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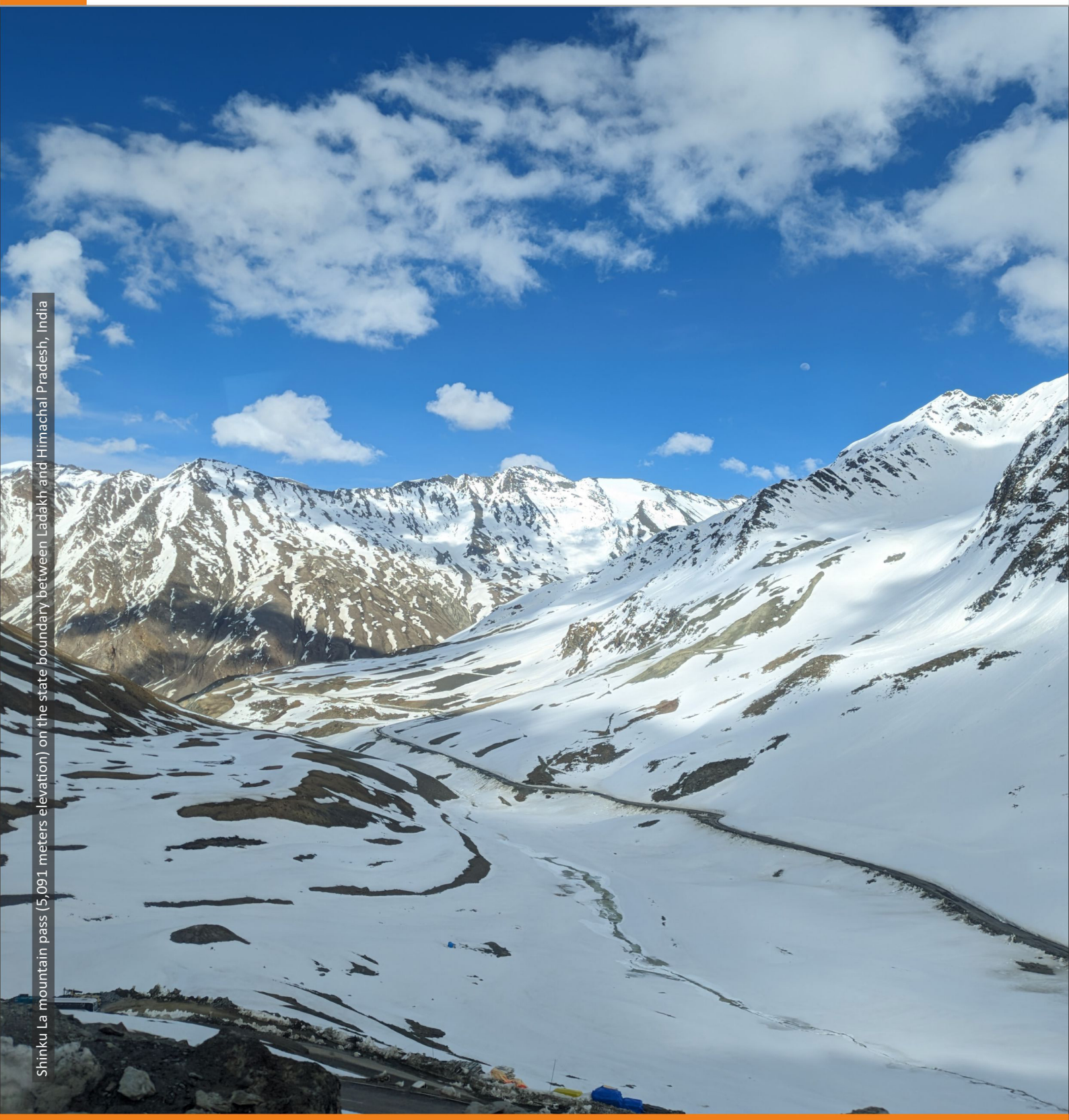
Monthly newsletter on issues of sustainable development



Shinku La mountain pass (5,091 meters elevation) on the state boundary between Ladakh and Himachal Pradesh, India

