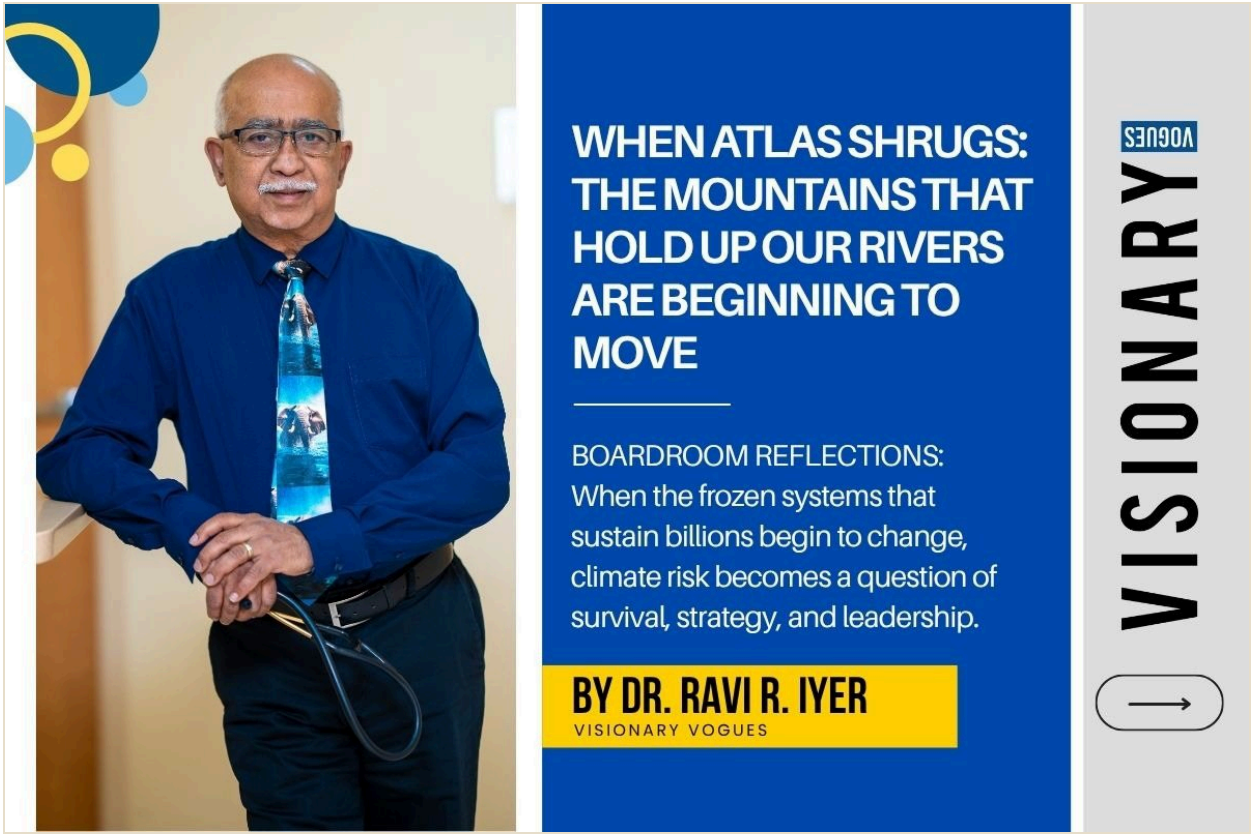
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ESSAY

When Atlas Shrugs

The mountains that hold up our rivers are beginning to move.

