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COP30: Time for Action on the Himalayan Region

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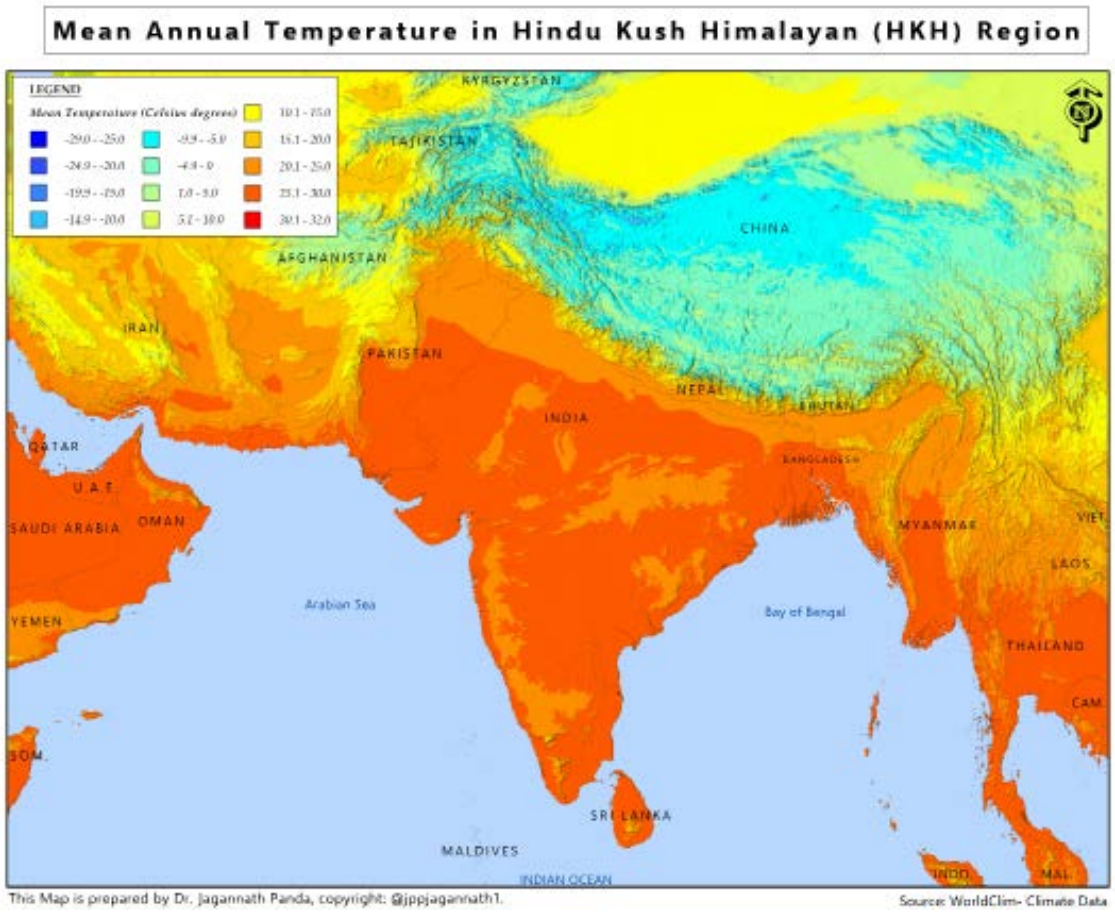
The Himalayas have faced unprecedented ecological, weather-related, and geotectonic disasters, exacerbated by human activity, disrupting ecosystems and local livelihoods. Despite these pressing issues, international climate discussions, particularly at COP29, largely marginalized the Himalayan crisis, including Tibet's environmental degradation. Adding to this is China's development policies that have particularly led to the current crisis situation. Beijing has pursued large-scale infrastructure projects, mining, and water diversion schemes, which threaten both the region's ecology and downstream countries. Ongoing research mostly emphasizes the urgent need for enhanced global cooperation and a transformative approach to climate action to facilitate monitoring of the region's environmental changes. Due to its complex geography and socio-political dynamics, this has been a challenging process. However, as COP30 approaches, there is a critical need to make the Hindu Kush Himalayan region the focal point in global climate discussions. This entails integration across scientific, policy, and local knowledge to address the Himalayan region's climate challenges, ensuring its ecosystems and communities are prioritized in global climate strategies.

Introduction

In recent years, the Himalayas have reappeared in the public imagination. This can be attributed to the series of unprecedented ecological, weather-related, and geotectonic disasters coupled with anthropogenic factors. This has highlighted the vulnerability of this fragile region and the need for global attention and recognition. The Himalayas are not only a primary source of water for Asia but also responsible for much of South Asia's climate. Tibet considerably influences global weather patterns due to its critical geographical position and immense height. The Plateau's huge land surface acts like an enormous iceberg in the ocean, affecting the jet streams and the stability of the monsoon. The changes in the jet stream may cause Pacific typhoons and the El Niño (warm ocean current) phenomenon.[1] As a result, there is a disruption in the ocean water and ecosystems in North and South America, Australia, and Africa. The El Niño effect also influences the weather patterns of Europe, the U.S., Mexico, Peru, India, China, and other adjoining areas.[2]

Geographically, the Himalayas and the Hindu Kush region constitute more than 50,000 glaciers, and only 30 of them are being closely observed.[3] Out of this, 15 of those studies have been published. Monitoring becomes extremely challenging due to the difficult geography.[4] Furthermore, the Himalayas are not a monolith entity.

