. You matter. Don't lose courage. It's always okay to pause and rest, even in the middle of everything.

I have smiled through the sun, I have laughed with the breeze,

I have cried in the dark, seeking soft, silent peace.

I have run with the wind, I have walked through the rain,

I have paused, I have stopped, in both joy and in pain.

I have given my hands, I have opened my heart,

I have felt every piece, every end, every start.

Can someone just whisper, "It's okay to slow down,"

To let go of the chaos, the noise of the town?

Don't rush through the hours, don't race with the time,

Do anything-nothing-let stillness be fine.

आग में जलते देवभूमि के पहाड़: एक मूक चेतावनी

नेहा ठाकुर, एचआरसी

19 फरवरी, 2024 की रात, सोने से पहले मैं अपनी रोज़ की एक छोटी-सी आदत निभा रही थी; खिड़की से बाहर मोहल के शांत वातावरण को देखना। लेकिन उस रात की शांति अचानक टूट गई। सामने स्थित पवित्र बिजली महादेव के पहाड़ आग की लपटों से चमक रहे थे। शुरुआत में यह कुछ छोटी-छोटी चिंगारियों जैसा लगा, पर देखते ही देखते आग पूरे ढलान पर फैल गई और अंधेरे पहाड़ को जलती हुई लकीरों में बदल दिया। यह दृश्य एक ओर आकर्षक था, तो दूसरी ओर बेहद डरावना भी। सुबह तक आग नीचे की ओर बढ़ते हुए राष्ट्रीय राजमार्ग-3 के पास पहुँच गई, जिसने एक सीमा की तरह काम करते हुए आग को आगे बढ़ने से रोक लिया। पहाड़ के एक ओर घर कम थे, लेकिन दूसरी ओर मोहल का घनी आबादी वाला क्षेत्र स्थित था। उस समय मन में एक सवाल बार-बार उठ रहा था कि अगर ब्यास नदी और सड़क बीच में अवरोध के रूप में नहीं होतीं और आग इस ओर पहुँच जाती, तो जान और माल का कितना नुकसान हो सकता था? आग इतनी भयानक थी कि अगले कई दिनों तक पूरी घाटी धुएँ से ढकी रही। साँस लेते समय भी हवा में धुएँ के कण साफ़ महसूस होते थे। आग केवल अपने रास्ते में आने वाले घरों और वन्यजीवों को ही सीधे नुकसान नहीं पहुँचाती, बल्कि अप्रत्यक्ष रूप से पूरी हवा की गुणवत्ता को बदलने की क्षमता भी रखती है। यह घटना केवल एक दिन की नहीं थी। पूरे फरवरी-मार्च के महीनों में बिजली महादेव, बजौरा और जी. बी. पंत संस्थान, मोहल के पीछे कैसधार की पहाड़ियों पर बार-बार आग लगने की घटनाएँ सामने आईं। स्थानीय लोगों, कर्मचारियों और शोधकर्ताओं से बातचीत करने पर एक गहरी सच्चाई सामने आई—यह समस्या केवल प्राकृतिक नहीं, बल्कि पारंपरिक जीवनशैली से भी जुड़ी हुई है। मोहल और कुल्लू घाटी के आसपास के कई गाँवों में पुराने समय से घास की ढलानों को जलाने की परंपरा चली आ रही है। कुछ पशुपालक नई घास उगाने के लिए सूखी घास को जानबूझकर जलाते हैं। उनका मानना है कि इससे पुरानी, कठोर घास हट जाती है और नई, मुलायम घास जल्दी उगती है। साथ ही, यह भी विश्वास है कि आग से हानिकारक कीड़े-मकोड़े और विषैले जीव नष्ट हो जाते हैं और वर्षा होने की संभावना भी बढ़ जाती है। पशुपालकों के लिए ये घास की ढलानें केवल ज़मीन नहीं, बल्कि उनकी आजीविका का आधार हैं। भेड़-बकरियाँ इन्हीं पर निर्भर रहती हैं। इसलिए पीढ़ियों से चली आ रही यह परंपरा उनके जीवन का हिस्सा बन गई है। इस दृष्टि से देखा जाए तो आग केवल विनाश नहीं, बल्कि एक तरह का पुनर्जन्म भी मानी जाती है। लेकिन यह स्थिति एक महत्वपूर्ण प्रश्न खड़ा करती है—क्या ऐसे टिकाऊ विकल्प विकसित किए जा सकते हैं, जो पशुपालकों की आजीविका को भी

बनाए रखें और हिमालय के नाजुक पर्यावरण की रक्षा भी करें?