Himalayan Ecosystem – Saving our Himalayas

Contents

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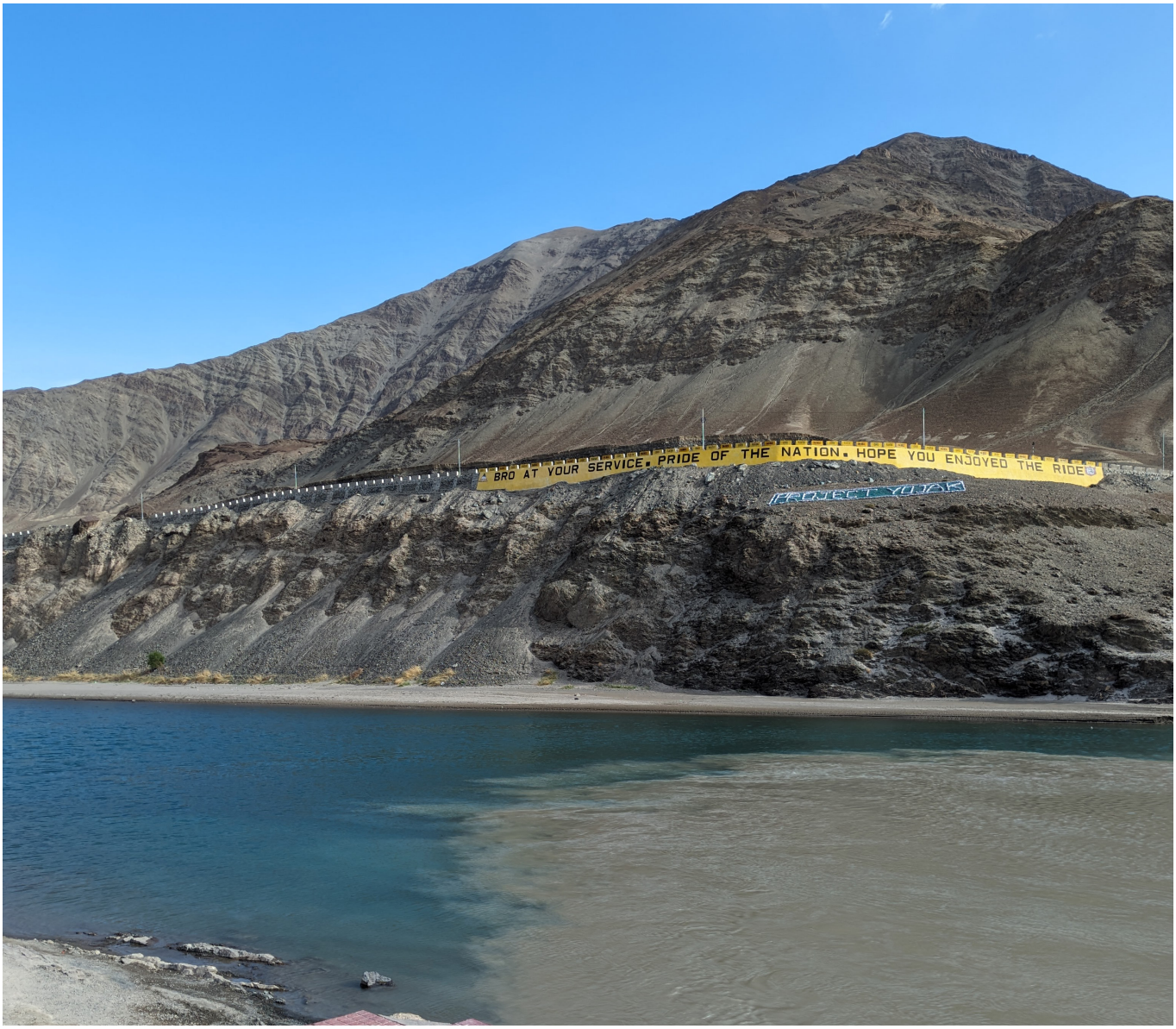
The Mighty Himalayas: Mountain, People, Nature, and Climate



Sangam of Zanskar and Indus river is a notable and cultural landmark in Ladakh, India

The Himalayas, also known as the third pole, is integral to the region's climate, people, and nature nexus, influencing the lives of millions living here and downstream. However, with the passage of time, climate change is disrupting this intricate balance—impacting glaciers, altering water availability, threatening agriculture and biodiversity, and eroding traditional ways of life.

Erratic weather patterns, including cloud bursts, have increased in frequency in recent years; the one in memory is Kedarnath (June 2013) and most recently in Himachal Pradesh (Mandi, 30 June 2025), leading to massive floods and loss of lives. Furthermore, the loss of glacial mass or retreating glaciers has a direct bearing on long-term water security (affecting perennial rivers, sustaining agriculture, hydropower, and drinking water for millions), exacerbates the frequency of flash floods and glacial lake outburst floods (GLOFs), and intensifies the risks for already vulnerable mountain communities. On the

other hand, forest fires have also been supported due to the increasing dry season and availability of combustible materials, such as dry leaves on the forest floors.

