

# When the glacier left

In surprising ways, a Himalayan village adapts to a changing climate

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A nomadic yak herder in the Zanskar valley in the Himalayas, where shrinking snowcaps are forcing shifts in traditional patterns of life.

IN THE VILLAGE of Kumik, in a remote Himalayan valley of northwest India known as Zanskar, people have an old saying, “Kha Kumik, chu Shila”—the snow falls above Kumik, but the water goes to Shila, a nearby settlement. Intoned with a rhythmic staccato, these six syllables elicit laughs of recognition from most Zanskaris. “Isn’t that life for you?”

Residents of Kumik laugh, too, but more ruefully of late. The people of the village, known as Kumikpas, are mostly subsistence farmers, dependent on seasonal meltwater from snowfields and a small glacier at the top of the valley. But in the last several years, Kumik has experienced a drought of unprecedented severity. Due to changing weather patterns, the snow falls above Kumik less often every year. The glacier, once a blanket over the head of the valley, is now a small cap on the mountaintop. Springs have gotten warmer, melting much of the snow before the short growing season begins in June.

In the developed world, the global conversation about climate change is often framed in vaguely terrifying abstractions—reams of dire scientific data, photos of calved icebergs, charts of sea level rise, extrapolations of drought. The Kumikpas face a situation far more immediate and concrete. The decline in late-summer water flow has caused entire harvests to fail, raising the specter of a permanent food crisis.

The Kumikpas have responded to their conditions accordingly, in swift, decisive, and far-seeing ways. Without access to sophisticated environmental data, they have decided to make difficult changes in the way they live. They have not only adapted to the drought, but also claimed some measure of responsibility for it.

As the long-anticipated Copenhagen summit on climate change gets underway next week, with negotiators for 192 nations working to hammer out a rough consensus on reducing greenhouse gas emissions to slow atmospheric warming, a parallel concern is growing among policymakers: how to adapt to the environmental and climatic disturbances that are coming, whether we like it or not. In industrialized countries, the effort to cope with the emerging effects of climate change is just beginning. As dramatic changes start to hit places like Kumik, however, the effort has already started to shape their lives. The inhabitants’ experience offers not only an early look at the kind of disruption likely to arrive in many other communities, but also some surprising lessons in human resilience.

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ISHAY PALDAN, A lean man with a weathered face that crinkles easily into a smile, has been living and farming in Kumik for more than 80 years. Over a simple meal of kholak—a mixture of roasted

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Where water has always been scarce, villagers in Kumik use an intricate system of channels (top) to move water to their crops at the right time. Now the village is relocating to the dry plain below, which is less fertile but closer to a river.

barley flour and butter tea boiled on his dung-fired stove—he explained Kumik’s situation in incongruously upbeat tones. “When I was a child,” he said, “there were no problems with water. The glacier was much bigger.”

Now the village often runs out of water by mid-August, weeks before the harvest. So, in 2001, Paldan said, the villagers called a meeting. Everyone agreed that the single erratic stream could no longer support the village’s crops. Something had to be done. The Kumikpas quickly concluded they had two options: find more water or abandon their homes.

They had already tried finding water, repeatedly and quixotically, over the years. Paldan recounted the villagers’ multiple attempts to divert more snowmelt by building stone canals at the head of the valley, at heights of more than 18,000 feet. He described the splitting headaches and mimed the swollen hands of those who lingered too long at such high altitude to gather stones and dig trenches.

“It was just too difficult,” he said with a shrug. At the same time, inaction was not an option. So the villagers finally decided to do something

radical; they would relocate the entire village to a new site three kilometers below, perched next to the roiling Zanskar River, where water would be more plentiful.

This choice involves a painful tradeoff. Their current land is rich, with fertile soil and plenty of wood and dung for fuel. The new land, though closer to reliable water, is poor, a few hundred acres of rock-strewn plateau donated by the state government.

So now, most villagers are laying plans to abandon their carefully tended plots and centuries-old terraces. Over the next several years, they will build new houses, fertilize open and dusty fields, and irrigate them with river water delivered by a new canal. They will uproot and replant themselves, with all the subtler emotional challenges that implies. A house in Zanskar is the locus of the family’s household deities, of shared memories and stories of ancestors. It is intimately linked to a family’s agricultural holdings, irrigation rights, and social status. This complex network of functions and meanings will have to be re-created or reinvented on the plains of Lower Kumik. A process that has taken, by some local estimates, close to a thousand years will now be compressed into less than a decade.