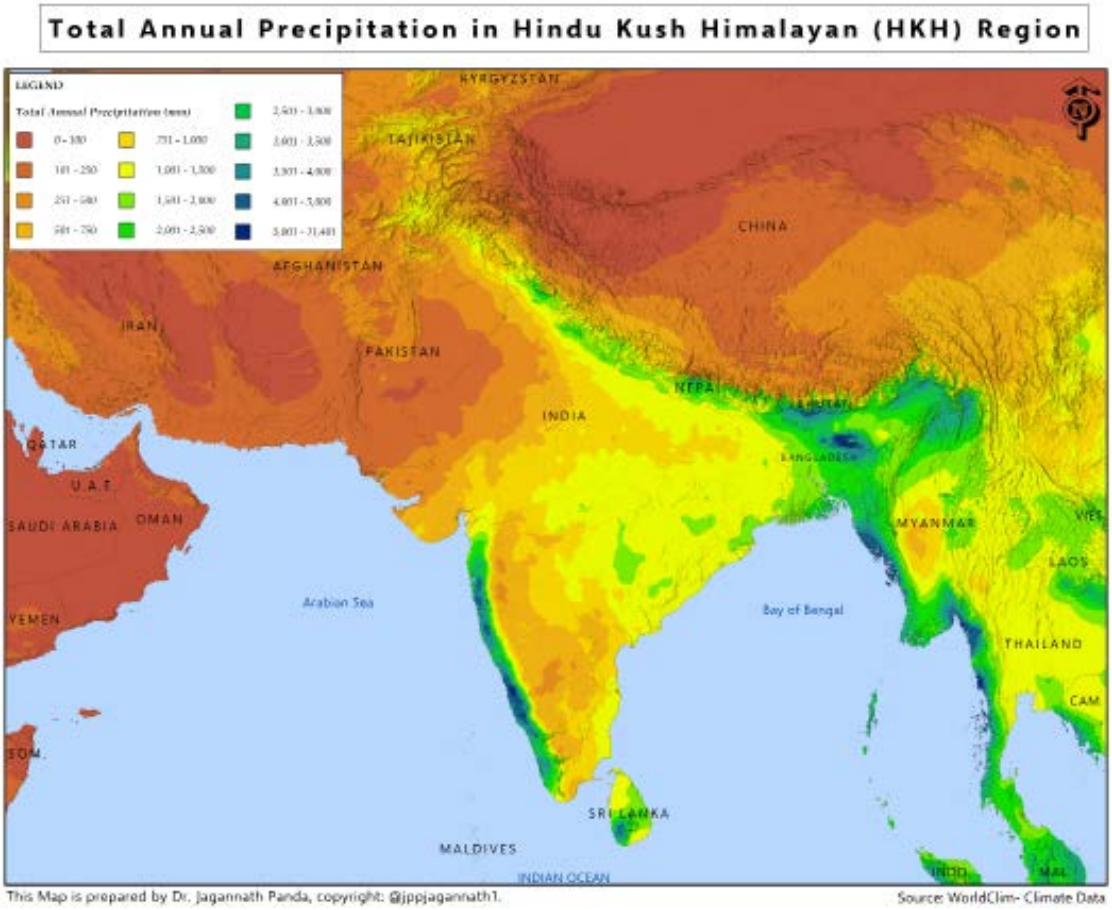


They differ in altitudes, vegetation, and life forms. The conditions in the Eastern Himalayas are different from the Western and Central Himalayas. Hence, compared to the Eastern Himalayas, the Western Himalayas are warming faster, resulting in an increased frequency of glacier melt and glacial lake outburst flooding. With the 1950s taken as a baseline, the melting has become faster and more apparent with unpredictable speed and frequency of events in recent years. This makes it more challenging to strategize quickly, making indigenous communities a critical actor as a serious knowledge repository. There is a need to recognize them and create spaces for their representation. There is a need for governments, researchers, and stakeholders to listen to them carefully.[5]

In February 2019, the first-ever assessment of climate change impacts on the Hindu Kush Himalayan (HKH) region was released by the International Centre for Integrated Mountain Development (ICIMOD). The study involved more than 300 researchers to bring out the first report over four years. It synthesized numerous earlier studies due to the non-availability of regional studies.[6]

The Hindu Kush Himalaya Assessment highlights that the region will see a warming trend throughout this century even if the world can limit global warming at the agreed 1.5 degrees celsius. The changes in surface temperature (relative to 1976-2005) in the Himalayan region are higher than in the South Asian region as a whole. By the end of the 21st century, the projected changes in the surface mean temperature over the HKH region are larger than the global mean change. The temperature rise would be 2.5+/-1.5 degrees centigrade in what it terms the "moderate scenario." It would possibly be 5.5+/- 1.5 degrees centigrade in an "extreme" scenario.