Livelihoods, lifestyles, and culture of the people in the Himalayas are closely tied to the season, just as they are in many other regions. However, changing precipitation patterns, rising temperature, and shifts in local biodiversity have significantly weakened livelihood security and eroded cultural continuity. Many local communities, such as the Monpas, Bhutias, and Bhotias, maintain deep cultural connections to their environment—sacred forests, high-altitude lakes, and glacial peaks. Unfortunately, changes in food habits, clothing, livelihoods, and daily routines have occurred almost unnoticed. Crops like apples in Himachal Pradesh and large cardamom in Sikkim are experiencing lower yields and shifts in suitable growing altitudes. This has led to the plantation of new crop varieties, which may or may not be suitable for the local ecosystem. For example, new crops could drain groundwater, fail to bind the soil effectively, and produce leaves that are not ideal for livestock feed. Consequently, livelihoods that have depended on subsistence agriculture, livestock rearing, and forest produce for generations are being destabilised. This instability is pushing young populations to migrate to cities in search of more stable futures.

Addressing these challenges requires a robust science-policy interface that not only provides the latest data but also brings together various stakeholders to develop local solutions, both traditional and innovative. Locally driven adaptation strategies—such as spring rejuvenation efforts, agroecological farming, and eco-tourism initiatives—are emerging in states like Uttarakhand, Sikkim, and Arunachal Pradesh. When indigenous knowledge systems are combined with scientific inputs and community-led governance, they can help build sustainable mountain economies.

This newsletter explores the complex socio-economic, ecological, and cultural factors that connect communities and highlight the need for policy interventions to protect lives and livelihoods. The polycriss of climate change, biodiversity loss, and plastic pollution are leading to livelihood loss and forced migration. Tourism has been a mainstay of the Himalayan communities; however, the influx of visitors over the years has put undue pressure on the ecosystem. This has, in many areas, resulted in the deterioration of essential services (such as water and sanitation), as well as deforestation and land clearing for hotels and parking facilities.

In this issue of the newsletter, Mr Sanjiv Chopra provides a policy overview, emphasising the need for a comprehensive strategy that includes community participation, preparedness for climate-induced disasters, and support for local livelihoods to build resilient communities and ecosystem. Mr Jigmet Thakpa makes a compelling case for a separate policy focused on the Himalayas, advocating for a data-driven approach to 'Sustainable Himalayan Management' and calling for the establishment of the 'Statutory Himalayan Development Authority (HDA)'. The project case stories take us to Leh, where Development Alternatives is collaborating with LAHDC and LEDeG to create better spaces for homestays and develop nearby areas for experiential tourism. In Himachal Pradesh, the team is working closely with local communities to improve access to safe drinking water and its management. The villages in Nalagarh stand as testimonial of innovative models for water security and ecological responsibility, led by women.

For the people of the Himalayas, whose lives are intricately woven with the rhythms of the land and climate, the impacts of changes are no longer hidden. The solutions lie in a blend of tradition knowledge, science, and effective policy! ❐

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Himalayas: The Last Frontier

The arid landscape showcasing indigenous flora of Ladakh, India

Parbat vo sab se ūñchā ham-sāya āsmāñ kā
vo santarī hamārā vo pāsbāñ hamārā

That highest mountain, that companion of the sky,
our companion, our sentinel, our guardian

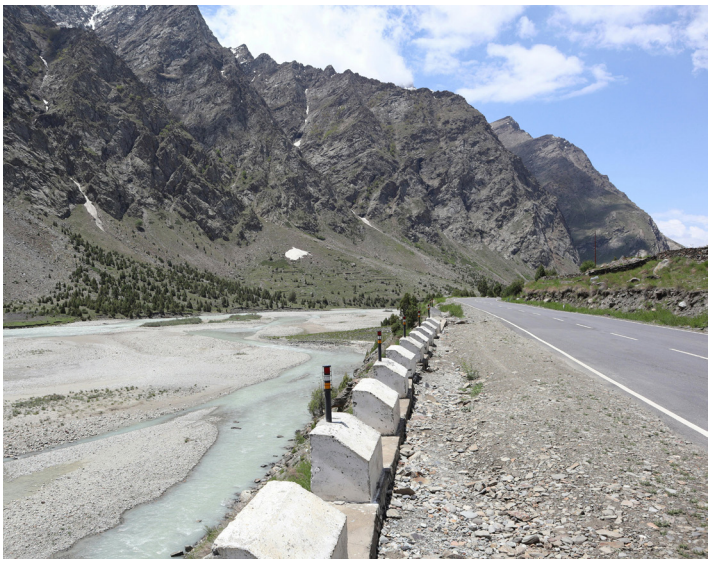
This poem from my school days about the spirit of the mighty Himalayas is close to my heart, and it may resonate with many of you as well.

