RIGHT TO BE COLD: THE HIMALAYAN CRISIS

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ABSTRACT

The Himalayan region is home to some of the world's highest peaks such as Mount Everest, K2, and Kangchenjunga, along with a diverse range of climates including tropical forests and alpine ecosystems that supports rich biodiversity of flora and fauna. This vast mountain belt is not only a geographical marvel but also a critical ecological system that sustains millions of people across Asia. This cryospheric landscape faces increasing threats from global warming and escalating pollution levels, which accelerates glacial melt. These environmental stressors not only destabilize fragile mountain ecosystems but also intensify risks such as glacial lake outburst floods (GLOFs), water scarcity, and displacement of vulnerable communities.

Consequently, there is an urgent need for stronger legal and policy frameworks that integrate climate resilience, transboundary cooperation, and sustainable development to safeguard both ecological integrity and human wellbeing.

This article draws inspiration from 'Right *to Be Cold'* by Sheila Watt-Cloutier, in which she highlights the retreat of Arctic ice and its implications for the survival of Inuk culture, prompting a parallel reflection on the vulnerability of the Himalayan region and the communities that depend on it.

Keywords: Rights of Nature, Environmental Governance, Himalayan Glaciers, Climate Change, Legal Personhood, Hindu Kush Himalaya.

Introduction:

Himalaya is Sanskrit for 'abode of snow', it is home to more than 2 billion people residing in the mountainous regions and the river basins spanning across five nations namely India, Nepal, Bhutan, China and Pakistan. This massive region is a sanctuary to critically important and threatened wildlife like the Snow leopard, Red Panda, Bengal Tiger, Asian Elephant, and greater one-horned Rhino among others. It currently harbours 30,615 species and subspecies of fauna.

Stretching approximately 2,400–2,500 km, the Himalayas play a pivotal role in shaping the climate of the Indian subcontinent and the Tibetan Plateau. Rising temperatures, shifting precipitation patterns and increased air pollution, particularly proliferation of black carbon aerosol, are key drivers of glacier melt. Notably, the regional temperature is increasing at a rate of about 0.06°C per year, which is faster than the global average. It is projected that a global temperature rise of 1.5°C could translate into a regional increase of around 2.1°C in the Himalayan zone, leaving only about 64% of the existing ice reserve by the end of the century and threatening some of the region's rare species.

The melting of ice caps in the Himalayan region is not a recent phenomenon. Early scientific observations of glacier retreat were recorded to be in the late 19th and early 20th centuries, when explorers and geologists began documenting visible reductions in glacier size. Under global climate frameworks such as the Paris Agreement and the Kyoto Protocol, countries have aimed to limit global temperature rise to well below 2°C above pre-industrial levels, with efforts to restrict it further to 1.5°C or less. However, achieving this target appears increasingly improbable. By 2025, global temperatures are estimated to have reached approximately 1.44°C above the 1850–1900 baseline, according to the Intergovernmental Panel on Climate Change. The Sixth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) warns that exceeding the 1.5°C warming threshold will significantly increase risks in the high mountain regions and is likely to accelerate glacier loss in the Himalayas, posing serious direct and indirect threats to downstream communities.[1]

Glacial Systems: Livelihoods and Risks

The primary occupation in these hilly terrains are agriculture and animal husbandry, which

[1] Intergovernmental Panel on Climate Change, *Climate Change 2023: Synthesis Report* (2023)

provides limited economic stability. Dependence on cash crops like apples, walnuts and saffron like others forms the basis for their survival. Glaciers are more than just frozen landscapes, they play a critical role in sustaining ecological balance and supporting local communities, particularly as vital sources of freshwater. However, these fragile systems are increasingly under threat due to accelerating environmental changes. The impacts of anthropogenic climate change have significantly intensified the rate of glacial melting, posing serious risks not only to ecosystems but also to human populations that depend on glacier-fed water systems.

Rapid glacial retreat has far-reaching consequences. In the short term, excessive melting can lead to flooding in densely populated downstream regions, especially in areas connected to major river systems originating in the Himalayas. In the long term, the depletion of glaciers threatens the disappearance of crucial freshwater reserves, contributing to rising sea levels and increasing the vulnerability of low-lying regions and island states.