By **Ravi R. Iyer, MD**



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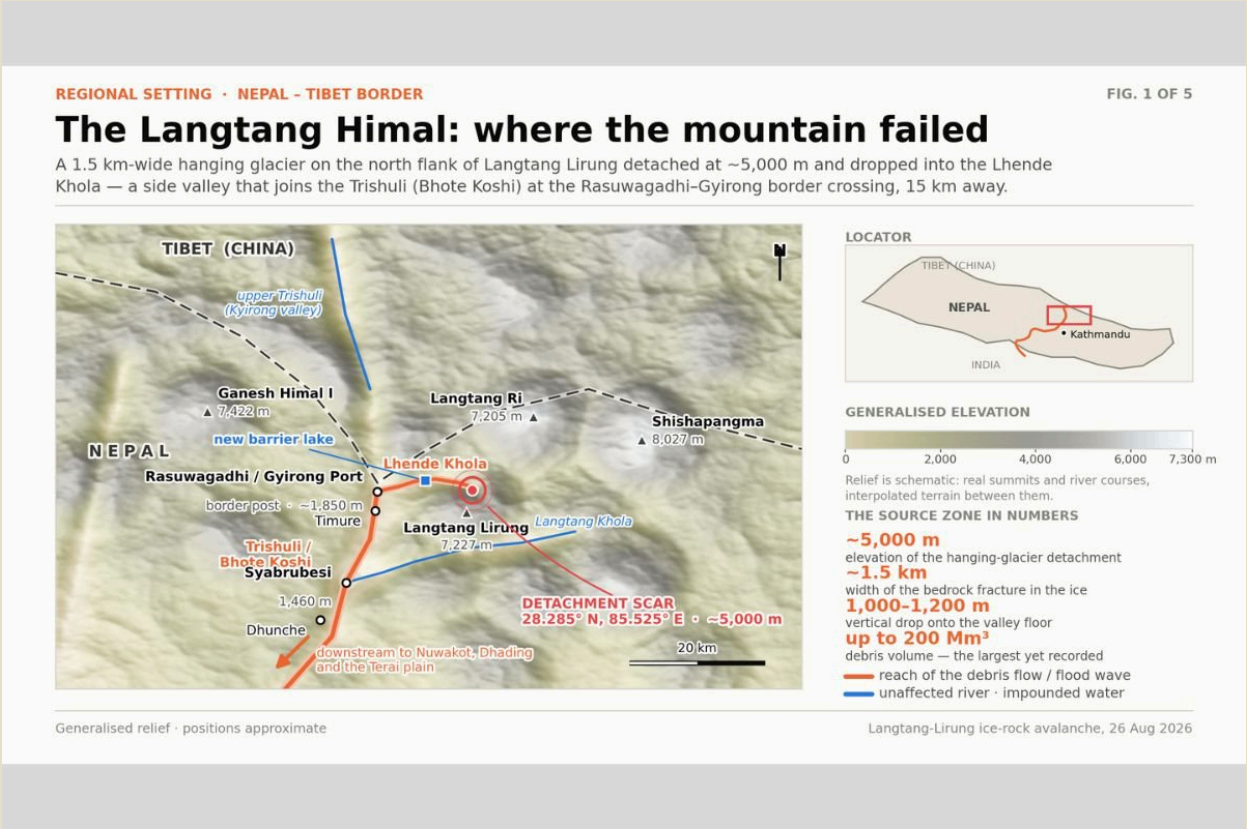
This article was drafted on Aug 31st. In this deeply considered exploration, Dr. Ravi R. Iyer examines what happens when the frozen systems that have quietly supported human civilization for centuries begin to change. From the unstable slopes of the Himalayas to the thawing permafrost of the Arctic, he connects mountain stability, water security, climate risk, infrastructure, and the emerging strategic questions facing governments, corporations, and communities.

At 8:37 on the morning of August 26, 2026, a mountain on the border between Tibet and Nepal moved. At first, instruments around the world interpreted the seismic signal as an earthquake. It wasn't. The Earth had not shaken the mountain. The mountain itself had shaken the Earth.

High above the Lhende River, at approximately 5,200 meters, a section of glacier hundreds of meters across detached from the mountainside and plunged roughly 1,200 meters down the valley. Ice. Rock. Gravity. Millions of tons of material accelerating toward the valley floor. The collapse generated enough seismic energy to register as a magnitude 5.2 event. The falling mass pulverized ice, entrained rock and water, temporarily blocked the river, and then helped unleash a catastrophic surge downstream through the Bhote Koshi and Trishuli river systems.

One surviving gauge recorded the river rising approximately nine meters in thirty minutes. Villages disappeared. Bridges vanished. Roads were erased. Hydropower infrastructure was destroyed. People were swept downstream for hundreds of kilometers. By August 29, hundreds of bodies had been recovered, and thousands of people remained missing. The final toll was still being written.

The event was initially described as an earthquake. Then a glacial lake outburst. But as satellite images, seismic analysis, and field reports accumulated, another possibility emerged, one that may prove far more consequential than the catastrophe itself. The mountain may simply have become unstable. And that should terrify us.



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Because mountains do not exist as immutable monuments of stone. At high altitude, many are composite structures of fractured rock, ice, snow, glaciers, and permafrost. And as the planet warms, some of the material that has held those structures together for centuries is beginning to thaw. Atlas is shrugging. And billions of people live downstream.

WHEN FROZEN GROUND IS STRUCTURE

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We normally think about climate warming in terms of temperature. A degree here. A fraction of a degree there. Melting glaciers. Rising seas. But temperature is not merely something measured by a thermometer. Temperature changes the mechanical properties of landscapes.

Permafrost is ground, soil, sediment, or rock, that remains frozen for at least two consecutive years. In the Arctic tundra, it can extend across immense relatively flat landscapes. In high mountains, permafrost penetrates fractured cliffs and steep rock faces. The physics of thaw therefore produces two very different kinds of danger.

- In Alaska and Siberia, thawing permafrost destabilizes the
- ground beneath us. In the Himalayas, thawing mountain
- permafrost can destabilize the mountain above us. That
- distinction matters enormously.