However, in the last few decades, the majestic range has been under grave threat due to factors beyond its control. The advancement of technology has brought abundant material benefits to humankind in many areas, but it has also fostered a sense of hubris among those at the pinnacle of society. Their misguided belief that everything can be controlled has stripped away not only the awe and wonder associated with these natural wonders but also crucial lessons from history. Civilisations such as Rome, Mesopotamia, and the Harappans serve as reminders that when empires lose their connection with ecology, nature has no choice but to restore balance.

For centuries, the Himalayas have had a profound impact on the civilisations surrounding it. Many individuals seek spiritual solace in these majestic mountains, while others challenge their endurance by climbing to new heights. Environmentalists view the region as an ecosystem that reflects the state of the world, and the glaciologists recognise it as a vital water reservoir for Tibet and South Asia. Naturalists appreciate the diverse flora and fauna, while geologists find rare elements in the region. Strategic experts examine its vantage points, and pastoralists and graziers see it primarily as a source of livelihoods. As roads and helipads increase access to pilgrimage centres, glamping sites, and trekking routes, the media often highlights the benefits of this development. However, the associated downsides are frequently overlooked, much like apostrophes in a sentence: they carry a nuance but often get lost in summaries, quick edits, and social media posts. Therefore, it is crucial that we examine all the issues related to the Himalayas, not just superficially, but with nuance, depth, and understanding.

The Himalayan ecosystem is highly vulnerable to climate change, seismic activity, and unsustainable development practices. In this context, a strong science-policy interface is essential. This approach not only helps us to understand the complex dynamics of this mountain system but also guides effective, inclusive, and adaptive policymaking. It is crucial to implement actions that protect the fragile balance between development and ecological restoration.

Science undoubtedly plays a crucial role in diagnosing ecological changes, such as glacial retreat, biodiversity loss, hydrological shifts, and extreme weather events. However, scientific knowledge is often limited, siloed, or disconnected from policy and local governance. Additionally, affected communities may be unaware of this information or lack access to it. For example, while glaciological data or early warning systems for landslides may exist, they are not always accessible to local communities.



Mountain views enroute Ladakh and Himachal Pradesh on a clear day

A coordinated science-policy framework is essential to promote long-term ecological monitoring. This framework should integrate traditional ecological knowledge with scientific research, facilitate open data-sharing platforms among state institutions, research centres (like the GB Pant Institute and DST's Climate Change Centres), and local governments, and support evidence-based decision-making for climate-resilient infrastructure, water management, and disaster risk reduction. The **National Mission on Sustaining the Himalayan Ecosystem (NMSHE)**, part of India's climate action plan, along with state-level climate action plans (SAPCCs), play crucial roles in this process. Their effectiveness hinges on cross-sectoral interlinkages and correlation among forest, water, agriculture, and disaster management departments, as well as the flexibility to incorporate dynamic scientific findings. Institutional support for community-based governance, especially in managing forests, springs, and agro-ecosystems, is also vital. Public investments in research, climate-resilient agriculture, and mountain-specific planning tools (such as carrying capacity assessments or eco-sensitive zoning) are crucial to aligning development goals with ecological sustainability.

The climate is a transboundary issue, and since the Himalayas extend into neighbouring countries, an integrated landscape approach may be the need of the hour. Regional platforms like the **International Centre for Integrated Mountain Development (ICIMOD)** are equipped to collaboratively develop scientific assessments, share early warning systems, and harmonise climate adaptation strategies. It is essential to pursue joint efforts addressing common challenges such as sustainable tourism, biodiversity corridors, and clean energy across the Himalayan region. Furthermore, 'mountain-specific' climate finance and representation in global forums should also be prioritised.