Additionally, river runoff has increased by 5.5 percent in the Tibetan Plateau, with most of the lakes in high altitudes reporting a water level rise by 0.2 m/year besides their surface areas expanding.[7] (See Maps: Mean Annual Temperature in Hindu Kush Himalayan Region and Total Annual Precipitation in Hindu Kush Himalayan Region).



The report aims to establish the global significance of the HKH. It included reducing scientific uncertainty on various mountain issues, laying out practical and up-to-date solutions offering new insights for the development of this region, valuing and conserving existing ecosystems, societies, knowledge, cultures, and distinctive HKH solutions that are important to the rest of the world. It addresses contemporary policy questions and influences policy processes with robust evidence for sustainable mountain development. It reiterates an intensification of climate change adaptation policies and practices in the region. It holds that the transformative pathway requires changing systems and behavior to generate inclusive change.

This paper further investigates the failure of the UNFCCC COP meetings to inculcate the critical importance of the Himalayas at a global scale. It delves into the shortcomings of the global platform and the role of Chinese policy in the region that has been detrimental to the region. COP30 has been prescribed as a ray of hope to revitalize the issue and bring back the Himalayas to the main negotiating table.

Did COP 29 Fail the Third Pole?

On November 12, at the 29th Conference of the Parties (COP29) to the UN Framework Convention on Climate Change (UNFCCC) in Baku, Azerbaijan, the leaders of the six Hindu Kush Himalayan countries met to discuss the climate crisis that has reached epic proportions—namely Bangladesh, Bhutan, China, India, Nepal, and Pakistan. Afghanistan under the Taliban and Myanmar under the Military Junta were absent.[8] The broader Himalaya region, called the "Third Pole," which includes the Tibetan Plateau, is a global biodiversity hotspot and has the largest reservoir of freshwater outside the two Arctic and Antarctica polar regions, among other important features.[9]

Importantly, given the dangers of a Himalayan

meltdown, the meeting that was hosted by Bhutan's Prime Minister Tshering Tobgay, who vehemently expressed the need for "coordination and support" at global forums to "represent and amplify" regional concerns that have global implications.

However, two factors highlight the complications and even the inadequacy of holding vital meetings in such an almost incidental manner: One is the general declining trust in multilateral climate conferences amid low political will. Last year it was particularly apparent because of the lack of attendance of the heads of state of major powers and some of the biggest carbon emitters including Brazilian President Lula da Silva, Chinese President Xi Jinping, Indian Prime Minister Narendra Modi, German Chancellor Olaf Scholz, and the former U.S. President Joe Biden.[10]

In addition, President Donald Trump—a well-known climate change skeptic[11] has again withdrawn the U.S. from the Paris Climate Accord[12]—as he had done in his first term[13]— undoing any hope of securing international climate solidarity. Not to mention the inherent ethical dilemmas of two big, influential oil producers hosting back-to-back COP summits (UAE and Azerbaijan in 2023 and 2024). It highlights that countries with clout—including China which continued to 'elevate its position'[14] at UN bodies—have dominated global climate forums.

Two is the absence of core Himalayan issues in the main agenda, which is governed[15] not just by financial intricacies and inconveniences but unfortunately by "the very worst of political opportunism." In particular, the acute marginalization of Tibetan representation in these multilateral climate forums, where China reigns supreme,[16] has only hampered regional concerns from being truly voiced.

In terms of concrete steps aimed at the Himalayan ecosystem, there were a few high-level plenary sessions at COP29 such as the Resouce Mobilization for Climate Adaptation in Asia's High Mountains[17] that stressed the "urgent need for increased investment in climate adaptation" in this region. In contrast, the launch of G-ZERO[18]—a forum of carbon-negative and carbon-neutral small countries, which prominently includes Bhutan (also its permanent secretariat) at COP29 is truly inspirational. Such actions that aim to "enhance carbon sinks and promote nature-positive pathways" will go a long way to build a positive ideology needed to counter climate change in the Himalayas.

As far as Tibet's participation in COP29 goes, the two Tibetan delegates Dechen Palmo and Dhondup Wangmo raised the environmental concerns at some events.[19] They even launched a campaign to raise awareness about the risks posed by hydropower projects in China, particularly the Derge Dam—a hugely controversial project that had resulted in mass protests and a brutal crackdown by the Chinese government earlier this year.[20] Yet the Tibetan token participation in a few events at the sidelines of the summit is clearly not enough.

Against such a scenario, what more can the multilateral forums do? What should be the world community's approach toward China's apathy for the climate crisis in Tibet? Can India facilitate a more proactive role by the U.S. and the West in highlighting climate concerns?

COP29 —11th Hour Consensus as the Sole Face-Saver?