1. Glaciers as Freshwater Reservoirs:

A substantial portion of water is stored in glaciers and ice caps, making them indispensable reservoirs of potable water. Around 129 million farmers in the Indus, Ganges, and Brahmaputra river basins rely on glaciers and snowmelt for irrigation, particularly during the spring and summer seasons. Himalayan glaciers, typically located above 4,000 meters and covering over 100,000 km^2, are vital sources for major Asian river systems. These rivers support nearly 42% of the global population. For centuries, the Himalayan cryosphere has sustained a delicate ecological balance by regulating water flow. However, the accelerated pace of glacier melting is now disrupting this equilibrium, increasing the vulnerability of downstream populations.

2. Glaciers as Sources of Hazards:

Climate change is not just anthropogenic, periglacial processes in the Himalayan belt, and particularly permafrost thaw contributes to an increase in methane emissions, which in turn is 28 to 34 times more potent than CO_2. Sunlight, when incident on glaciers, is reflected back into the atmosphere due to the high albedo of snow and ice. However, as glaciers thaw, darker underlying surfaces are exposed, allowing greater absorption of solar radiation and creating a feedback loop that intensifies local warming. This continuous cycle leads to even more warming and causes accumulation of water under the glaciers which then results in GLOFs.

A Glacial Lake Outburst Flood (GLOF) is the sudden release of water from a glacial lake formed at, within, beneath, or on the surface of a glacier. In 2018, International Centre for Integrated Mountain Development (ICIMOD) released a report on the status of glacial lakes in the HKH that mapped and classified more than 25,000 glacial lakes in the five major river basins spread across the region. 8.3% of the glacial lakes are located below 4000 metres above sea level (masl).[2]

In addition to GLOFs, the release of toxins in permafrost melt also poses a serious threat to human health and fragile ecosystems. Perfluoroalkyl acids (PFAs) are widely utilized in numerous industrial, households, personal care, and medical products because of their water, oil and stain resistance, but their extreme durability means they don't degrade, these chemicals can travel long distances through long-range atmospheric and oceanic transport. The Arctic and Antarctic regions have already become victims to this bioaccumulation, despite being remote. The utmost problem arises when the ice melt releases these toxins into food chains and poses a life-threatening risk. The Himalayas, located in South Asia and bordering the Tibetan Plateau, may also see rising PFAs levels as meltwater enters lakes.[3]

3. Migration:

The Hindu Kush Mountains have experienced the migration crisis for a long time due to factors like seasonal drifts, erratic climates, poverty, limited employment opportunities, and inadequate educational facilities. These pressures have compelled tribal communities across the region to relocate. The mustang village in Nepal has seen both inward and outward migration, being a social and economic hub, it attracts a considerable number of seasonal workers, although off-season periods pose significant challenges to agriculture.[4]

Migration as a narrative is not merely a failure to adapt. While nearly 80% of adaptation efforts are undertaken by local inhabitants, only about 20% is supported by governments and organisations, which is an evidently insufficient share.

Samdzong, a village in Nepal that was ravaged by erratic rain patterns and snowfall, which

[2] SB Maharjan *et al*, *The Status of Glacial Lakes in the Hindu Kush Himalaya* (International Centre for Integrated Mountain Development 2018) (ICIMOD Research Report 2018/1)
[3] S. McNish, *the Right to Be Cold: The Challenge Facing the Inuit*.
[4] B. R. Gurung, *Roots and Routes: Climate, mobility and everyday resilience.*

eventually led to flash floods and droughts at the same time in the region. Many families lost their lives due to these disastrous climate events. As reported by BBC, Residents were forced to abandon the village and move to Namshung, a neighbouring settlement which was built following the remnants of glacier lake outburst floods, with a population of only 86 dwellers. Even after the transition to a safer place, the new settlers faced challenges like land ownership disputes involving the former royal family. Furthermore, as Namshung was developed later, access to water from the Kali Gandaki River had to be shared with the older village of Nenyol.[5]

Sacred architecture of the Himalayas is also threatened by rainfall due to the destabilisation of the earth's surface. Fifteenth-century Buddhist temples have suffered fading colours, damaged wall paintings, and deterioration of idols and roofs. In response, local communities have taken initiatives to preserve and conserve their ancient Tibetan heritage.