Science without policy has limited impact, while policy without science lacks direction. The Himalayan region, characterised by its complex terrain, fragile ecosystems, and culturally rich communities, urgently requires an integrated science-policy approach. Protecting the Indian Himalayas is not only a national responsibility but also a regional necessity and a global imperative. ❐

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Viksit Himalaya for Viksit Bharat: A Data-Driven Policy Framework for Sustainable Himalayan Management

The Indian Himalayan Region (IHR) spans 12 states and covers 5.3 lakh km², supporting over 52 million people. It is the source of 12 major river systems that sustain 1.5 billion people downstream. Scientific evidence indicates that the IHR is experiencing rapid ecological changes. Since 1980, the region has lost nearly 20% of its glacial mass, with glaciers retreating at a rate of 1–2% annually. The loss of glaciers threatens to reduce river flows during the dry season by 40–70%, which has direct implications for water security, agriculture, and hydropower generation.

Additionally, the Himalayan region accounted for 44% of India's disaster events from 2013 to 2022, including floods, landslides, and droughts, underscoring its vulnerability.

Why a Customised National Policy for the IHR?

Ecological Uniqueness and Fragility

The IHR is a biodiversity hotspot, home to 35% of India's biodiversity and numerous endemic species. Its terrain is highly sensitive to disturbance; landslides, glacial lake outburst floods (GLOFs), and forest loss are common occurrences. National policies intended for the plains, such as generic Environmental Protection Act (EPA) 1986, often fail to capture these mountain-specific vulnerabilities. For instance, blanket environmental impact assessment (EIA) notification of 2006 may permit infrastructure projects that, while benign in the plains, could trigger catastrophic landslides or disrupt fragile water sources in the IHR.

Socio-Economic and Cultural Realities

Migration rates in border villages exceed 80% due to unemployment and water scarcity. Traditional livelihoods—such as rain-fed farming, pastoralism, and forest-based activities—are extremely sensitive to climate changes. Customised policies must recognise these socio-economic realities and promote sustainable mountain agriculture, eco-tourism, and renewable energy micro, small, and medium enterprises.

A typical landscape from the Himalayan range, Ladakh

Fragmented Governance and Data Gaps

Currently, over 15 ministries and 12 states operate in silos, leading to policy duplication and poor compliance. There is no unified authority to harmonise policies, enforce regulations, or manage data. The absence of a centralised Himalayan Data Observatory (HDO) means that critical information on glacier health, spring flows, and disaster risks is scattered and inconsistent.

Policy Recommendations

1. Establish a Statutory Himalayan Development Authority

Modelled after the Alpine Convention, the Himalayan Development Authority (HAD) would operate under NITI Aayog and have statutory powers to coordinate, enforce, and customise national policies for the IHR. The HDA would:

- Oversee a multi-tier governance structure including central ministries, state governments, scientific experts, and community representatives.
- Harmonise state policies under frameworks like the National Mission for Sustaining Himalayan Ecosystem (NMSHE) and the National Mission for Himalayan Studies (NMHS).
- Enforce stricter, IHR-specific EPA rules—e.g., ban mining near glaciers, regulate hydropower siting, and mandate disaster risk assessments for all projects.

2. Data-Driven Decision-Making

The HDA would oversee the Himalayan Data Observatory, which will integrate satellite monitoring, LiDAR mapping, artificial intelligence, and IoT sensors for real-time glaciers, forests, and hazards. This information will help develop early warning systems for GLOFs, forest fires, and landslides, while also guiding the adaptive management of water and land resources.

3. Community-and Ecosystem-Based Approaches

Village councils and local institutions will co-design projects for spring rejuvenation, forest restoration, and agroecology, ensuring that policies are based on local realities and traditional knowledge.

4. Strategic and Security Imperatives

Reverse migration in border villages through targeted livelihood schemes and infrastructure, while strengthening territorial integrity and countering external threats.

5. Global Alignment:

Adopt best practices from around the world—integrated planning, strict environmental protocols, and transboundary cooperation with Nepal and Bhutan.

Conclusion

A truly scientific, data-driven, and context-specific policy framework—anchored by a statutory Himalayan Development Authority—is essential for the IHR. Customised rules, robust data systems, and integrated governance will secure India's water towers, biodiversity, and border stability, which will make sustainable development in the Himalayas central to India's national future. ❐