In tundra, ice-rich frozen ground behaves somewhat like structural reinforcement within soil. When it melts, the surface can subside and collapse. Roads buckle. Building foundations shift. Pipelines deform. Lakes suddenly form or drain. Vast irregular landscapes called thermokarst develop as formerly frozen terrain sinks. The tundra loses its foundation.

But put the same process into a Himalayan cliff face inclined at forty, fifty or sixty degrees and the consequences become very different. Ice may occupy fractures in rock. Frozen ground helps maintain cohesion. Glacial ice can buttress slopes. When warming removes some of that frozen support, water penetrates fractures, freeze-thaw cycles widen them, pore pressures change and gravitational forces that have existed for thousands of years can finally win. The mountain loses its glue.

- That does not mean climate change can automatically be
- blamed for any individual landslide or glacier collapse.
- Attribution requires careful analysis, and the scientists studying
- the August Nepal-Tibet disaster have been appropriately
- cautious. But the broader mechanism is well established.
- Across High Mountain Asia, warming, glacier retreat and
- permafrost degradation are creating conditions in which
- rockfalls, ice-rock avalanches, slope failures and cascading floods

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KARUNA MIRA SAH WAS TALKING ABOUT WATER

- Karuna Mira Sah is a 32-year-old remote sensing analyst,
- glaciologist and mountain hydrology practitioner working with
- Acres of Ice in Ladakh in the Indian Trans-Himalaya. When I
- interviewed her for Boardroom Reflections, we were not
- discussing catastrophic avalanches. We were discussing
- something apparently quieter. Water.

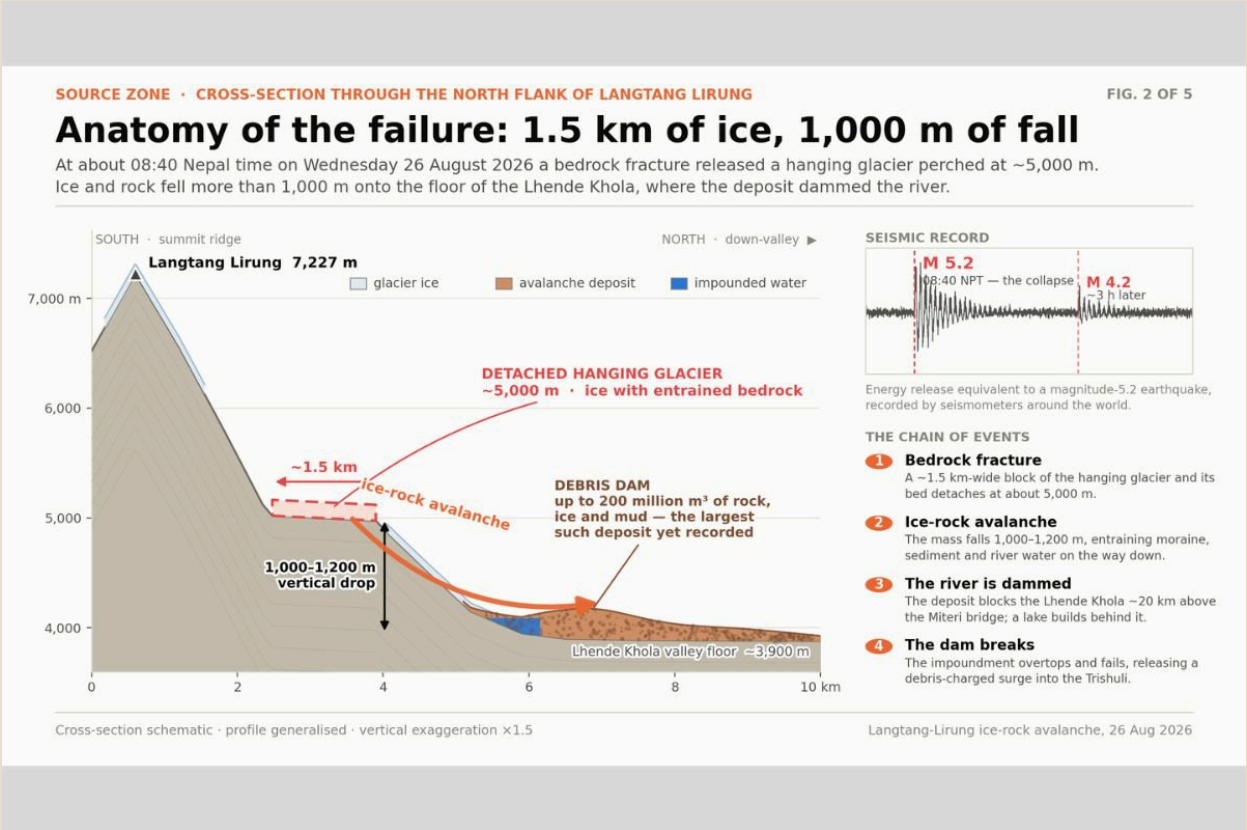
Karuna works among communities receiving less than 100 millimeters of annual precipitation. Ladakh sits in the Himalayan rain shadow. It is a high-altitude cold desert where agriculture, villages and cultures have survived because the cryosphere acts as a gigantic natural reservoir.

