

On Glaciers and Grass and Weather and Welfare

While our review of environmental archeology and earth systems scholarship challenges the utility of the term ‘Anthropocene’ by demonstrating the slipperiness of conceptual binaries between biological and geophysical, artificial and natural, and human and nonhuman environmental actors, ethnographic research foregrounds how everyday material relations and actions also defy such oppositions, forcing us to ground our discussions of climate change in phenomena that shape people’s lives in tangible ways. Whether or not humans are changing the planet enough to leave marks in the strata that warrant the epochal designation Anthropocene, there is little doubt that human interventions have substantively “changed Earth’s biota and its hydrology through damming rivers, creating reservoirs, sucking dry aquifers, and melting glaciers” (Vince 2011:33). As scientists debate the Anthropocene’s utility, it is important to point out that people experience large-scale infrastructural and ecological changes through disruptions in existing patterns of human–nonhuman relationalities, in which *both* humans and nonhumans participate actively (albeit not always equally). Gurez, a Himalayan region in the Indian-controlled state of Jammu and Kashmir, offers one such location to assess how infrastructural interventions can dramatically transform people’s engagements with their material surroundings, triggering new weather-related anxieties for those who rely overwhelmingly on a variety of nonhuman environmental constituents – from wood and glaciers to djinns, sand, soil, and animals – for survival and livelihood (Figure 1.1). Indeed, as we have argued, the term Anthropocene reduces humans to a species while “blatantly overlook[ing] the realities of differentiated vulnerability on all scales of human society” (Malm and Homborg 2014:66). It is critical, therefore, to emphasize the experiences of communities who find themselves at the center of massive biophysical transformations that are dramatically changing their lives, regardless of

whether or not such material shifts will leave measurable geologic imprints thousands of years from now.

Known for its rich biodiversity and its extreme winters, Gurez remains cut-off from the rest of the state for almost six months a year. Its “physical isolation,” – a complex product of border-making processes between India and Pakistan that disrupted linkages between places and people – shapes the ways in which Gurezis speak about and engage with the multiple constituents of their landscapes. With few amenities to help sustain long and harsh winters, and limited opportunities to work in the private or public sectors, many in Gurez rely overwhelmingly on their surroundings and their relationships with cattle, forests, wood, and glaciers to survive the cold. In the summer, which lasts from June to September, it is a common sight to see stacks of wood, which Gurezi women either bring from the forest or collect from the debris that melting glaciers deposit in the *nullahs* (Figure 4.1), piled up in the fields. As August approaches, men and women cut grass to collect fodder for their cattle for the extended winter. Gurezis also cultivate staples such as red kidney beans and potatoes, which help them survive the winter months when the national highway remains closed for trade or traffic. Gurezi relationships with their cattle, glaciers, forests, and fields, however, are now threatened by the 330 MW dam that the National Hydroelectric Power Corporation (NHPC), India’s premier agency for hydropower development, is building on the Kishanganga River, a tributary of the Jhelum River.

In a context where the Anthropocene’s underlying Nature versus Society binary neither resonates with people’s experiences of their environments nor accounts for the ways in which a variety of nonhuman environmental constituents enable human welfare, what lessons can be learnt about climate change and its short- and long-term implications for human societies? And, how might this be done without reproducing the binaries that leave little room for alternative ways of conceptualizing environments or climate-related transformations, especially in ecologically vulnerable zones such as the Himalayas? How might we understand the scale of socio-political and economic transformations that mega-infrastructure projects are introducing in Gurez with clear implications for the local weather, for riverine ecologies, as well as for people’s overall survival and wellbeing? How and to what extent does the Nature-Society binary embolden the state’s efforts to ignore the existing web of human–nonhuman relationalities in Gurez while reducing Kishanganga’s water to a pure commodity that can be harnessed for electricity and monetary profit? In this chapter, we show that the differences between the state’s vision, which is guided predominantly by the desire to commodify the Kishanganga River, and that