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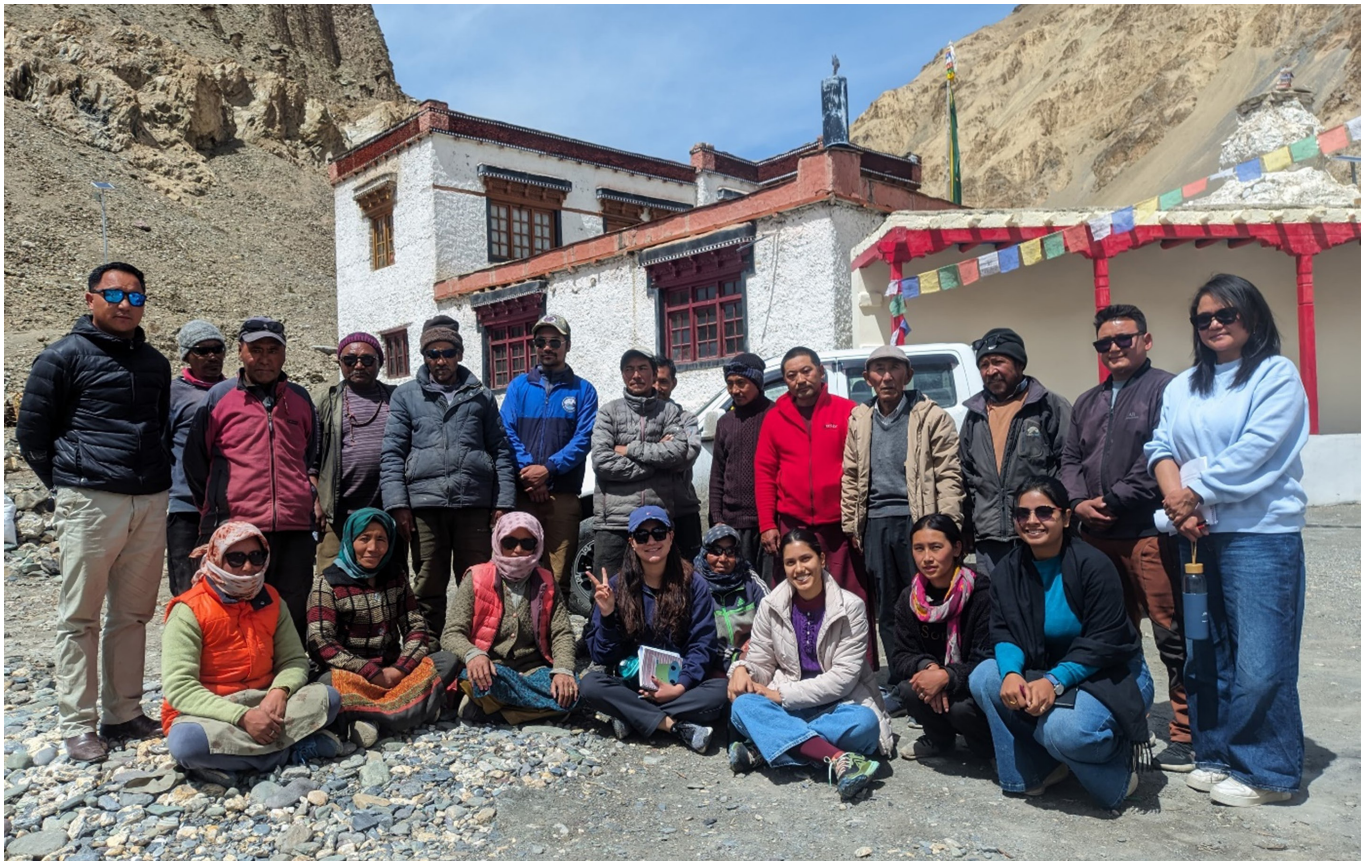
Will Traditional Architecture Survive the Cement Economy?

Insights from Markha Village, Ladakh



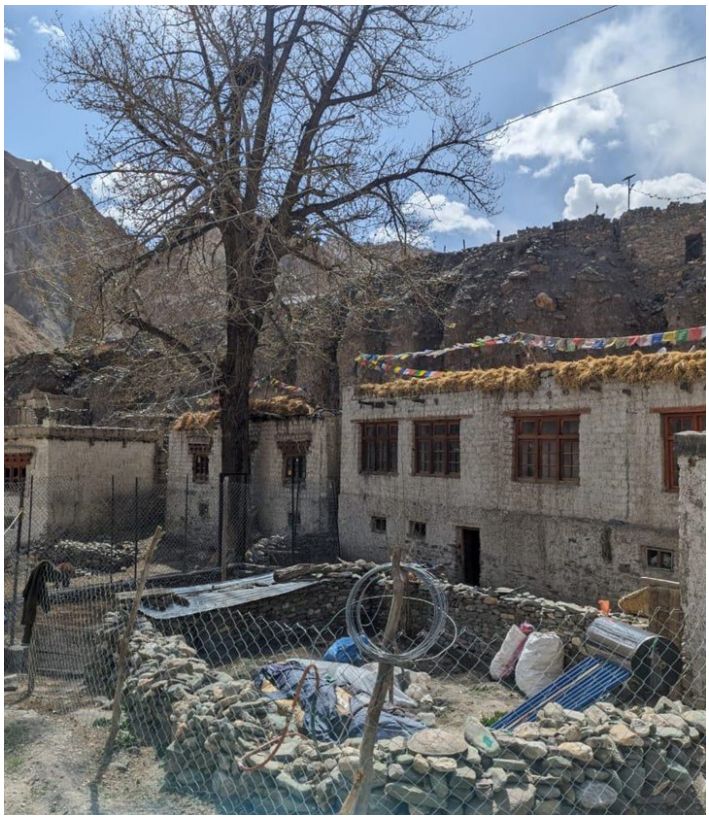
Development Alternatives team at Markha Village, Ladakh