COP29 was dubbed the "climate finance COP" formally known as the New Collective Quantified Goal on Climate Finance (NCQG).[21] As a result of two weeks of intensive negotiations and several years of preparatory work, the new financial goal is a "course correction" on global climate action. It has tripled the finance to developing countries, from the previous goal of USD 100 billion annually announced in 2009 to USD 300 billion annually by 2035.[22] It intends to cover all greenhouse gases and all sectors to keep the 1.5°C warming limit within reach.

The new commitment also builds on significant strides forward in global climate action at COP27 (Egypt) and COP28 (UAE). A historic Loss and Damage Fund was agreed upon in COP27, to assist developing countries in responding to loss and damage caused by climate change.[23] Governments agreed to establish a transitional committee that

would recommend the operationalization of the new funding arrangement. Additionally, institutional arrangements to operationalize the Santiago Network for Loss and Damage were also made to catalyze technical assistance to developing countries. Similarly, COP28 delivered a global agreement to transition away from all fossil fuels in energy systems, triple renewable energy, and boost climate resilience. This includes securing the efforts of all actors from public and private sources to work together to scale up finance to developing countries: USD 1.3 trillion per year by 2035 was agreed upon.[24] Furthermore, the first Global Stocktake (GST) was undertaken under the UAE Consensus to take stock of implementing the Paris Agreement.[25] (See Table 1: Three Years of COP.)

The agreement on carbon markets is another significant step. This mechanism is known as the Paris Agreement Crediting Mechanism.[26] The final building blocks that set out how carbon markets will operate under the Paris Agreement have been agreed upon. This includes the standards for a centralized carbon market under the UN (Article 6.4 mechanism) to operationalize country-to-country trading and a carbon crediting mechanism.[27] It entails clarity on how countries will authorize the trade of carbon credits and how registries tracking this will operate.

Furthermore, the transparent process of technical reviews would ensure environmental integrity.[28] This includes mandatory checks for projects against strong environmental and human rights protections. It ensures that a project cannot proceed without explicit, informed agreement from Indigenous Peoples. It also allows anyone affected by a project to appeal a decision or file a complaint.[29] This will benefit developing countries with new flows of finance and the least developed countries by providing capacity-building support to get a foothold in the market.

But, the fact of the matter is that despite the adoption of the "Baku Workplan"[30] which took a decisive step forward to elevate the voices of Indigenous Peoples and local communities in climate action, neither the Hindu Kush Himalaya nor its people including Tibetans, have been included in the mainstream discussion and more important in policymaking on climate change.

TABLE 1: THREE YEARS OF COP

Outcome Area	COP 27 (Sharm El-Sheikh, Egypt, 2022)	COP 28 (United Arab Emirates, 2023)	COP 29 (Azerbaijan, 2023)
Loss and Damage Fund	**Fund established** to assist vulnerable nations impacted by climate change. • **No agreement** yet on operational mechanisms or how funds should be provided or administered.	**Historic agreement** to create a funding mechanism for loss and damage focuses on helping developing nations cope with climate impacts. • **Operational structure to be developed.**	**A significant step forward** in finalizing the funding mechanism for addressing climate-related loss and damage impacts. • Marked as a **significant milestone** for vulnerable countries.
Global Stocktake	**Reviewed progress** towards the Paris Agreement's 1.5°C goal. • **Ratchet mechanism** to enhance climate commitments was discussed. • **Insufficient promises** to meet targets.	**Reaffirmed the need** for stronger action to limit global warming to 1.5°C. • Assessment of the **Paris Agreement's long-term goals** and countries' efforts to meet them.	**Acknowledged the emissions gap;** national pledges deemed insufficient. • **Called for urgent action** to close the gap and limit warming to 1.5°C.