- Snow falls. Glaciers hold it. Summer warmth gradually releases it.

- Streams carry it downstream. Farmers divert it into fields.
- Civilization emerges from frozen water.
- Karuna put it simply when we spoke:

> *The majority of Ladakh is dependent on the cryosphere for survival.*

- And then she described the change she was witnessing. Winter
- precipitation was becoming less reliable. Glaciers were
- retreating. Snowfall was becoming inconsistent. For many
- villages there is only one agricultural cycle. If sufficient water
- does not arrive in April, there may be no crop by October.
- That is not an academic discussion about climate. That is
- survival.



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THE PARADOX OF THE MELTING MOUNTAIN

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The great paradox of glacier loss is that a warming mountain can produce both too much water and too little water. First comes abundance. Accelerating melt increases runoff. Glacial lakes enlarge. Unstable slopes release ice and debris. Extreme events can send enormous quantities of water down narrow valleys in minutes.

Then comes scarcity. As glaciers lose mass, the frozen capital accumulated over centuries is depleted. Eventually the annual dividend of meltwater declines. Streams become less predictable.

Springs weaken. Pre-monsoon flows diminish. Communities dependent upon the cryosphere begin competing for a shrinking resource.

- The same disappearing glacier can therefore produce a
- catastrophic flood in one generation and chronic water scarcity
- in the next.

- Too much water today.
- Too little water tomorrow.

Karuna's work exists directly inside that paradox. At Acres of Ice, her team uses remote sensing, satellite data and old-fashioned field reconnaissance to understand springs, glaciers and water availability. Using Landsat and Sentinel satellite imagery, she can follow the outlines of glaciers through time.

But satellites cannot tell the entire story. So she walks into villages. She talks to farmers. Has the spring changed? Is there enough water? Is it arriving at the right time? What did the stream do ten years ago? What happens to the crop when the melt arrives late?

This is climate science translated into human consequence.

MAKING ICE BECAUSE NATURE NO LONGER MAKES IT AT THE RIGHT TIME

One adaptation Karuna described fascinated me. Acres of Ice creates artificial ice reservoirs based upon the principles pioneered through Ladakh's Ice Stupa systems. Winter water that would otherwise flow downstream unused is diverted through gravity-fed pipes. It is sprayed into freezing air. Increasing the water's surface area allows it to freeze into large ice structures.

No massive refrigeration plant. No giant electrical grid. Gravity. Cold. Water. Physics. As spring arrives, these reservoirs melt and return their stored water to existing streams precisely when farmers need it.

When Karuna first explained it, I asked what seemed the obvious question. Wouldn't the sprayed water simply run away?

Her answer was beautifully simple:

> *It freezes.*

A sophisticated global climate problem answered temporarily by an elegant manipulation of three basic variables, temperature, gravity and time.

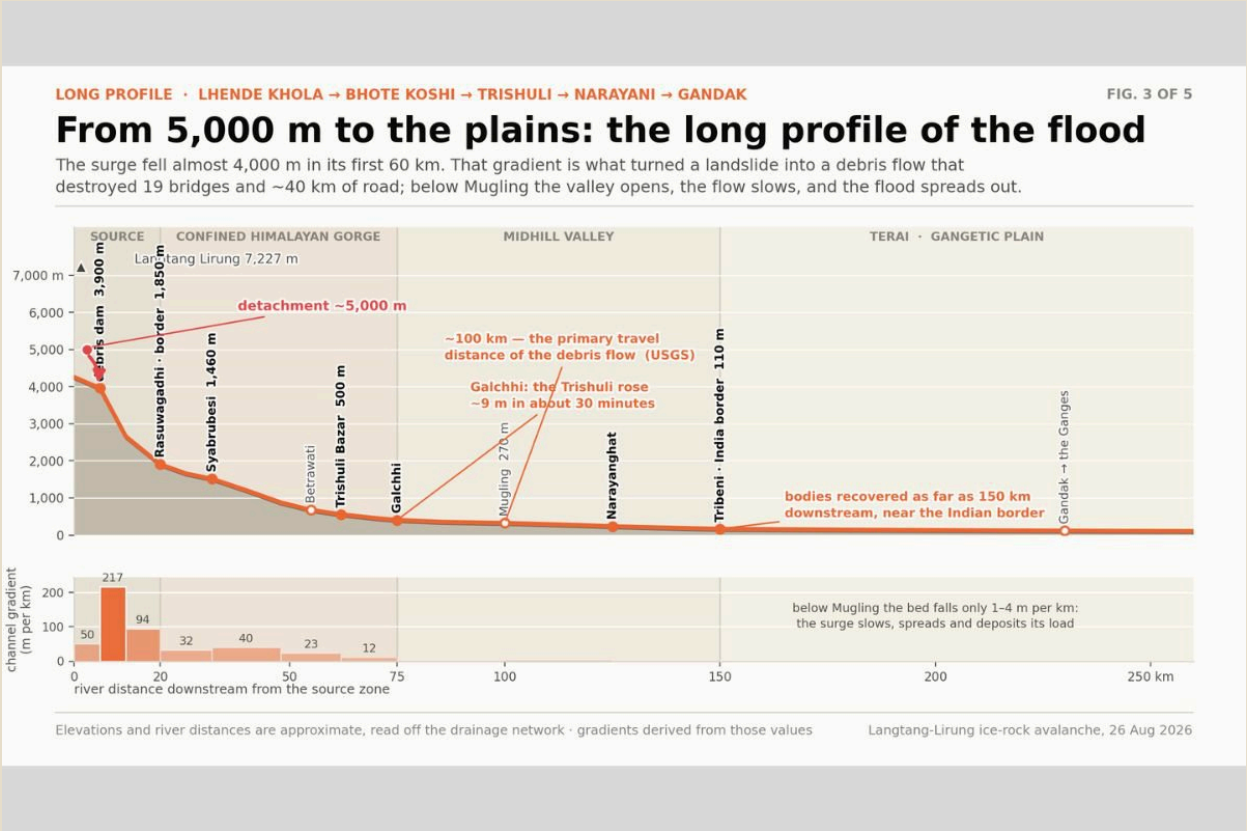
But Karuna was under no illusion about what this represents. When I asked what she would wish for if she possessed a magic wand, she did not ask for more ice reservoirs. She asked for global reductions in greenhouse-gas emissions.