In the high-altitude communities of Ladakh, a significant challenge threatens the future of traditional construction: the increasing use of cement and steel structures. This shift is driven by economic pressures and the allure of modernity. The cement industry alone is responsible for 7%–8% of global anthropogenic CO_2 emissions, primarily due to the thermal decomposition of carbonates (i.e., calcination) during clinker production. In India, cement production contributes approximately 5.8% of the national CO_2 emissions, while steel and cement together account for over half of industrial emissions. Without intervention, these emissions are projected to triple by 2050. In rural India, especially in Himalayan states, more than 60% of new homes now rely on these high-carbon materials, which are displacing vernacular architecture that once defined these landscapes.

In the remote village of Markha, located in Leh district, there is a refreshing contrast to the growing trend for modern materials seen in much of rural India. Here, 95% of residents voiced a strong desire to preserve and continue building in the traditional architectural style. The homes in Markha are currently built from sun-dried clay bricks, river-bed stones, and willow rafters, all topped with layered *chipkyang* grass, cardboard, and mud. These materials are valued for their climate suitability and cultural resonance. The walls are finished with lime (known as *karsi*) and painted in natural hues such as *marpu* (red), serpu (yellow), *karpu* (white), and *nagpo* (black), which are all sourced from nearby mountain pigments. The interiors maintain a traditional aesthetic, featuring polished willow ceilings and coloured plasters. The roofs, built with willow rafters and poplar beams, use layers of grasses sealed

with river mud to effectively repel water and provide insulation during the harsh winters. These construction techniques are not only functional but also emblematic of collective heritage. The practice of reusing material—such as bricks and stones from old homes—and innovative methods like using kitchen soot (*tutpa*) for waterproofing, demonstrate sustainable resource management that is deeply embedded in local practices.

During a series of focus-group discussions facilitated by Development Alternatives, villagers identified a critical barrier: the lack of market linkages to sustain these traditional practices. Although cultural pride runs deep, local citizens recognise that without



Vernacular houses in Markha Village, Ladakh

certification, branding, or inclusion in eco-tourism value chains, their traditional homes remain economically unviable. Currently, only one trained mason in the entire village, educated through SECMOL's programmes, depends on construction projects from Leh and surrounding villages. He expressed a clear need: 'I want opportunities for more projects through a systematic market linkage, so there is an incentive for other villagers to earn a livelihood through this'. Without such pathways, youth migration for schooling and employment in Leh widens the skill gap, putting traditional techniques at risk of being lost.

The Ladakh Homestay Policy 2023 (which also applies to Markha village) explicitly incentivises the use of indigenous materials and awards best-practice homestays. The policy offers awards of ₹10,000 along with certificates for establishments that utilise local building methods and operate in an eco-friendly manner. This framework demonstrates institutional recognition of heritage construction as a valuable tourism asset, yet implementation remains inconsistent at the grassroots level.

Without tangible market channels, this policy recognition risks remaining symbolic. Villagers want structured support: platforms to sell traditional-built homestays, inclusion in promotional materials, and access to certification or 'heritage lodge' schemes that command premium pricing. Improved market access could offer the dual benefits of cultural preservation and climate mitigation, as indigenous techniques boast near-zero embodied energy compared to cement-based alternatives.