Outcome Area	COP 27 (Sharm El-Sheikh, Egypt, 2022)	COP 28 (United Arab Emirates, 2023)	COP 29 (Azerbaijan, 2023)
Mitigation Efforts	Focus on **reducing emissions** and transitioning to **renewable energy**. • **Phase-down of coal** was agreed upon at COP26, but a push for fossil fuel phase-down was not included at COP27. • Launched a **Mitigation Work Programme** to scale up ambition.	**Updated NDCs** with a commitment to enhancing emission reduction targets and focusing on **renewable energy**. • **Equitable transition** emphasized. • **Accelerating action** towards net zero by 2050.	**Increased focus** on **renewable energy**. • Accelerated investments in **clean energy infrastructure**. • Strong push for **energy transition** away from fossil fuels and faster adoption of renewables.
Adaptation	Launched a **five-year work program** to promote **climate technology solutions** in developing countries. • **$100 billion/year promise**, but only **$20 billion** goes to adaptation. • **Adaptation finance commitment reaffirmed** despite some opposition.	Focus on scaling up **adaptation actions** with **financial resources** and **technical assistance**. • **Doubling adaptation finance** to help developing nations. • Emphasized **2030 adaptation goals**.	Strengthened support for **adaptation efforts**. • Focus on ensuring vulnerable communities receive **financial and technical support**. • **Adopted clear targets** for assessing adaptation needs by 2030.
Climate Finance	**Ongoing reform discussions** on **development banks** to boost funding for developing countries. • Shortfall in funding needed for **mitigation** and **adaptation**.	**Commitment to $100 billion** per year by 2025. • UNCTAD calculated $500 billion should be channelled to developing countries in 2025 under the new finance goal to support climate action. • Breakdown of the finance goal: **$250 billion** for mitigation, **$100 billion** for adaptation, and **$150 billion** for loss and damage.	Reaffirmed **$100 billion annually** and **commitment to NCQG** (New Collective Quantified Goal) to triple climate finance to **$300 billion** by 2035. • **General call** for scaling up financing to $1.3 trillion.
Transparency	**Improved monitoring** and **reporting** of climate actions through enhanced transparency frameworks. Together4Transparency hosted a two-week series of climate transparency events covering a range of issues. The events showcased achievements, successes, and best practices from the past 30 years, paving the way for the full implementation of the Paris Agreement.	Emphasized on enhanced transparency frameworks. Parties highlighted developments in implementing climate policies to address targets beyond 2020. During the Facilitative Sharing of Views (FSV) and Multilateral Assessment (MA) sessions, Parties shared their progress towards implementing the enhanced transparency framework (ETF) under the Paris Agreement.	Emphasized on enhanced transparency frameworks. The COP29 Presidency celebrated the start of a new chapter in global climate transparency during COP29, with the first submissions of Biennial Transparency Reports (BTRs) under the Paris Agreement.

Outcome Area	COP 27 (Sharm El-Sheikh, Egypt, 2022)	COP 28 (United Arab Emirates, 2023)	COP 29 (Azerbaijan, 2023)
Food Security	**Focus was on climate resilience,** particularly through protecting **water systems** and building infrastructure to withstand climate impacts. • **Food security** was discussed as part of climate adaptation. However, it was **not the main focus** of the conference, so detailed frameworks for food security were not outlined.	**Not specifically discussed** as food security was not highlighted as one of the major focal points of COP 28. Discussions mainly revolved around **adaptation, mitigation,** and **finance.** The Alliance of Champions for Food Systems Transformation was established at COP28 The COP28 Food Systems and Agriculture Agenda calls for accelerated food systems, agriculture and climate action and urges governments to align and integrate those actions within national strategies.	**Not specifically addressed,** as COP 29 focused more on accelerating **global cooperation, renewable energy transition, carbon markets,** and **support for vulnerable communities** rather than food security. Baku Harmoniya Climate Initiative for Farmers was launched by the FAO in partnership with the COP29. Over 30 countries endorsed a declaration on reducing methane from organic waste.
Private Sector Involvement	**Private sector involvement** was discussed, but was not a main focus. • The conference emphasized the need for private companies to contribute to **renewable energy investments, clean technologies,** and **climate action.** However, there were **no detailed mechanisms** or pledges specifically driven by private sector commitments. • **A call for closing the gap between ambition and action was made.** The UN Global Compact, the world's largest corporate sustainability initiative, aimed to **accelerate private sector action to prevent the worst impacts of the climate crisis.**	**Private sector engagement** was emphasized in COP 28 with a **strong call** for the private sector to ramp up its efforts in **clean technologies, sustainable investments,** and **green innovations.** However, **no specific binding agreements** were reached, and much of the focus was on government commitments to action.	**Not explicitly covered** as private sector involvement wasn't one of the focal points of COP 29. However, **financial commitments** to accelerate **energy transitions** were central to the discussions, where the private sector is expected to play a significant role.
Carbon Markets	Progress on carbon markets under Article 6 of the Paris Agreement.	Further advancement on Article 6, fostering international cooperation on emissions trading	Finalized mechanisms for carbon markets (Articles 6.2 and 6.4).

Outcome Area	COP 27 (Sharm El-Sheikh, Egypt, 2022)	COP 28 (United Arab Emirates, 2023)	COP 29 (Azerbaijan, 2023)
Nature-Based Solutions	COP27 was the first climate COP that acknowledged "nature-based solutions" in a cover decision, highlighting the fact the two issues are interconnected. Indeed, without protecting and restoring our natural world, none of the triple planetary crises can be solved.	Strong emphasis on protecting ecosystems and using nature-based solutions for mitigation and adaptation.	Endorsed nature-based solutions like reforestation and sustainable agriculture.
Energy Transition	Although the need for energy transitions was widely recognized, it was not specifically discussed. The new Indonesia Just Energy Transition Partnership was announced at the G20 Summit, held in parallel with COP27. It intends to mobilize USD 20 billion over the next three to five years to accelerate a just energy transition.	Strong focus on accelerating renewable energy transition, including a Global Renewables and Energy Efficiency Pledge.	Focus on fast-tracking renewable energy investments and increasing clean energy infrastructure.
Indigenous Peoples & Local Communities	**Indigenous peoples' involvement** in climate action was **not directly addressed** at COP 27, though there were general references to the importance of local communities in **climate adaptation** and **resilience-building**.	As per UN data, Indigenous peoples make up only 5% of the world's population, but they control more than 82% of the world's protected biodiversity. COP 28 was marked by the largest presence of indigenous peoples in the entire history of the COPs. The representatives of Indigenous peoples and traditional communities were heard and sat at the debate tables to discuss their role in the actions. Announcement and creation of an international commission. It consists of all the bodies that already exist in the indigenous debate at the COP, such as the Platform of Indigenous Peoples and Local Communities, within the UNFCC; the Indigenous Caucus, which is the global space for indigenous participation; the UN Permanent Forum, and various macro-regional organizations, such as the Global Alliance.	**Reinforced the role of Indigenous Peoples** and local communities in addressing climate change. COP 29 adopted the **Baku Workplan** to strengthen Indigenous participation, with a commitment to protecting **Indigenous rights** in the context of climate actions.