4. Floods:

The rate of melting has increased significantly, with glaciers melting 60 percent faster since 2010 compared to the previous decade. In 2013 Kedarnath, Uttarakhand saw the deadliest floods. Catastrophic cloudburst and flash floods caused due to heavy rainfall on 16 and 17 June 2013, combined with melting of the Chorabari Glacier caused a breach of the Chorabari glacial lake. This increased the flow of the Mandakini River and flooded the whole Kedarnath Valley along with settlements downstream, and destroyed the 14km pilgrimage route to the Kedarnath Temple. This incident resulted in over 5,000–6,000 deaths.[6]

The aftermath of the Kedarnath floods was deeply concerning, as thousands of pilgrims were stranded and large-scale evacuation operations had to be undertaken. Local infrastructure, including roads, bridges, and homes, was extensively destroyed. The disaster also caused significant economic losses to tourism, with the suspension of the Char Dham Yatra, a major source of livelihood in the region.

Chamoli district in 2021 similarly faced flooding event, triggered by a massive rockslide near Ronti Peak, where around 22 million cubic meters of rock, ice, and snow collapsed. The force of this fall generated heat, which melted the ice and mobilized the debris, creating a powerful flood wave that rushed downstream through the RishiGanga, Dhauliganga, and Alaknanda

[5] T. Rauniyar, *The Drought That Forced a Himalayan Village in Nepal to Relocate*, BBC.
[6] S. Agrawal & A.S. Chauhan, *A Decade After the Floods, Is Kedarnath Safer?*

rivers. Heavy snowfall and precipitation due to western disturbances contributed to the severity of the event. The rising temperatures and changing freeze and thaw cycles may have weakened the mountain structure providing another cause. The effects of the flood included severe damage to hydropower projects, including the RishiGanga and Tapovan Vishnu gad projects, highlighting how infrastructure in fragile mountain regions can amplify disaster impacts.

"The Hindu Kush Himalaya (HKH) lost 12 per cent of its overall area from 1990 to 2020", "HKH holds the largest volume of ice outside the poles, with an inventory of over 63,700 glaciers covering nearly 55,782 square kilometres", according to a new analysis by the International Centre for Integrated Mountain.[7]

Locals of Langtang, Nepal, and glaciologists from Bhutan, China and India gathered above 5,000M in the HKH region to pay respect and mark the accelerating disappearance of Nepal's Yala Glacier, on 12th May, 2025. The poignant tribute included a Buddhist ceremony, speeches, and the unveiling of two granite memorial plaques. The glacier reportedly shrunk by 66% and retreated by 784 M since 1970s when it was first measured, it is just one of seven glaciers in the entire 3,500km-long arc of the Hindu Kush Himalayas to have been monitored annually for a decade or more and it is one of 38 glaciers with in-situ measurements, providing crucial data on the speed and extent of losses. Yala is notable not just for its rapid retreat, but also to its proximity to Kathmandu which is relative to other glaciered areas, it has played the central role in advancing cryosphere research in a region that is known for lacking research capacity. The glacier has served as a research site for 5 decades.

Despite their crucial role in sustaining river systems that billions depend on, and despite the region containing the largest reserves of ice and snow outside the Polar Regions, glaciers in the HKH remain severely understudied. Mountains on Earth have lost close to nine trillion tonnes of ice since records began in 1975, that being the equivalent of a 2.72-metre-thick block of ice the size of India. If current melting trends continue, many glaciers across the globe are unlikely to survive beyond the 21st century.

Imja glacier in Nepal, is another victim to anthropogenic climate change, there is noticeable difference from the 1950s, where there is no sight of lake formation, studies say that by the 1970s small ponds began merging and by 2007, the lake had grown to around 1km long. In

[7] Hindu Kush Himalaya glaciers losing ice at double the rate since 2000 *ICIMOD*

response to this, the Nepal government constructed an outlet to lower the water level in 2016 as the chances of the lake overflowing were increasing.

It is disheartening to see how we are a cause of persistent climate disturbances, most of these events happen gradually and are normalized as natural events, and soon it gets overlooked until the effect turns out way worse and starts harming us. We need to become more aware of our actions and an urgent need for climate responsive governance is required, supported by glacier monitoring, standardisation of methods and responsible investment in climate planning to mitigate the impacts of a changing cryosphere.

