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BOARDROOM REFLECTIONS

The World Talks Carbon. Karuna Mira Sah Talks Water.

By **Ravi R. Iyer, MD**



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- There are moments in an interview when a single sentence
- reveals an entire future.

I was speaking with Karuna Mira Sah , a 30-year-old remote sensing analyst, climate practitioner, and aspiring glaciologist working with Acres of Ice in Ladakh, India's high-altitude cold desert. We had been discussing glacier retreat, water storage, and climate adaptation when she said something that stopped me.

- "Water is linked to everything, but it is never the priority."
- That observation may be one of the most important climate

- insights I have heard in years.

Around the world, climate conversations have become dominated by carbon emissions. Governments debate net-zero targets. Corporations issue sustainability reports focused on carbon accounting. Investors scrutinize emissions disclosures. Technology companies discuss energy consumption and renewable power.

Yet the reality unfolding across mountain systems, deserts, agricultural regions, and urban centers suggests that the most immediate manifestation of climate change is not carbon itself.

> It is water.
> Or more precisely, the lack of it.

As Karuna and I spoke from opposite sides of the world, she described a future already arriving in the mountains of Ladakh— a future where retreating glaciers, unreliable snowfall, shrinking water reserves, and creeping desertification threaten entire communities.

- The conversation left me wondering whether humanity has
- become so focused on measuring carbon that we have
- forgotten to measure survival.



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Life in a Cold Desert

Karuna works in Ladakh, a region many people imagine as a snow-covered Himalayan landscape.

The reality is very different.

- "Ladakh receives less than 100 millimeters of precipitation
- annually," she explained.

I stopped her.

> *Then where is the snow coming from?*

She smiled.

> *Very little precipitation, but very high altitude.*

Ladakh sits within the Himalayan rain shadow. At elevations ranging from roughly 2,500 to over 7,000 meters, even limited precipitation falls as snow. The region survives because glaciers and seasonal snowpacks act as natural reservoirs, releasing water slowly throughout the year.

But those reservoirs are becoming increasingly unreliable.

> *The winter precipitation is becoming more and more inconsistent," Karuna told me. "Villagers are having to rely on adaptation techniques to cope with that changing climate.*

In many of these communities there is only one annual crop cycle.

Miss the water window in spring, and there may be no harvest by autumn.

> No harvest means no income.
> No income means migration.

- And migration often means the gradual disappearance of
- cultures that have survived for centuries.

Reading Climate Change From Space

Karuna's work combines field science with remote sensing.

When I asked how she maps glaciers, her answer revealed how modern climate science increasingly merges satellite technology with traditional observation.

Using imagery from NASA's Landsat satellites and the European Space Agency's Sentinel missions, she tracks glacier boundaries and measures changes over time.

- "You can look at satellite images and see where the glaciers are,"
- she explained. "Then over time you can see how they're
- changing and retreating."

> But satellites tell only part of the story.
> The real work begins on the ground.

During the summer months, Karuna and her colleagues travel from village to village, speaking with farmers and community leaders.

They ask simple but profoundly important questions:

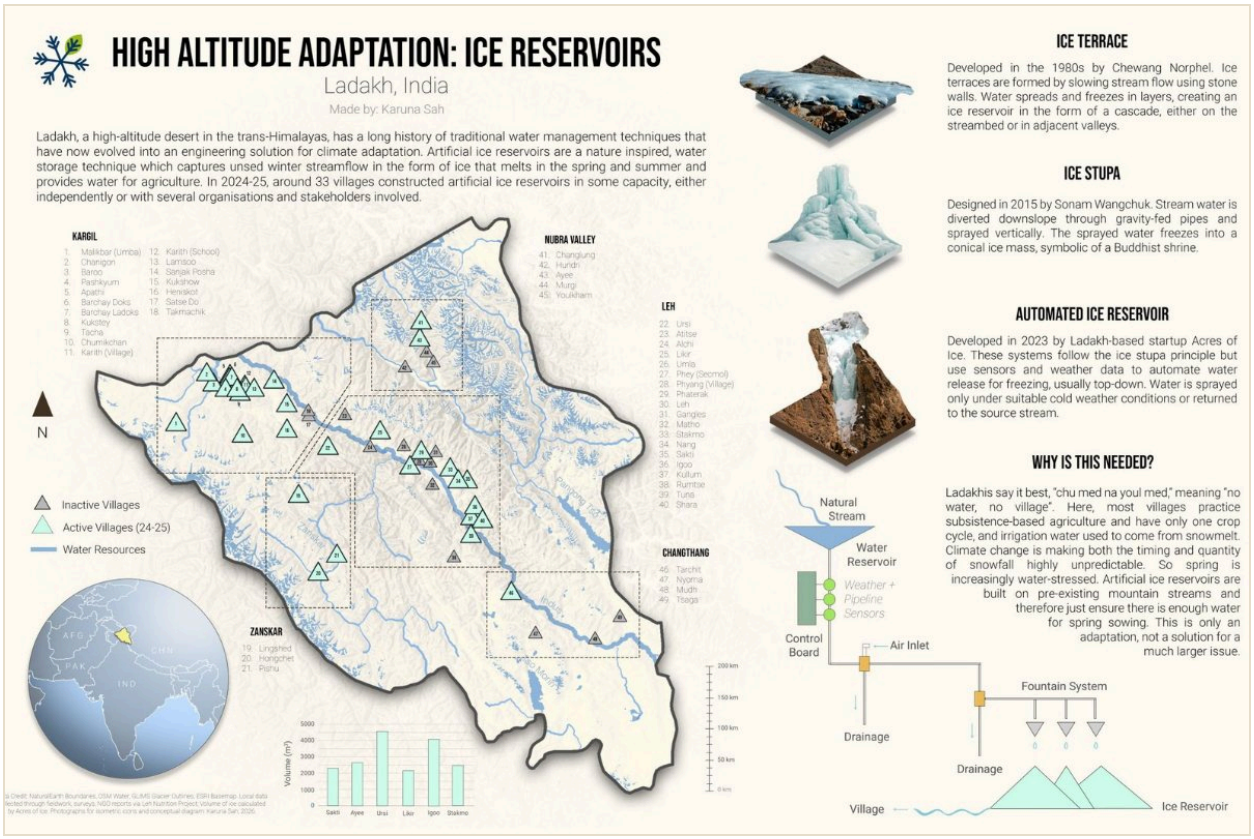
> Is there enough water?
> Has the timing changed?
> Are springs producing less flow than before?