Then came the sentence I have remembered ever since:

- "Adaptation is just a band-aid. If the water actually
- disappears, then there is no way of adapting."

That sentence looks very different after Nepal.

THE WATER TOWER OF HUMANITY



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Stand back from Ladakh and Nepal and look at the map. The Hindu Kush Himalayan region is sometimes called Earth's Third Pole because it contains the greatest concentration of snow and ice outside the Arctic and Antarctic. It is also Asia's water tower.

- Across the broader Hindu Kush Himalaya originate ten major
- river systems supporting close to two billion people, roughly
- one-quarter of humanity.

Near Mount Kailash and the Manasarovar landscape in western Tibet lies an extraordinary hydrological crossroads associated with the headwaters of four great Asian river systems: The Indus. The Sutlej. The Yarlung Tsangpo, which becomes the Brahmaputra. The Karnali, which ultimately feeds the Ganges system.

Four rivers flowing toward different points of the compass from the same extraordinary high-altitude landscape. Follow those waters downstream. They become drinking water. Irrigation. Rice. Wheat. Hydroelectricity. Industry. Cities. Civilizations.

Pakistan depends profoundly upon the Indus. Northern India depends upon Himalayan rivers. Nepal's agriculture and hydropower are inseparable from mountain water. Bangladesh lives at the terminus of one of the world's greatest Himalayan river systems. China, India, Pakistan, Nepal and Bangladesh all possess strategic interests in the same interconnected cryosphere.

We talk endlessly about the geopolitics of oil. The geopolitics of semiconductors. The geopolitics of artificial intelligence. Perhaps we need to begin talking about the geopolitics of ice.

THE MOUNTAIN AND THE TUNDRA

And this brings us north. To Siberia. To Alaska. To Canada. To the Arctic tundra.

The frozen ground there presents a different face of the same planetary phenomenon. High mountain permafrost is principally frightening because of what thaw can do to mechanical stability. Arctic permafrost carries another enormous consequence.

It is a carbon vault.

- For thousands of years, dead plants, animals and
- microorganisms accumulated in frozen ground faster than they
- decomposed. The Northern Hemisphere permafrost region
- today stores approximately 1.4 to 1.6 trillion tonnes of carbon.

Freeze the ground, and microbial metabolism slows dramatically. Thaw it, and biology resumes. Microorganisms begin digesting organic matter that may have been inaccessible for centuries or millennia. That metabolism releases carbon dioxide. Under oxygen-poor conditions it can release methane. And methane is a particularly powerful greenhouse gas.

- This creates one of climate science's most disturbing feedback
- loops: Warming thaws permafrost. Thaw activates microbial
- decomposition. Decomposition releases greenhouse gases.
- Greenhouse gases produce additional warming. Additional
- warming thaws more permafrost.

The freezer does not simply stop preserving its contents. The freezer begins helping warm the room.

- NOAA has already reported that the Arctic tundra region is
- shifting from its historic role as a carbon store toward becoming
- a source of carbon dioxide and methane to the atmosphere.
- That is not a hypothetical future problem. The transition has
- begun.

WHAT ELSE IS IN THE FREEZER?