शायद समाधान इन परंपराओं को पूरी तरह रोकने में नहीं, बल्कि उन्हें समझने और वैज्ञानिक दृष्टिकोण के साथ जोड़ने में है। यदि हम स्थानीय ज्ञान और आधुनिक पर्यावरणीय समझ के बीच संतुलन बना सकें, तो घास के पहाड़ों का सुरक्षित और बेहतर प्रबंधन संभव हो सकता है। क्योंकि यदि ये आग इसी तरह अनियंत्रित रूप से फैलती रही, तो यह पहाड़, जो आज हमें जीवन दे रहे हैं और प्राकृतिक संतुलन बनाए रखने में महत्वपूर्ण भूमिका निभा रहे हैं, भविष्य में इस तरह प्रभावित हो सकते हैं कि उनकी भरपाई करना संभव नहीं होगा।





उत्तराखंड में बाह्य पलायन से पहाड़ की 'भिटौली' परंपरा का बदलता हुआ स्वरूप

दीपक सिंह बिष्ट, सीएसईडी-एचक्यू

सदियों से चली आ रही भिटौली परंपरा का महिलाओं को बेसब्री से इंतजार रहता है। पहाड़ की महिलाओं को समर्पित यह परंपरा महिला के मायके से जुड़ी भावनाओं और संवेदनाओं को बयां करती है। हालांकि पहाड़ के बदलते स्वरूप, दूरसंचार की उपलब्धता, आवागमन की बढ़ी सुविधाओं के बाद यह परंपरा कम होती जा रही है, लेकिन प्रदेश के दोनों मंडलों के पहाड़ी क्षेत्रों में यह परंपरा पुराने रूप में जीवित है। भिटौली का सामान्य अर्थ है भेंट यानी मुलाकात करना। उत्तराखंड की विषम भौगोलिक परिस्थितियों, पुराने समय में संसाधनों की कमी, व्यस्त जीवन शैली के कारण विवाहित महिला को सालों तक अपने मायके जाने का मौका नहीं मिल पाता था। ऐसे में चैत्र (मार्च-अप्रैल) में मनाई जाने वाली भिटौली के जरिए भाई अपनी विवाहित बहन के ससुराल जाकर उससे भेंट करता था। उपहार स्वरूप पकवान जैसे अरसा, पूरी, खजूर, मिठाई और नए कपड़े लेकर उसके ससुराल पहुँचता था। भाई-बहन के इस अटूट प्रेम, मिलन को ही भिटौली कहा जाता है। सदियों से यह पुरानी परंपरा निभाई जाती है। इसे चैत्र के पहले दिन फूलदेई से पूरे माह भर तक मनाया जाता है। उत्तराखंड के लोकगीतों और लोककथाओं में भी इसका वर्णन मिलता है। उत्तराखंड में कोई भी तीज त्योहार हो, उससे जुड़ी लोककथाएं, दंतकथाएं भी सुनने को मिलती हैं। ऐसे ही भिटौली से जुड़ी लोककथाओं, लोकगीतों, दंतकथाओं का वर्णन मिलता है। इसमें गोरीधाना की दंतकथा बहुत प्रसिद्ध है, जो कि बहन और भाई के असीम प्रेम को बयां करती है। इसमें चैत्र में भाई अपनी बहन को भिटौली देने जाता है। वह लंबा सफर तय कर जब बहन के ससुराल पहुँचता है तो बहन को सोया पाता है। अगले दिन शनिवार होने के कारण बिना मुलाकात कर उपहार उसके पास रख लौट जाता है। बहन के सोये रहने से उसकी भाई से मुलाकात नहीं हो पाती। इसके पश्चाताप में वह 'भै भूखों, मैं सिती भै भूखों, मैं सिती' कहते हुए प्राण त्याग देती है। बाद में घुघुती पक्षी बनकर वह यही पंक्तियां कहती है। आज भी चैत्र में घुघुती पक्षी इस गीत को गाता है। इस इन्तजार को लोक गायकों ने लोकगीतों के माध्यम से भी व्यक्त किया है। जैसे "न बासा घुघुती चैत की, याद ऐ जांछी मिके मैत की"। बदलती जीवन शैली से लोक कथाएं और परंपराएं अपना अस्तित्व खो रही हैं। आधुनिक जीवन शैली के बदलने से आज पहाड़ों की परंपरा और संस्कृति को बयां करने वाली लोककथाओं, लोकगीतों का अस्तित्व खत्म हो रहा है। जीवन शैली के बदलाव के बाद भिटौली की परंपरा को भी लोगों ने भुला दिया है या उसका रूप बदल गया है। पुराने समय में भिटौली देने जब भाई बहन के ससुराल जाता था तो बहुत से उपहार और विशेषकर पकवान लेकर जाता था और उसके बहन के घर पहुँचने पर उत्सव सा माहौल होता था। उसके लिए पकवान पूरे गाँव में बाँटे जाते थे। लेकिन आजकल भिटौली एक औपचारिकता मात्र रह गई है। आजकल बेटियों और बहनों को भिटौली के रूप में मायके पक्ष से पैसे भेज दिए जाते हैं। रोजगार, बेहतर शिक्षा और बेहतर चिकित्सा सुविधाओं के कारण वर्षों से पहाड़ में हुए पलायन से भी वर्तमान में उत्तराखंड में धीरे-धीरे भिटौली जैसी कई और सांस्कृतिक परम्पराओं और त्योहारों का रूप बदल गया है। पहाड़ का युवा अपनी संस्कृति और पहचान को भूलता जा रहा है। पलायन इसका एक प्रमुख कारण है; पूर्वजों से मिली अपनी संस्कृति को कैसे आने वाली पीढ़ी के लिए बचाया जाये हम सबको इस विषय पर विचार करना चाहिए।