- Have villagers noticed differences in snowfall or stream
- behavior?

This is not merely data collection.

It is climate intelligence gathered directly from people whose lives depend upon understanding water.

Engineering Ice to Save Water



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One of the most fascinating parts of our conversation involved the innovative work being done by Acres of Ice.

The organization develops automated ice reservoirs— an evolution of the famous Ice Stupa concept pioneered in Ladakh.

- When Karuna first described the process, I had to ask her to
- explain it twice.
- Water from higher elevations is diverted through pipelines using
- gravity. The water is then sprayed into freezing air at lower
- elevations.

The increased surface area causes the water to freeze rapidly into large conical ice structures.

Essentially, winter water is converted into frozen reservoirs that survive into spring.

> "But doesn't the water simply flow away?" I asked.
> "It freezes," she replied matter-of-factly.
> The elegance of the solution is remarkable.

Water that would otherwise flow unused into the Indus River is stored naturally as ice. As temperatures rise in March and April, the structures melt gradually, releasing water precisely when agricultural demand is highest .

- What impressed me most was that this was not merely a

- technological solution.

It was a cultural one.

- The water distribution system remains entirely under local
- control.

For centuries, villages have operated under an indigenous governance structure known as the Churpon system, where elected water stewards ensure equitable distribution among households.

> Technology provides the water.
> Community provides the wisdom.

Adaptation Is Not Enough

At one point I asked Karuna a simple question.

> *If you had a magic wand, what would you wish for?*

Her answer was immediate.

> *Reduction of greenhouse emissions worldwide.*

Then she explained why.

The people of Ladakh are paying the price for decisions they did not make.

> They did not build massive industrial economies.
> They did not create global emissions trajectories.

- Yet they are among those experiencing some of the earliest
- consequences.

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

She described a future of outmigration, desertification, cultural loss, and economic collapse should glaciers continue to decline.

- The statement struck me because it exposed a weakness in
- many climate discussions.
- Adaptation receives significant attention because it offers
- tangible projects and measurable outcomes.

But adaptation assumes there is still something left to adapt to.

> A village can adapt to less water.
> It cannot adapt to no water.

The Coming Era of Water Bankruptcy

As our discussion moved beyond Ladakh, Karuna introduced a concept that deserves far more attention.

Global water bankruptcy.

According to estimates she referenced, billions of people already lack access to safe water services. At the same time, roughly two billion people depend directly or indirectly on the Himalayan and Hindu Kush mountain systems for freshwater supplies.

> The implications are staggering.
> As glaciers retreat, mountain hydrology changes.
> As hydrology changes, agriculture changes.
> As agriculture changes, migration patterns change.
> As migration patterns change, political systems change.
> Water is not merely an environmental issue.
> It is an economic issue.
> A geopolitical issue.
> A food security issue.
> A national security issue.

- Yet remarkably, it remains absent from many boardroom
- discussions.

The Climate Conversation We Are Not Having



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Toward the end of our conversation, I asked Karuna why water remains so invisible in corporate climate agendas.

Her response was revealing.

> *Talking about emissions is always in the forefront. Talking about water as a whole is not.*

Then she pointed to an area that is almost never discussed.

Artificial intelligence.

As AI adoption accelerates, companies speak frequently about computational power and electricity demand. Few discuss water consumption.

Yet data centers require enormous volumes of water for cooling. AI models are trained using infrastructure whose water footprint remains largely hidden from public discussion.

> *How much water is a company using because of AI?" Karuna asked. "It's not something that's necessarily studied or talked about.*

> She is right.
> Carbon has become visible.
> Water remains invisible.
> Invisible resources are often the first to be overused.

A New Climate Priority

As our conversation concluded, I asked Karuna where she saw her work leading.

> Her answer was not about glaciers.
> It was about collaboration.
> Science diplomacy.
> International cooperation.
> Policy change.

The recognition that mountain communities are not isolated curiosities at the edge of civilization but early warning systems for the rest of humanity.

The glaciers of Ladakh are sending a message.

The deserts of the Middle East are sending the same message.

- Drying aquifers, shrinking rivers, and failing monsoons are
- sending the same message.

Water is becoming the defining strategic resource of the twenty-first century.

> The climate movement's first chapter was about carbon.
> Its next chapter must be about water.

- As I reflect on my conversation with Karuna Mira Sah, one
- conclusion becomes unavoidable.

> The world continues to debate emissions.
> The mountains are already debating survival.

And in the silence between those two conversations lies one of the greatest leadership challenges of our time.

🎥 Watch the Full Interview

Want to explore Karuna Mira Sah's insights in greater detail? Watch the complete Boardroom Reflections interview below.

https://www.youtube.com/watch?v=aWqgLK_h3wE

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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