There is another aspect of thawing permafrost that inevitably captures the imagination. Microbial life.

Frozen soils contain enormous microbial ecosystems, bacteria, archaea, fungi and viruses. Some organisms can remain viable under extraordinary conditions. Thawing therefore exposes biological material that has been isolated from the modern biosphere for long periods.

- This has produced dramatic headlines about ancient pathogens
- and so-called "zombie viruses." Here we must resist
- sensationalism.

There is legitimate scientific reason to study the microbial consequences of permafrost thaw. Ancient microbial DNA has been identified. Viable microorganisms have been recovered from

frozen environments. Bacterial spores can survive for long periods, and changing landscapes can alter disease ecology.

But the existence of microorganisms in thawing permafrost is not evidence that an ancient pandemic is about to emerge. A major scientific review published in 2025 concluded that the currently demonstrated risk from viruses released from permafrost is not greater than the viral risk posed by many other environmental reservoirs.

That distinction matters.

- The responsible position is neither dismissal nor Hollywood
- panic. It is surveillance. Research. Environmental microbiology.
- Public-health preparedness.
- Because climate change is not merely changing where
- organisms live. It is changing which biological archives become
- exposed to the modern world.

THE CARBON CONVERSATION IS TOO SMALL

This returns me to something else Karuna said during our conversation. She observed that corporations discussing climate change constantly talk about carbon, emissions and waste. But water?

> Water, she said, repeatedly sits "on the back burner."
> Her observation is profound.

- Climate change is framed politically as a carbon problem
- because carbon is measurable. Tonnes emitted. Tonnes offset.
- Net-zero dates. Carbon credits. Scopes One, Two and Three.

But human beings do not directly experience climate change as atmospheric parts per million. They experience it as water.

Too much. Too little. At the wrong time. In the wrong place. A disappearing glacier. A river nine meters higher in thirty minutes. A spring that no longer runs. A field that cannot be planted. A city aquifer that will not recharge. A mountainside that suddenly becomes a flood.

Carbon may be the forcing mechanism. Water is where the bill arrives.

AND THEN THERE IS AI

- Karuna then asked a question that deserves a place in every
- technology boardroom.

What is the water cost of artificial intelligence?

- The explosion of AI infrastructure demands enormous
- computing capacity. Computing requires electricity. Large data
- centers generate heat. Heat must be removed. And many
- cooling systems consume water.
- We have become increasingly sophisticated about measuring

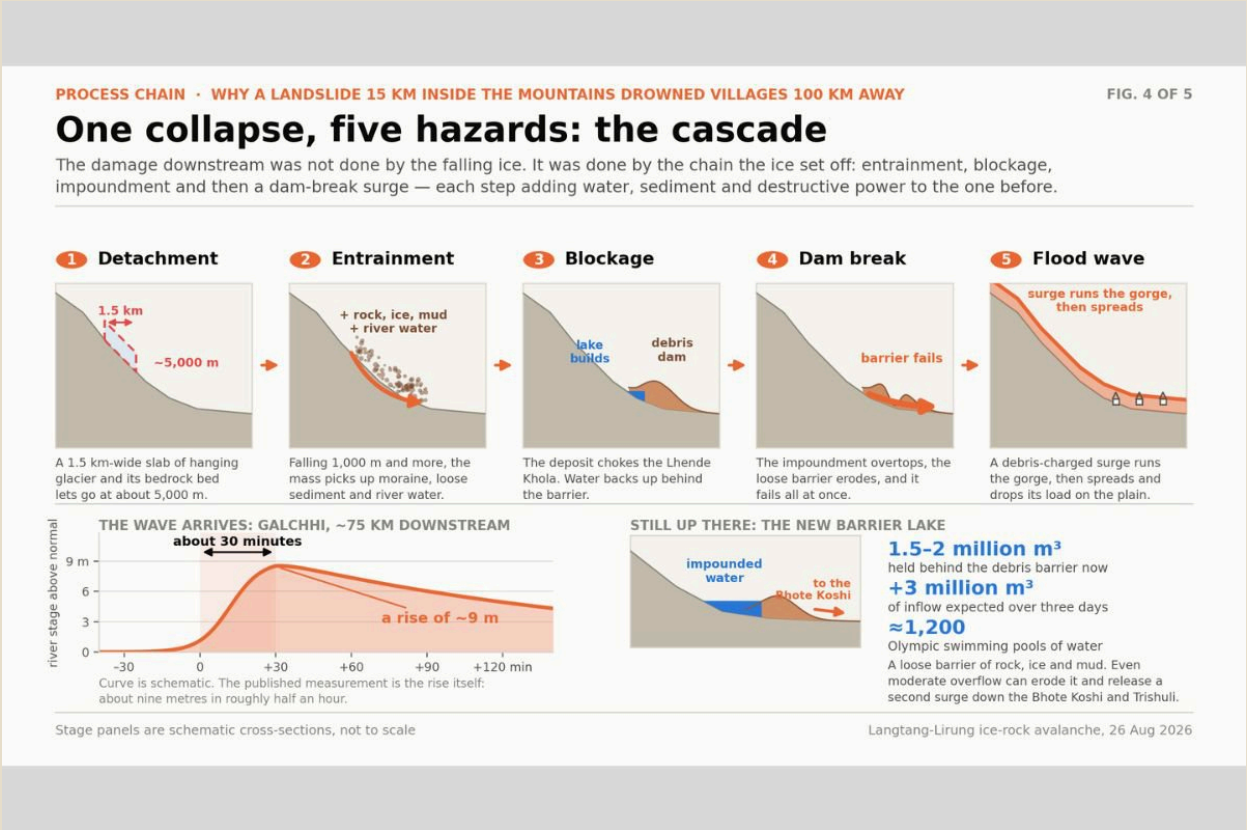
- the carbon footprint of computing while remaining far less
- fluent in its hydrological footprint.