"*The climate crisis is both the easiest and the hardest issue we have ever faced. The easiest because we know what we must do. We must stop the emissions of greenhouse gases. The hardest because our current economics are still totally dependent on burning fossil fuels, and thereby destroying ecosystems in order to create everlasting economic growth*."[8]

~ Greta Thunberg

Reimagining Legal Protection for the Himalayas:

Laws are made for the betterment of the society, to bring justice and equality and for its fair use, without malice. Nature is part of our society, it is in fact the backbone of our existence, and we have been dependent on it for our survival. "Law of nature" can be understood as preceding modern legal systems and influencing their development, thereby making it our fundamental duty to protect the environment. Recognising this interdependence, today's legal frameworks have increasingly begun to incorporate environmental protection, particularly in vulnerable ecosystems such as glaciers. Early legal developments on glacier protection were most prominently seen in Chile and Argentina, where environmental concerns intersected with mining interests:

Argentina was among the first countries to introduce a glacier specific law through its 'National Glacier Protection Law' in 2010. The glaciers in the region were considered a "strategic water reserve" and a major source of supplying water for drinking, agriculture and other needs throughout the country. Around 40% of the country's watersheds were sourced from glaciers and provide access to 7 million residents, which was around 18% of Argentina's population.

[8] Greta Thunberg,"*You Did Not Act in Time*", Address to the British Parliament

The decision was made in response to its vulnerability towards climate change and the large number of glaciers in the country. Some of the laws prohibited activities like mining that would impact the glacier through construction (Article 6), mandating specialised glacier impact assessments for nearby projects (Article 7), and applying protections even to ongoing mining activities through retroactive enforcement (Article 15).

Despite this as of February 2026, the government of Argentina approved reforms to weaken the glacial laws, a landmark decision long pursued by the mining industry. This reform allowed the provincial authorities to decide which glaciers are "non-functional" and open for mining. It was proposed at a time when the government was trying to boost the mining sector to meet demands for critical minerals used in the clean energy transition, such as copper, gold, silver and molybdenum, showing that climate mitigation efforts can paradoxically drive environmentally harmful policies when economic priorities overshadow ecological protection.[9]

Chile faced significant challenges from 2006, even before Argentina. Intensive mining pressures, regulatory gaps, and the failure to pass comprehensive and sustainable legislation were some of the difficulties. In spite of strong activism and policy efforts, the country continues to prioritise economic development over the ecological preservation of vital water resources.

The following are two questions that guide the present research:

1. What are the Rights of Nature, and do glaciers in India possess or qualify for such rights?

2. What does it mean for a mountain to have rights? What does a “Right to be Cold” mean for the Himalayas?

1. What are the Rights of Nature, and do glaciers in India possess or qualify for such rights?

‘Rights of Nature’ is a legal theory and a rapidly growing area of practical law. It started by recognizing that ecosystems and species possess inherent rights to exist, thrive, and regenerate, transitioning them from "legal property" to "subjects of rights". In other words, this framework empowers communities to defend nature in court on behalf of natural entities, regardless of its

[9] *Argentina’s Glaciers Are Under Threat*, N. Am. Cong. on Latin Am.

usefulness to humans.

The Rights of Nature were officially established at a national level in 2008, when Ecuador became the first country to recognize them in its constitution through a popular referendum. While rooted in indigenous traditions, the legal movement gained momentum after the 1972 "Should Trees Have Standing?" article, leading to over 150 laws globally today. This shows that Indigenous perspectives held intrinsic value of nature, shifting from treating nature as property to recognizing it as a right bearing entity.

The Uttarakhand High Court (UHC) ruled in two separate orders on 22 and 30 March 2017 that the north Indian rivers Ganga and Yamuna, their tributaries, and the glaciers and catchment feeding these rivers in Uttarakhand have rights as a 'juristic/legal persons' with corresponding rights, duties and liabilities. In July 2017, the UHC order was stayed by the Supreme Court of India, after the state of Uttarakhand filed a petition against it, arguing that the order is legally unsustainable and simply not 'practical'. However, the court contended the formation of Ganga Management Board by the central government, within eight weeks, irrespective of state cooperation and ordered eviction of unauthorized occupants within seven days. This decision upheld the legal personhood of rivers, enabling human representation for their protection and conservation by acting in *loco parentis* (in place of the parent).[10]

On July 4th, the High Court of the State of Uttarakhand delivered another judgement in which it recognised all members of the animal kingdom as legal persons. The petition was filed pro bono publico for the protection and welfare of animals. This judicial recognition of nonhuman entities raises an important question that if animals can be granted legal personhood to ensure their protection, why cannot glaciers be accorded a similar legal identity.[11]