Outcome Area	COP 27 (Sharm El-Sheikh, Egypt, 2022)	COP 28 (United Arab Emirates, 2023)	COP 29 (Azerbaijan, 2023)
Gender & Climate Change	**Gender equality** in climate action was discussed but not as a **primary focus**. The **Lima Work Programme on Gender** continued its work, but **no new extended commitments** or **plans** were announced during COP 27	• A **significant step forward** for gender and climate change with the **extension of the Lima Work Programme on Gender** (**LWPG**) for 10 years. A **new gender action plan** is set to be adopted at COP 30, demonstrating the conference's commitment to ensuring **gender equality** in climate action.	The **Lima Work Programme on Gender** was extended for another 10 years. The discussions at COP 29 **reaffirmed the importance** of integrating **gender equality** into **climate action**, and it was announced that a **new gender action plan** would be developed at COP 30.
Other Developments	• US$ 1 billion early warning system plan announced. • Global Shield against Climate Risks with new commitments of US$ 200 million. • Indonesia Just Energy Transition Partnership to mobilize US$ 20 billion for energy transition.		

Compiled by Varuna Shankar (Sources: UNFCCC, https://unfccc.int/; UNCTAD, https://unctad.org/; WSP, https://www.wsp.com/; UN, https://news.un.org/; V-20, https://www.v-20.org; Government of Brazil, www.gov.br, https://www.gov.br/planalto/en; https://unfccc.int/news/nature-for-climate; Global Compact Network, https://www.globalcompactnetwork.org/en/news/ungcn-italy-news/; Down to Earth, https://www.downtoearth.org.in/climate-change/cop28.)

What Needs Focus in COP 30

Despite over five decades of research and development efforts, Himalayan institutions are still grappling with understanding the socio-geo-environmental underpinnings of the Himalayan region. The 'blueprint' of development planning has been fragmented and dysfunctional. As a result, environment and development responses that are needed to catalyze change have been dissatisfactory. They are unable to harness endogenous agency and support transformational politics and policies. Additionally, foreign aid has often been counter-productive. The complex socio-ecological dynamics that characterize the region indicate a new Himalayan crisis characterized by several failed responses amid escalating environmental and development challenges. The primary genesis for these challenges has been the social, economic, and political complexities in the region that have compounded impacts on people's livelihood systems and the environment, further aggravating into new crisis.

There is a dire need for a new and transformative approach that integrates environmental and development concerns in the Himalayas. An emancipatory approach to decision-making processes is achieved

through a multi-scalar politics of development. A vibrant and critical body of knowledge and its application plays a vital part in this framework. This approach requires 'transformative resilience,' a process in which social and political relations are recreated to redefine the relationship between people and the environment to enhance the adaptability of the socio-ecological system.

There is currently a disconnect between scientific evidence and policy-making. This could be due to a lack of access to technical studies or the political will to integrate them into policy decisions. There is a skepticism over both political will and governmental capacity. In some cases, policy frameworks to meet these challenges already exist, but in many instances, there is insufficient clarity around responsibilities across ministries, hampering coordination within governments. This also includes lacking data, strategy, and communication coordination across national borders. Furthermore, there is an increasing lack of ability to move at speed since major climate impacts in the HKH region are occurring at such a high frequency. Governments, agencies, and communities lack the precise time to respond adequately. Hence, government departments find it difficult to mobilize the necessary resources for both climate change adaptation and risk reduction.

The World Economic Forum conducted a poll in 2021 on the trust in environmental science and found it to be especially strong in South Asia. It recorded the opinions of more than 11,600 people from across the globe. It found that 84 percent of South Asian respondents trusted "a great deal/a lot" in climate science. As a result, scientific studies warning of looming disasters must be adequately targeted and communicated beyond the immediate audiences. The chasm between science and policymaking needs to be bridged to establish a common ground and hold them accountable for actions. There is also a need for forums that bring together scientists, development experts, stakeholders, and policymakers. COP30 can provide the platform for the integration of silo-based efforts by individuals and organizations to talk in unison.