Each family is planning to build a new home and till new fields in Kumik Yogma (Lower Kumik). Most will continue growing barley and buckwheat, and tending their herds of yak, sheep, and cows. And everybody will try to maintain the traditional system for managing water rights for the new irrigation canal they are building.

As we chatted on his front step, Tsering Motup, a Kumik schoolteacher, paused and looked around at his neighbors’ stately whitewashed houses. “I feel

the same sadness as a young girl who marries into another family and has to leave her home,” he said.

But another spirit has taken hold as well: the idea that the move could bring some positive changes. Some settlers of Kumik Yogma have sought to warm their homes using passive solar design features, to reduce dependence on stoves that burn precious dung and emit unhealthy soot. Others talk about constructing a solar-powered community hall.

Tsewang Rigzin, a local agricultural officer who grew up in Kumik, thinks special pumps—either powered mechanically by the flow of the river or electrically by photovoltaic cells—could be used for additional irrigation. He’s also interested in experimenting with ways to fertilize the soil organically, despite a local trend of increasing dependence on synthetic fertilizer. “With a systematic design,” he said brightly, “the new Kumik could be a model for the region.”

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OVER TIME I learned that most Zanskaris simply weren’t aware of global climate science and its conclusions, and eventually I posed the question to as many Zanskaris as I could: Who, or what, was

drying up Kumik?

Some offered clinical descriptions: unfortunate accidents of timing and sun angles on the mountain heights. A few from other villages mentioned an ancient local curse, and saw it as the revenge of fairy-like spirits who had been forced long ago to build the long stone wall that encloses Kumik’s fields to this day.

But a majority of my informal sample gave a consistent, and surprising, answer: *We* are to blame, they said. According to local legend, the spirits of each place, known as *lha*, are bound in a reciprocal relationship with the human inhabitants, rewarding people’s good stewardship of the land by blessing them with prosperity, fertility, abundant snow, and strong sunshine to melt it. But something has gone awry. “The *lha* are punishing people for behaving badly,” Motup, the teacher, explained: Nowadays people don’t perform the old prayers as much, seem less inclined to help each other, are always chasing money and material things, and consuming more and more.

Of course, consumption is a relative matter—I noticed just two vehicles and not one television in the whole village. But the people of Kumik make a point that most of us would find hard to dispute: Our decisions about how we lead our lives have consequences for natural systems. On one reading, their attempt to choreograph their complex relationship with the *lha* may represent the only viable response to this crisis. They have taken responsibility for the only elements of the system they can control—their own attitudes and practical responses.

On my first trip to the village, I met with Phuntsog Stobdan, the young headmaster of the local primary school. I had come to Zanskar to research energy-efficient building methods, and Stobdan had sought me out for advice on his detailed design of a passive-solar-heated home for his family at Kumik Yogma. We talked well into the evening, sipping tea and change, the pungent local barley wine. We discussed one of his optimistic visions for the new settlement, shared by other young villagers—homes and vegetable greenhouses powered and heated by solar energy.

But at one point Stobdan led me outside and showed me the battered metal sign he had mounted near his gate a couple of years ago. A brief litany of woe, it described the village’s straits in English for the rare foreign visitor. Stobdan read it aloud to me, haltingly, in a low monotone: “Due to failure of snowfall in the last 2 years the people couldn’t harvest even a blade of grass & consequently had to sell their yak, cows, etc. at very nominal prize [sic].”

The Kumikpas may be famed for their defiantly cheerful stoicism, but I could feel that a psychic crack had opened. This metal sign was like a flare to the outside world, a signal of desperation.

Then Stobdan turned to me, eyes twinkling, eyebrows raised, as though he had just remembered an old joke. “Kumik was the first village in Zanskar,” he said with a wry grin, “and now it is the first to be destroyed!”

He looked at me searchingly, to see if I appreciated the ironic symmetry of it all. After a moment, I submitted to the sheer logic of his emotional adaptation to calamity. We both shook our heads and laughed for a long minute, until we were silent.

Then we discussed the design of his new, solar-heated house, scratching plans in the dirt.