NEW FACES

Ms. Sakshi Rana joined the HPPCL-funded project titled 'Implementation of Environment Monitoring Programme and Impact Evaluation of Sainj Hydroelectric Project during Operation Phase' as a Field Researcher on 2 March 2026 at HRC

Dr. Manish Pant joined the In-house Project-I titled 'Investigating Land Dynamics and Water Security in the Himalayan Region Following Multi-Observation Framework for Sustainable Solutions', CLWRM as a Research Associate on 1 April 2026 at HQ

Ms. Damini joined the In-house Project-III titled 'Fostering Socio-Ecological Security and Sustainable Bioeconomy in the Indian Himalayan Region through Community-Driven Blockchain Governance Models' as a Junior Project Fellow on 13 April 2026 at HRC

Ms. Neeraj Kumari joined the In-house Project titled 'Integrated Strategies for Conservation and Sustainable Utilization of Biodiversity in the Indian Himalayan Region' as a Junior Project Fellow on 27 April 2026 at HRC

Ms. Lata Joshi joined the In-house Project-I titled 'Investigating Land Dynamics and Water Security in the Himalayan Region Following Multi-Observation Framework for Sustainable Solutions', CLWRM as a Junior Project Fellow on 1 June 2026 at HQ

Ms. Archana Chauhan joined the project titled 'Farm-Scale Decision Support System for Selected Agro-Ecologies of North-Western Himalayas' as a Field Assistant on 4 June 2026 at HRC

Ms. Adya Anand joined the project titled 'Farm-Scale Decision Support System for Selected Agro-Ecologies of North-Western Himalayas' as a Junior Research Fellow on 16 June 2026 at HRC

Mr. Manjul Nautiyal joined the project titled 'Sustainable Production and Climate-Resilient Management of *Ophiocordyceps sinensis* for Biodiversity Conservation and Livelihood Enhancement in the Indian Himalayan Region' as a Project Associate-I on 6 July 2026 at HQ

Dr. Sonu Singh joined the In-house Project-I titled 'Investigating Land Dynamics and Water Security in the Himalayan Region Following Multi-Observation Framework for Sustainable Solutions', CLWRM as a Research Associate on 27 July 2026 at HQ

Mr. Abhisek Khatri joined as Junior Project Fellow in the project titled 'Resilience Building in Climate-Sensitive Basins in the Indian Himalayan Region – Mapping Vulnerable Hotspots and Communities for Risk Reduction and Adaptation' at LRC



EVENTS ATTENDED AND AWARDS & HONORS

Ms. Avani Sharma (HQ) qualified CSIR JRF on December 2025 with AIR 106

Dr. Manish Pant, RA-I, CLWRM-HQ, attended the training workshop on "Landslide Mitigation in Hilly Areas" held from 4–6 May 2026 at ATI, Nainital

Ms. Sakshi Rana (HRC) was awarded with Gold Medal for securing the highest academic performance in M.Sc. from Sardar Patel University Mandi on 06 May 2026

Dr. Neeraj Kumari (HRC) completed her PhD on 28 July 2026 from Shoolini University of Biotechnology and Management Sciences

Dr. Manish Pant, RA-I, CLWRM-HQ, published a patent (Application No. 202611073706) on 31 July 2026



ABOUT THE INSTITUTE

G.B. Pant National Institute of Himalayan Environment (formerly known as G.B. Pant Institute of Himalayan Environment & Development) was established in 1988-89, during the birth centenary year of Bharat Ratna Pt. Govind Ballabh Pant, as an autonomous Institute of the Ministry of Environment, Forest & Climate Change (MoEF&CC), Govt. of India, which has been identified as a focal agency to advance scientific knowledge, to evolve integrated management strategies, demonstrate their efficacy for conservation of natural resources, and to ensure environmentally sound development in the entire Indian Himalayan Region (IHR). The Institute attempts to maintain a balance of intricate linkages between socio-cultural, ecological, economic and physical systems that could lead to sustainability in the IHR. To achieve this, the Institute follows a multidisciplinary and holistic approach in all its Research and Development programmes with emphasis on interlinking natural and social sciences. In this effort, particular attention is given to the preservation of fragile mountain ecosystems, indigenous knowledge systems and sustainable use of natural resources. A conscious effort is made to ensure participation of local inhabitants for long-term acceptance and success of various programmes. Training, environmental education and awareness to different stakeholders are essential components of all the R&D programmes of the Institute.



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