How many liters of water sit invisibly behind model training? Behind inference? Behind semiconductor manufacture? Behind the electricity supplying the data center?

And perhaps most importantly:

Where is that water coming from?

A gallon consumed in a water-rich watershed is not equivalent to a gallon consumed from a stressed aquifer. Water is intensely local. That makes water accounting harder than carbon accounting. It also makes it more important.



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ATLAS DOES NOT NEED TO COLLAPSE

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The title of Ayn Rand's novel imagined Atlas, the mythical titan bearing the world upon his shoulders, finally refusing to carry its weight.

Our Atlas is different.

It is the cryosphere. The glaciers. The snowfields. The permafrost. The high mountains storing winter precipitation and releasing it slowly enough for civilizations to exist below them.

- For thousands of years, those systems quietly performed
- planetary infrastructure services without invoices, contracts or
- balance sheets. We assumed they were permanent because

They are not.

- The August 26 catastrophe in Nepal offers a terrifying glimpse of
- what happens when the architecture of the high mountain
- changes faster than the societies below it can understand.

And yet the science remains unfinished. We do not yet know precisely why that particular glacier detached. We do not yet know how much permafrost degradation contributed. We do not yet know every stage of the cascade.

Those questions deserve careful scientific answers rather than convenient ideological ones.

But waiting for perfect attribution before responding to a clearly changing risk environment would be an extraordinary failure of leadership.

- Insurance companies do not wait for certainty before pricing risk.
- Military planners do not wait for invasion before considering
- vulnerability. Boards do not wait for bankruptcy before
- examining liquidity.
- Why should civilization demand absolute certainty before
- examining the stability of the water towers upon which billions
- of people depend?

THE BOARDROOM QUESTION HAS CHANGED

For twenty years the dominant climate question has been:

How much carbon are we emitting?

It remains an essential question. But it is no longer sufficient.

The next generation of climate leadership must ask:

How much water do we use? Where does it come from? How resilient are the watersheds supplying us? What happens when glacier-fed river flows become more volatile? Which communities sit beneath unstable permafrost slopes? Which dams, roads, bridges and hydropower facilities were engineered using assumptions about mountains that may no longer be valid? Where are our cross-border early-warning systems? Who owns the upstream data? Who warns the country downstream? What happens when one nation's glacier becomes another nation's flood? What happens when today's excess melt becomes tomorrow's water deficit? And who is investing now in the science required to answer these questions?

- When I asked Karuna where she hoped her work would
- eventually lead, she spoke not merely about glaciology. She
- spoke about science diplomacy.