FIGURE 4.1 Stacks of collected wood drying in the summer heat in the Gurez Valley

of Gurezis who view their nonhuman environmental constituents as heterogeneous, dynamic, and vibrant social actors, has serious implications for challenging the existing dichotomies between nature and humanity and the ways social and climatic transformations are understood, tracked, studied, or even acknowledged. Before we discuss how Gurezis conceptualize or make sense of changing weather patterns, it is important to highlight

the ways in which they view their land, water, river, animals, and glaciers as being integral to their social and economic lives. In no way does this imply that Gurezi knowledge about their landscapes is static or that they view their nonhuman environmental constituents as being homogeneous or undifferentiated. On the contrary, as this chapter will demonstrate, for Gurezis, nonhuman materials such as water, ice, glaciers, sand, soil, rocks, snow, and wood have divergent and distinctive characteristics, which end up producing uneven entanglements across a vast array of social and material differences.

“Virgin Landscape,” Violence, and the “Anthropology of Life”

In popular descriptions, Gurez is portrayed as India’s last frontier: a “virgin” territory and an “untouched” landscape with its tall Himalayan peaks and gushing rivers. Contrary to such narratives, Gurez is populated by Dards, an ethnic Sunni minority, in addition to being heavily occupied by the Indian army, which entered the region during India and Pakistan’s first war in 1948 and gradually extended its reach over strategic mountain peaks, glaciers, and vast tracts of prime agricultural area. Gurezi relationship with their land and rivers is heavily structured by the imperatives of a security state invested in maintaining its control over a contested borderland (Bhan 2014a; Bhan 2014b). For instance, only a few decades ago, many older Gurezis were proud hunters, who took frequent trips to the forest for wild meat and gathered many species of herbs, spices, and vegetables. In their view, humans were not the only sentient beings; there were *jimns* too and many species of wild beasts who co-habited the forest and competed with humans over its limited resources. Their access to animals, *jimns*, and the forest, however, became difficult during the war of 1948 and it worsened further after an armed rebellion to free Kashmir from India began in the early 1990s. In order to counter the popular rebellion and prevent the influx of armed rebels from Pakistan, large battalions of Indian military personnel were deployed in villages and along the border in Gurez. These troops forbade people from hunting or carrying guns and closely surveilled people’s activities in the forest. At the same time, the military’s counter-insurgency measures caused extensive deforestation, while military-installed landmines and concertina wires restricted people’s access to their fields and pasturelands. Over the years, Gurezi relationships with their landscapes changed considerably to sustain India’s defense interests, changes that became even more pronounced after the NHPC started building the dam on the Kishanganga river in 2009. Because of the massive

constructions on the river, piles of rubble, sand, and concrete as well as abandoned cars and automobiles polluted the landscape, while the Kishan-ganga flowed differently: large parts of a once free-flowing river were either slowed down or completely re-routed through a network of pipes, adits, and tunnels.

In such a context, the description of Gurez as a “virgin” territory erases the violent histories that have shaped the region’s ecology while falsely depicting it as a natural landscape where humans live harmoniously with their environments instead of actively creating or modifying it through agriculture or pastoralism, or through military activities such as wars and counterinsurgency. Pristine descriptions of Gurez also erase how Gurezis conceptualize their land as a sedimented history of their culture, history, spirituality, and labor in which glaciers and rivers, animals and *jinn*s, humans and nonhumans all participate to produce a complex sociomaterial landscape.

In the following sections we will discuss the ways in which Gurezis saw their surroundings as alive and sentient, and populated by different kinds of plants, animals, and materials with place-based characteristics that produced heterogeneous forms of human–nonhuman entanglements as well as specific experiences of weather and its transformations. We will foreground the ways in which the 330MW dam imposed a new “regime of Nature” (*sensu* Escobar 1999) to divvy up land and water in order to generate electricity, and, in doing so, produced a significantly altered Gurezi landscape, in which humans and animals, alike, as well as soil, sand, and sediments were forced to align with the demands of a capitalist economy. At stake here is the production of what Eduardo Kohn identifies as the “anthropology of life,” a mode of knowing and engaging the world that destabilizes the “privileged ontological status of humans as knowers” (2007:6) even as it emphasizes the deep entanglements that exist between human and nonhuman life.