The Supreme Court of India has expansively interpreted Article 21 to include the right to a healthy environment, therefore indirectly acknowledging the intrinsic value of natural systems. However, this recognition remains anthropocentric in orientation**,** as environmental protection is still framed primarily in terms of human well-being. The evolution of the public trust doctrine imposes a fiduciary obligation upon the State to protect and preserve natural resources. In this framework, the State does not act as an absolute owner but as a trustee or guardian of ecological assets, including forests, rivers, and potentially glaciers. Judicial developments have in certain

[10] *Mohd. Salim v. State of Uttarakhand*, W.P. (PIL) No. 126 of 2014 (Uttarakhand H.C. Mar. 20, 2017)
[11] *Narayan Dutt Bhatt v. Union of India & Others*, AIRONLINE 2018 UTR 613 (Uttarakhand High Court).

instances treated natural entities as 'juristic persons' for the purpose of legal protection, by attributing to them limited legal rights and corresponding representation. This fiduciary and representational model provides a doctrinal bridge toward recognizing nature's independent rights for ecosystems within the Indian legal system. Judicial developments concerning glaciers and natural entities signal a nascent shift toward eco-centric reasoning**,** but the legal status remains uncertain due to the absence of legislative backing and the lack of consistent judicial enforcement. As a result, the rights of nature in India exist in a transitional space**.**

In *A. Periyakaruppan v. Revenue Department*, 2022,[12] the Madras High Court invoked its *parens patriae* jurisdiction to recognize "Mother Nature" as a living entity possessing legal personality, with corresponding rights, duties, and liabilities. The Court further directed the State and Central Governments to act as guardians and take all necessary steps to protect and preserve natural resources. However, such recognition is yet to be supported by a consistent statutory framework, which may limit its practical enforceability. Additionally, in 2024, the National Green Tribunal (NGT) took significant notice of the risks posed by GLOFs in the Himalayan region, driven by accelerating glacier melt and the rapid expansion of these lakes. It was also reported that the surface area of glacial lakes in India had increased by 33.7% from 2011 to 2024. The tribunal has been monitoring the issue through Suo moto proceedings and by issuing notices to central and state authorities regarding the dangerous increase in lake volumes.[13]

India's environmental regulatory framework, such as Environmental Impact Assessments, forest clearances, and mining approvals, primarily operates through a balancing approach, where ecological concerns are weighed against developmental objectives. While these mechanisms play an important role in environmental governance, they remain largely anthropocentric and discretionary in nature, often permitting environmentally harmful activities subject to regulatory approval. As a result, they do not fully reflect the idea of inherent ecological limits or the protection of nature as an independent right bearing entity. This limitation highlights the need for a more robust rights-based framework.

2. What does it mean for a mountain to have rights? What does a "Right to be Cold" mean for the Himalayas?

[12] *A. Periyakaruppan v. Revenue Department*, 2022 SCC OnLine Mad 2077.
[13] *Rapid Increase of Himalayan Glacial Lakes: NGT Issues Notice*, The Hindu (2024).

Recent judicial developments reflect an evolving trajectory in India's environmental jurisprudence, particularly through the interventions of the Supreme Court of India in standardizing criteria for the protection of hill ecosystems, including the adoption of a uniform definition affecting regulatory domains such as mining and land use. This shift must be situated within the broader constitutional movement toward recognizing the 'rights of nature'. In this context, the Aravalli Range has, in emerging judicial discourse, been accorded a form of legal recognition that enables ecological protection beyond purely anthropocentric considerations.

A recent and significant development in global evolution can be seen in New Zealand, where its parliament granted legal personhood to Mount Taranaki. The mountain has been recognized as a living and indivisible entity, vested with legal rights, duties, and liabilities akin to those of a juridical person, thereby reinforcing the shift toward recognizing natural ecosystems as rights-bearing subjects in law. Against this backdrop, the recognition of glaciers and mountain ecosystems, the Himalayas, as holders of intrinsic rights remains an unresolved yet urgent legal question. In light of accelerating climate change, including glacial retreat and increasing temperatures, it is both doctrinally coherent and normatively compelling to argue that the Himalayas possess a *"right to be cold"* as an extension of the rights of nature framework. Such a right would move beyond symbolic recognition and instead impose substantive obligations upon the State to prevent ecological harm that disrupts the climatic stability of the mountain system.[14]