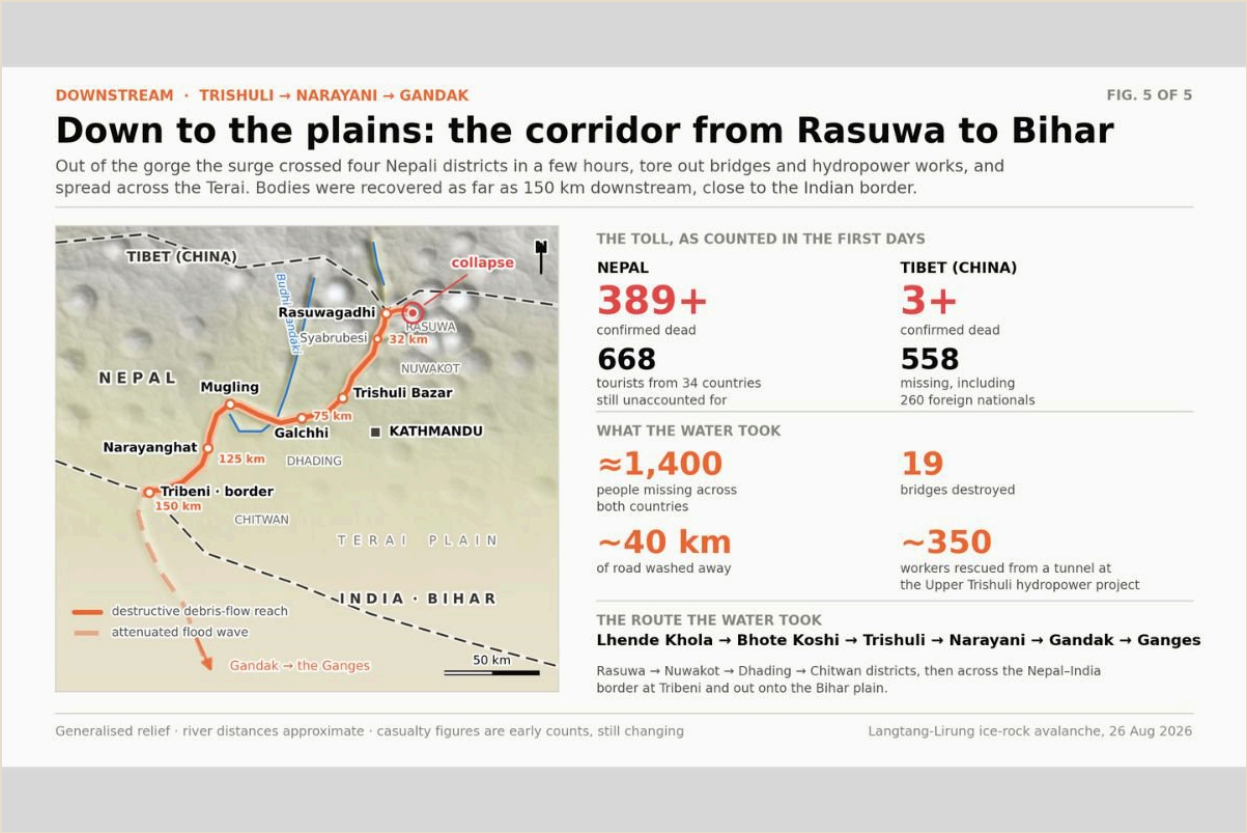
That may ultimately be the most important answer of all.

Rivers do not recognize borders. Glaciers do not carry passports. Atmospheric carbon does not stop at customs. And a mountainside collapsing in Tibet can kill people in Nepal before governments have finished exchanging messages.

On August 26, Nepal reportedly learned that the great wall of water was coming only after the event had already begun moving downstream. For those closest to the border, warning came too late.

That is not merely a climate problem. It is a diplomacy problem. A technology problem. An infrastructure problem. A governance problem. And ultimately a leadership problem.

WHEN ATLAS SHRUGS



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- Perhaps the great mistake we have made is imagining climate
- change as something happening to the environment. The
- environment is not something outside civilization. It is the
- physical platform upon which civilization is constructed.
- Mountains store our water. Permafrost stabilizes landscapes.
- Rivers grow our food. Aquifers supply our cities. Climate
- determines where agriculture succeeds. Water determines
- where people can live.

Karuna Mira Sah sees this reality every time she climbs above a Ladakhi village searching for a spring. A farmer waiting for April meltwater sees it. A rescue worker digging through meters of mud in Nepal sees it. A scientist watching Siberian permafrost temperatures rise sees it. They are each looking at different pieces of the same system.

- The warning is not that the world will run out of water. Water
- does not disappear from Earth. The warning is much more

- complicated.

The water may increasingly cease to be where we built our civilizations, when we need it, in the form in which we can use it.

- And simultaneously, frozen landscapes we assumed were
- structurally permanent may cease to behave as they have for
- centuries.

- This is why water must move from the environmental agenda to
- the strategic agenda. From sustainability departments to
- corporate boards. From scientific conferences to foreign
- ministries. From climate activism to infrastructure planning.
- From an ESG metric to a measure of national resilience.

Because the glaciers of Ladakh are not simply Karuna's problem. The collapsing slopes of Tibet are not simply Nepal's problem. The thawing tundra of Alaska and Siberia is not simply an Arctic problem.

They are signals from different parts of a single planetary system.

For millennia, Atlas carried our water, stabilized our mountains, refrigerated our carbon and quietly sustained the civilizations beneath him. We built our cities assuming he would always stand still. On August 26, 2026, for a few terrible seconds in the Himalayas,

Atlas shrugged.

ABOUT THE AUTHOR

Ravi R. Iyer, MD, is a physician-scientist, entrepreneur, author, and 5x TEDx speaker who has spent four decades exploring a deceptively simple question: What makes human beings, and the organizations they create, perform at their best? A

Harvard-trained physician, corporate strategist, and the founder of multiple healthcare and performance ventures, he is the creator of Neuroalignment, a framework for building high-performance organizations around the realities of human cognitive diversity. His work sits at the intersection of biology, leadership, technology, and human behavior. Boardroom Reflections is where those worlds meet.

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