The most significant issue is the lack of an institutional structure for constant dialogue and collaboration in the Himalayan region. There is a need for an early-stage collaboration between researchers and policymakers that moves beyond mere communication after the research is published. Additionally, research papers curated due to a lack of open access to some essential journals focus excessively on hard science and not on actionable inputs, adding another layer of complexity to the issue.

China's Tibet Apathy: Accelerating Regional Climate Risks

For years, it has been established that global warming is not only causing Tibet's glaciers to melt and permafrost to thaw at an alarming rate but also accelerating several extreme weather events such as flash floods. On top of the challenges due to global warming, China's so-called unprecedented[31] development policies have hastened Tibet's climate crisis. China's relentless pursuit of infrastructure, including helipads, rails, and road networks, as well as dual-use military facilities is causing environmental degradation. Not to mention the human costs that come with the displacement of nomadic and farming communities due to the (over)damming and diversion of Tibet's rivers.[32]

The role of China in the Tibet climate crisis can be termed as the greatest water grab in history; however, it is almost unnoticed by the world. In fact, 50 percent of the meltdown of Himalayan glaciers is caused by CO2 emissions, with China responsible for around 30 percent of the global total for emissions of this deadly greenhouse gas.[33] The powerful state-owned Chinese consortiums are responsible for building multiple dams (over damming) on all the major rivers running off the Tibetan Plateau to provide electricity to Chinese cities far from the plateau. These dams are being built on high gradients at the meeting point of three of the world's youngest and most unstable mountain ranges. This also includes water diversion schemes across some of the restive areas of Tibet to transfer water to the parched Northern China. Building concrete walls across the mountain rivers, tunneling through mountains, and flooding one of the richest wetland areas would potentially disbalance the world's most

seismically active regions. Furthermore, the large-scale mining in copper, gold, silver, chromium, and lithium (including rare-earth) has integrated Tibet's small region (Drangyer Tsaga, Salt Lake, Kham, Tsaidam Basin, Chumarleb, Chulong) into the Chinese industrial economy. Lithium, in particular, is currently in unstoppable demand and risks being a threat to Tibet's ecology as it is one of the richest lithium sources. China holds the title of being one of the largest processors and manufacturers of this mineral resource worldwide (67 percent). It is a profitable prospect for the Chinese to extract the mineral at an unprecedented level. However, this has resulted in human rights violations, environmental degradation, disrespect to cultural norms, land/original settler displacement, economic disparity, and ignoring social inclusion in Tibet.[34]

Additionally, in 2015, the Chinese authorities announced a dramatic expansion of the bottled water industry in Tibet despite shrinking glaciers and the already apparent impact of the rush to exploit Tibet's rivers. The target was to build 5 million cubic meters of bottled water production capacity by 2020. In 2014, Tibet produced 153,000 cubic meters of water signifying a huge jump. This was primarily because water was available in abundance and was cheaper in Tibet than in other parts of China. Also, the water bottled upstream among snow-capped peaks is perceived as pure, commanding a premium. This led to a huge influx of companies to cash in on the region's water resources.[35] The Qinghai-Tibet plateau became a hotspot for the bottled water industry. By 2014 the government had approved licenses for 28 companies to produce bottled water in the Tibetan Autonomous Region (TAR).[36] This is having a devastating impact, leading to record water pollution levels. Adding to the concern is the lack of basic rudimentary environmental impact assessments in the region. Hence, China's land use policies and new business ventures would not only impact regional stability but are a matter of concern for downstream countries as well.

Another critical aspect of the Chinese government policies in Tibet is a massive social engineering campaign that entails the displacement of nomadic pastoralists from the vast Tibetan grasslands. Indigenous stewardship and herd mobility are essential to the health of the rangelands and help mitigate climate change, but the Chinese action threatens to eviscerate a sustainable way of life uniquely adapted to the harsh landscape of the high plateau. This is being done keeping in view the Chinese idea of being an ecological civilization that seeks to preserve the environment amidst economic development in the region.

At the same time, China remains cautious of its international image and therefore, the Chinese leadership is seeking to gain endorsement from international institutions and governments (dominated by Chinese presence) for creating infrastructure such as national parks on the plateau contingent upon the removal of nomads from their pastures.[37] The Tibetan Plateau has 13 candidate areas that cover an area of about 770,000 square km and account for 70 percent of the total area of national park candidate areas.[38]

China's focus on Tibet is driven by its need to fulfill the demands of mainland China, be it water or mineral resources (also including rare earths).[39] It also has a larger securitization angle: building excessive military infrastructure[40] to not only clamp down on all separatist activities but also create conditions for a heavily militarized border, particularly against India. China's increasing militarization in Himalayan territories[41] and influence in countries such as Pakistan and Nepal also have repercussions for the stability of the South Asian region as a whole.

The Imperative for Climate Solidarity: Beyond Multilateral Unity?