Sheila Watt-Cloutier, in her book '*The Right to Be Cold'*, recounts the rapidly melting Arctic ice and interweaves her personal experiences as an Inuit woman. She highlights the social, economic, and environmental challenges faced by her community, connecting them to colonialism and global warming, which not only threaten Arctic wildlife but also destabilize her homeland. In these reflections, I found inspiration to assimilate her insights to the Himalayas, the other great cryosphere of the world. By looking at the Himalayas through this lens, we can see the shifting patterns of life, from disappearing species to new migratory patterns echoing what Watt-Cloutier witnessed in the Arctic. The same resilience that has sustained Inuit communities can inspire us to protect the Himalayas, recognizing Indigenous wisdom as a vital resource for a future where both the Arctic and the Himalayas thrive.[15]

[14] *"Taranaki Mounga: New Zealand Mountain Granted Same Legal Rights as a Person."* The Guardian.
[15] S. McNish, *The Right to Be Cold: The Challenge Facing the Inuit*

Symbolism vs. Enforcement:

It is evident that creating environmentally oriented and ecologically beneficial laws often requires extensive measures and prolonged time. Currently, India lacks comprehensive climate legislation, and examples from other countries, such as Chile, show that even when regulations exist, they are not always effective. The case of Argentina further illustrates that, in practice, laws designed to protect natural resources and ensure sustainability are frequently overlooked or undermined, highlighting the gap between legal intent and implementation.

India is slowly moving toward recognizing the intrinsic value of nature, but the journey is uneven. The idea of Rights of Nature grants ecosystems and species the right to exist, thrive, and regenerate, it challenges the traditional view of nature as property. In India, courts have experimented with recognizing rivers, glaciers, and even animal species as legal entities with protections, however, these judicial steps remain largely symbolic because India lacks a consistent statutory framework. Environmental regulations still prioritize development over ecological limits, and protections are often discretionary. Cases like the Uttarakhand High Court rulings and the Madras High Court's recognition of "Mother Nature" show progress, but enforceable rights for glaciers and mountains are still far from reality.

The Himalayan region faces critical gaps, one of which is study relating to Perfluoroalkyl acids (PFA), these chemicals are referred to as 'forever chemicals' because of its continued persistence in the environment and human body which can cause serious health issues, like kidney cancers, liver damage, thyroid disease and among others. Furthermore, Black carbon and aerosols on glacier melt are poorly understood by locals, despite their crucial role in hastening ice loss.

While several international organisations contribute to climate and environmental research, ICIMOD remains a key regionally focused institution addressing the distinct ecological, socio-economic and policy challenges of the Hindu Kush Himalayan region. The reliance on a limited number of regional institutions also highlights the need for broader, coordinated and legally integrated global engagement in addressing Himalayan challenges.

Conclusion:

"*...Now if you ask me when should we start doing action my answer would be yesterday, or*

day before yesterday, we have been late , very late and if we don't do anything we would be too late,….lot of things would be irreversible and unimaginable and we don't want to get into that situation." [16]

~ Dr. Arun B. Shrestha

Cryospheric science is one of the most actively researched and critical areas in the context of climate change within environmental science and climate studies internationally. The Hindu Kush Himalayas which are considered to be the Third pole of the world, is currently at a decisive and vulnerable stage, if we cannot physically be present to protect our landmass we must speak about it, spread awareness and collectively support initiatives that are taking efforts to reduce global temperature rise.

Recognising a "Right to be Cold" for mountains and glaciers could make a transformative change in environmental governance, this principle should not be viewed merely as a symbolic right, but as an enforceable duty. One that protects and preserves, establishing clear legal obligations to regulate and limit human interference. Such a right based approach aligns with both ecological science and emerging global norms, offering a way to safeguard mountain ecosystems. Much Like the Arctic, the Himalayas function as a vital source of life, providing water to millions across South Asia. As these glaciers recede, they endanger not only local communities but also vast downstream populations. Without a shift toward enforceable ecocentric legal frameworks, the Himalayan crisis will remain governed by reactive regulation rather than preventative justice.

[16] *On Thin Ice – Hindu Kush Himalaya,* Kaisay with Raja Jawad.

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