Place-Making and the Labor of Land, Wood, Animals, and Glaciers.

Most Gurezi men and women identified themselves as agriculturalists and farmers even if they worked for the government, ran small independent businesses, or were employed by the NHPC and the Hindustan Construction Company (HCC), which provided temporary and contractual employment to young Gurezi men. Unlike the tantalizing, virgin environment of tourist brochures, Gurez was a lived landscape, where the relationship between land and people went back centuries, when according to one contested historical

narrative, people who fled their homes due to war and repression migrated to Gurez and ended up settling it. For Gurezis, whose ancestors worked hard to “make the place” enlisting the help of plants, animals, soil, and glaciers along the way, land was a dynamic product of human and nonhuman labor. The characteristics of land relied on the complex interplay between human labor, the quality of soil, and its distance from sources of water. The nature of soil and water as well as the amount of snowfall and the duration of sunlight were a few factors that determined whether the land could grow corn, potatoes, or grass, or if it would remain fallow and uncultivated. Indeed, the combined character of the soil, rocks, and water gave each village in Gurez a distinct identity: for instance, land in the village of Khopri was *khakharu* (rocky) but it was *dal-dal* (watery) in the village of Badwan, which made the land in Khopri difficult to cultivate. Every year people brought soil from the neighboring village of Kralpora in order to “make land” in Khopri and every year the rocks from the land were removed manually and replaced with fertile soil. It was obvious to Gurezis that soil, rocks, or water were not inert matter lacking the capacity to act, cooperate, or resist human labor. Instead, all these elements were part of a socioecological world in which human life relied on and, to a large extent, was even shaped by the complex assemblages of objects, things, animals, and materials.

A distinctive feature of the Gurezi landscape were wooden log houses that kept people and homes warm in the frigid cold, which lasts for at least six to seven months a year with temperatures dropping to as low as twenty degrees centigrade below zero. Increasingly, however, because of the difficulty of obtaining wood from the forests and legal and government sanctions against it, wood was being replaced with concrete as the preferred material for construction even as Gurezis “missed the warmth of their log houses” and complained about concrete “being too cold.” Inherent characteristics of wood, such as warmth, malleability, ability to withstand floods and earthquakes were seen as important foundations of a “Gurezi way of life,” one that was built on recognizing that wood enabled certain forms of life and modes of sociality. Indeed, the forest in its entirety was a place that Gurezis turned to for food, fuelwood, and for sources of physical and economic sustenance. Older Gurezis recalled how every year in May, when the winter blues faded away, they would hike-up to the forest to collect a prized variety of mushroom that fetched them a decent amount every year; likewise, by early June and July, they gathered several kilos of *zeera* (cumin) to sell on the market. In the summer, Gurezi women collected grass to stock up for winter since market prices for grass soared in winters, making it unaffordable for most families.

In a historically agropastoral society such as Gurez, animals formed an integral part of the social network even as many families now migrate to neighboring towns to escape the harsh winter and younger, educated men are far less inclined to tend to animals. But without an open road in the winter, the ties between humans and animals ensure that many, who cannot migrate to warmer areas, survive the hard winters in Gurez as their cows, horses, goat, and sheep perform socially and economically significant roles – from providing manure and transportation to being sources of wool, milk, and meat. Many studies of the Himalayas have shown how agropastoralism creates deep ties between humans and animals and how, in many instances, as Govindrajan (2015a) argues, the “embodied practices of domestication” can produce complex “forms of interspecies mutuality” (506). In Gurez, too, the animals relied on land but also helped cultivate it; bulls ploughed the land while manure from cows and horses fertilized it. The intimate ties of love and labor between humans and animals translated into social acts of naming animals based on their personalities and people expressed a range of emotions toward their animals, both verbally and through everyday actions of nurturing or caring for them.