We stand at an critical juncture where bridging this gap is essential. By integrating certification, facilitating the supply chain for local materials, forming eco-tourism partnerships, and providing financial recognition for heritage constructions, could transform cultural preferences into sustainable practice. The question is no longer whether these methods are valuable—they undoubtedly are—but whether there are systems in place to reward them. Ensuring that traditional homes are not just built, but also bought and appreciated, is the key to preserving both cultural legacy and climate resilience in Ladakh. ❐

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‘We Hold the Water Now’: Stewards of Change in the Hills

In the foothills of Himalayas lie the quiet and picturesque villages of Rakh Ram Singh and Nikoowal in Nalagarh. These villages, which appear picture perfect at first glance, once grappled to deal with serious issues such as unsafe drinking water, heavy dependence on distant water sources, unmanaged waste, and the silent health toll that followed.

But today, these villages stand as a testament to remarkable transformed models of water security and ecological responsibility. Led by women, as revolutions often are, these once water-stressed communities are on their way to becoming water-positive under Project Prakriti, implemented by Development Alternatives in partnership with HUL Prabhat.

At the heart of the women rewriting Nalagarh’s story is Gurjeet Ji—a quiet homemaker-turned-water warrior from Nikoowal. As the proud operator of the local water treatment plant, Gurjeet Ji’s day starts with unlocking the facility and checking chlorine levels, and it ends with ensuring that every drop of water that leaves the plant is safe to drink. With a logbook in one hand and receipts in the other, she collects fees, and—perhaps most critically—raises awareness about the importance of filtered water. She mobilises the villagers who once resisted change. What was once an unfamiliar machine is now her domain. ‘Earlier, we waited for tankers. Now people come to me,’ she says. ‘They trust me now,’ she adds with a smile, pride echoing in her voice, ‘Because I am one of them.’

A few miles away, Reshma Devi leads by example. As a water-preneur and a leader of SHG group *Jal Sakhi Samuh*, she uses every opportunity—be it a wedding gathering or a neighbourhood tea party—to champion clean water and waste segregation. Known for her energy and eloquence, Reshma explains concepts using local idioms and motivates female counterparts to become stewards of their own resources and shape the village’s future.

‘We can walk alone, but the need of the hour is to walk together and take community development initiatives in our own hand,’ she says, drawing applause and admiration in equal measure.

Beyond these efforts, the project also focuses on pond rejuvenation as a water conservation method and addresses solid and liquid waste management. It achieves this by empowering a local school to adopt the rejuvenated pond, educating communities on

Water Sheros. Community Changemaker.

waste segregation, and encouraging them to prevent plastic dumping. People who once watched passively are now actively participating and taking pride in the visible improvements. With each meeting and each training session, a sense of ownership is being seeded within the community.

What makes Project Prakriti’s design model particularly powerful is not just its focus on water and waste management, health, and habit, but also the deep trust and support it fosters among women. It taps into the collective action and pushes for the shared dream of a better tomorrow, transforming passive recipients into active changemakers.

With every tank filled, every rejuvenated pond, every segregated waste, and every rupee collected for water treatment plant maintenance, Nalagarh is emerging as a powerful new model indicating that resilience grows strongest when rooted in the community.

Nalagarh may not make national headlines daily, but its story is powerfully radical. From hesitation to leadership, from water scarcity to sustainability—this is the story from the lap of the Himalayas. It is a story of courage, capacity, and a new kind of future is taking shape—one where women hold the key, and the water too. ❐

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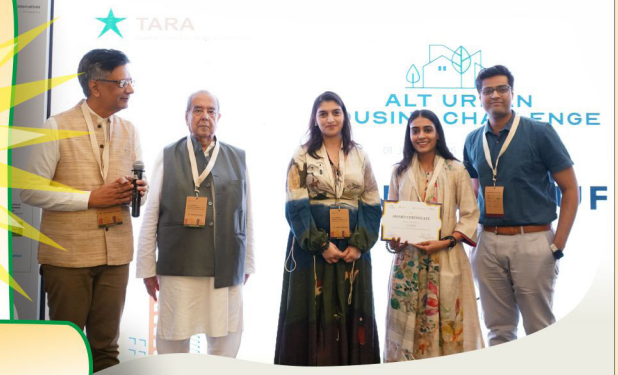
The Alt Urban Housing Challenge 2025

Winners:
Eco Dwell Design Lab

The Alt Urban Housing Challenge 2025 was brought to life through a unique collaboration between Development Alternative and Dhun Life, emerging from a shared aspiration to reimagine housing in response to the pressing environmental and social issues of our time. The challenge aimed to foster climate resilient, inclusive and community driven housing design solutions. The winners were announced during the Alt Urban Global Summit 2025 at IHC, Delhi on 1 July 2025.

Runners up:
Co LEAD



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