The HKH Science-Policy Forum, organized by ICIMOD and Nepal's Ministry of Forests and Environment, held its second event in 2023 in Kathmandu. It was dedicated to the climate and cryosphere crisis. It brought together Afghanistan, Bhutan, Bangladesh, China, India, Myanmar, Nepal, and Pakistan as an intergovernmental knowledge hub for the Hindu Kush Himalaya. The event hosted 100 policymakers, scientists, donor agencies, and civil society representatives. Additionally, valuable advice on procedural and administrative guidelines was

brought to the forefront by organizations representing other mountainous regions. This included the Alps, the Carpathians, and the Arctic region.

There is an increasing global interest in learning from the Himalayan region and it suggests the potential for the HKH to become a global leader in climate action. The vigorous independent scientific community within the HKH plays a vital part in this to leverage from the evidences and steer the debate on climate change. In order to engender the much-needed conviction that change is possible, honest debate across scientific, governmental, and civic domains is needed. The regional and global actors who could bankroll the necessary climate adaptation and mitigation strategies need to feel the urgency. Careful framing is the key to any successful policy-related work and this needs patience and inclusivity. This has to be coupled with engaging the public as they hold world leaders accountable at the ballot box. It will harness resources and effectively provide solutions. The transition from COP29 to COP30 would need an integration of thoughts and actions in a uni-direction from all the stakeholders.

Undoubtedly, the future of Asia's high mountains depends on the decisions of the global climate bodies and the collective efforts taken to build climate-resilient communities and protect these vital ecosystems. A unified effort to combat these challenges would mean moving beyond the business-as-usual approach and focusing on targeted investments and mobilization of international support. There is a need to quantify economic costs for loss and damage to the specific ecosystem to drive new investments and support stronger policy coordination.

In the Himalayan region, as categorically raised by the aforementioned Himalayan ministers' council, tackling transboundary issues with a common approach has to be given the spotlight. These issues include but are not limited to cryosphere risk monitoring, disaster preparedness, increasing air pollution, biodiversity conservation, and innovative financing solutions. The detailed examination of the glacier dynamics and associated phenomena like Glacial Lake Outburst Floods (GLOFs) would require multi-sensor satellite coverage and data validation through statistically valid field measurements to ensure a complete understanding of the entire Himalayas.

Mitigation measures must be identified and adopted as an actionable approach to dangerous trends rather than a reaction. Revisiting and redesigning development policies, management and conservation practices, and appropriate technologies is imperative. This includes good science and research agendas with credible, salient, legitimate knowledge derived from field observations and tested by local communities and can lead to good policies. Scientific knowledge is useful but limited and uncertain about the complex Himalayan scale. An interesting model has been the 'Nobody Knows Best'[42] where the role of the different actors is held in vitality. This approach notes all stakeholders' significance in resolving scientific uncertainty, adaptation, mitigation, and public engagement. The policy is a formula for the use of power and the application of knowledge where salient, unbiased information in its origins and fair and reasonably comprehensive treatment of opposing views and interests becomes relevant and useful to policy-makers. Consequently, responsibility should be shared among citizens, government agencies, and the private sector in the mountains as elsewhere.[43]

Support at global forums like the UN climate conferences to represent and amplify common issues and concerns is critical in attracting global attention to the Himalayan region. This would hopefully also allow access to global funds, such as the Global Environmental Facility,[44] which is a partnership of 18 agencies (including United Nations agencies, multilateral development banks, national entities, and international NGOs) and UN finance mechanisms[45] such as the Adaptation Fund and Green Climate Fund (GCF). Such an imperative will go a long way to fulfill the funding need that was also highlighted by Bhutan's Secretary of the Ministry of Energy and Natural Resources Karma Tshering at COP29.[46]

Four years earlier, at the height of the COVID-19 pandemic, the 2020 Ministerial Mountain Summit had declared some common goals including holding a biennial summit for the eight affected countries and creating a task force to monitor and assess the

calls for action.[47] This needs to be taken forward with renewed momentum at the COP30 to be held in Brazil.

While multilateral cooperation is a must, there is also a need to amplify the voices of the marginalized and suppressed communities in the high mountains. Particularly, the Tibetan Plateau and its people need the international community, including India and the West, to check China's growing inroads into the Tibetan landscape. Be it Chinese over-damming of Tibetan rivers, mining, or construction of dual-use military infrastructure (e.g., roads and helipads), the Chinese claims of adhering to the UN's sustainable development goals appear quite a sham. Then there are also the human rights aspects of the Tibetan occupation, which also lends to the climate change acceleration as the original settlers are "relocated."[48] In this context, India and the West/U.S. need to collaborate to bring the Himalayan concerns into the emerging Indo-Pacific regional architecture agenda—a common security agenda might as well help consolidate climate action.

The mountains are issuing a distress call, and the potential catastrophe in the Himalayas needs urgent action. The best time is now, and the run-up to COP30 in Brazil needs the integration of people, processes, institutions, thoughts, actions, and behavior among the stakeholders. The transition from COP29 to COP30 needs to be action-based, and solidarity will need confluences of ideas, interests, and intentions.

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