In addition to wood and animals being integral to their social and economic lives, Gurezis spoke passionately about their glaciers, and attributed to them features that were both benevolent and wrathful. We were told that the independence of water, its *khudmukhtar* character, was restrained when it turned into glaciers. But in no way were glaciers inert or passive. Glaciers, much like in Athapaskan and Tlingit languages, were “defined in terms of their actions” (Cruikshank 2005:3), by their capacity to “do things.” Glaciers “provided travel routes,” helped establish and sustain human connections across mountains and valleys, and carved paths, which humans and cattle used in the summer months to access their grazing fields and highland pastures (Cruikshank 2001:378). Glaciers also brought Gurezis wood from high-mountain forests, reducing women’s labor to collect firewood and easing the financial burden on poorer households that could not afford to buy it at market prices (Figure 4.2). But glaciers were also fickle and unpredictable since they could turn “vile,” and ruthlessly “kill” people or destroy their homes during avalanches, an occurrence that was common in the valley and deeply feared. Villagers often recalled the massive avalanches that had disrupted physical connections and social networks among households or the less spectacular ones that blocked the river or their roads for days on end. Such was their familiarity with the glaciers that Gurezis attributed different personalities



FIGURE 4.2 Example of a sediment-covered glacier in the summer, showing many materials brought to Gurezis, including logs from the forest.

to them based on how frequently they “came to block the flow of the Kishanganga,” or how rare but deadly they were. Indeed, as Gagné, Rasmussen, and Orlove (2014) argue, unlike Western scientific worldviews in which glaciers are seen either as scientific laboratories or valued only for their aesthetic attributes, glaciers can be repositories of local cosmologies and moral and spiritual values for societies who live in close proximity to them and depend on them for their sustenance and livelihoods. This does not mean, however, that place-based knowledge is timeless and exists outside the multitude of political economic transformations that have transformed Himalayan, including Gurezi, societies in the last century. On the contrary, what constitutes local knowledge, as Karine Gagne also illustrates in her ethnography of the Himalayan region, is produced and transformed within the context of state-led economic, defense, and

infrastructural interventions (2016). Gurezi consciousness of their environments as lived spaces across gender, generational, and class lines, we argue, is not static; indeed, approaches to human–nonhuman relationalities that view them as dynamic assemblages are even more pronounced in Gurezi and actively cultivated intergenerationally to oppose state and corporate efforts to commodify the waters of the Kishanganga River.

Based on the discussion in this section, it is clear that the actions of wood, soil, sediments, animals, and glaciers made Gurezi “intensely alive” (*sensu* A. Moore 2015:29): a place that was produced as much through human labor as it was through the multitude of organisms, objects, and materials that populated its environment, producing specific and place-based engagements while extending conceptions of human sociality into realms that were not strictly human. Also obvious is the fact that the large infrastructural intervention in the form of a 330 MW dam that was being built on the contested waters of the Kishanganga River through the collaborative efforts of the state and public and private corporations such as the NHPC and the HCC, respectively, was putting tremendous strain on such relationships in addition to altering the quality and duration of sunshine, the vitality of crops and animals, and the density of their forests. The Kishanganga dam also enforced state-mandated uses of the region’s land and water, which thoroughly undermined preexisting social and material relationships between people, animals, and their landscapes. The following section explains how the government and NHPC-sponsored compensation packages for dam-affected populations were based on enforcing a strict dichotomy between Nature and Society, with economic and cultural implications for communities whose worldviews and everyday practices resisted such ontological separations.

“Why Is the Government Not Compensating Us for the Mountains?”

The Kishanganga dam was predicted to inundate the two villages of Khopri and Badwan by 2016 in addition to forcibly displacing hundreds of families from Gurezi. As scholars working with dam-affected populations elsewhere have duly noted, compensatory schemes tend to rely on a limited understandings of rights and ownership, and, instead of spurring “development” as is often surmised, forced displacements can lead to worse forms of social and economic disenfranchisement (Baviskar 1995; Cernea 2003; Zaman 1990). What interests us here, however, are the ways in which NHPC’s schemes reinforced dichotomies between Nature and Society by offering

compensation benefits for certain portions of the Gurezi landscape and not for others. At a fundamental level, this reorganization of the physical and material space based on strict valuations of property and individual ownership reflected an utter disregard for the ways in which Gurezis imagined and practiced their personhood, not in isolation but in relation to the range of nonhuman actors and constituents in their vicinity. In the NHPC's compensation schemes, nonhuman elements of the Gurezi landscape were either reduced to commodities and ascribed a "monetary value," or, worse still, disregarded as "collateral damage," sacrificed for the larger goals of national progress and prosperity. For villagers who had for generations depended on their surroundings for their livelihood and their overall well-being, the reductive government schemes that compensated them only for their "private property" imposed an artificial distinction between Nature and Society by ignoring the significance of the forest, glaciers, mountains, and rivers, which were considered to be "natural" attributes of the Gurezi landscape and hence peripheral to people's collective welfare. As a result, Gurezi perceptions of their shared rights to land, water, mountains, glaciers, and forests were replaced by a strict government mandate in which only individually owned private property, not user- and/or community-rights over local resources were recognized as legitimate. While official categorizations of land had existed in revenue surveys since the 1800s, these became even more significant after construction of the Kishanganga dam began in the 2000s when state officials were required to assess the monetary value of land for compensation purposes and to demarcate private property (*milkiyat*) from forest- and state-owned land and from *shamlat* (huge tracts of wasteland collectively owned by the villagers), which Gurezis, as per customary laws, had cultivated for generations. For most Gurezis, the government's inability to acknowledge that people's well-being could not be ensured outside the complex web of relationalities they shared with their animals, forests, rivers, or trees made Gurezi lives deeply uncertain, with serious implications for the ways they experienced new and emerging vulnerabilities within the context of dam-induced changes to the local ecology.

For instance, Rashid, a 30-year-old man, lived in an extended family with two brothers and their families. Together they owned three *kanals* of land, for which they were entitled to a total of sixteen lac rupees in compensation money. With this amount, they were unable to buy land in Bandipora, the closest town, where the price of a *kanal* of land was roughly 30 lac rupees. For Rashid and his brothers, the dam had snatched their land, livelihood, and their quality of life, and forced them to the brink of poverty. Infuriated

with the state's compensation scheme that commodified their land while ignoring the ways in which both human and nonhuman labor had produced the Gurezi landscape, Rashid claimed that:

It is true that I have legal documents to show only for three *kanals* of land. But why is the government not taking into account the three hundred years of labor that my ancestors put in to make this land. We are the ones who made soil (*mitti banai*); we cleared up the land, broke rocks, brought soil from the forests. We removed thorns and planted flowers instead.

Moreover, Rashid questioned why the compensation money didn't include paying Gurezis for the mountains they were leaving behind:

I feel for my mountains that I might never see again. I could look at these mountains forever. We used to hike up to the mountains in May to get mushrooms; in June we used to get cumin seeds. Why aren't we being compensated for these mountains?

Apart from stripping them of their resource-base, Gurezi displacements were also a threat to their animals and livestock since it was impossible to relocate them to cities where spaces for cattle-rearing did not exist. For most Gurezis who faced the threat of imminent displacements, the fate of their animals was a serious concern, one that filled them with tremendous rage and frequent despair. Their insistence that the land also belonged to their animals illustrated the ways in which human and animal lives were deeply entwined through mutual bonds of relationality and care, which were routinely expressed through idioms of family, familiarity, religion, and kinship, as we mentioned earlier. Indeed, according to Muslim textual tradition, which some Islamic scholars consider to be "incontrovertibly anthropocentric," animals like their human counterparts are believed to be "agents" and an integral part of the *ummah*, with a right to pray and worship, and an independent existence that is not wholly dependent on humans (Khan 2014:249; Manzoor 2003:421). Also, more specifically in the Himalayan context, as many scholars have carefully noted, and as we will detail in the next section, many communities instead of attributing weather-related events and natural disasters to the global phenomenon of climate change track it to the changing relationships between humans and animals, which are read as signs of calamitous times (Gagné, Rasmussen, and Orlove 2014; Govindrajan 2015b; Mathur 2015). The disruption in animal-human relationships, it is clear, does not augur well for communities who are tied to their animals through complex relationships of love

and care, which involve activities such as herding, rearing, or even killing animals for food, especially in the winter when food is scarce. Indeed, sacrificing or killing animals, in many contexts, is an important part of how personhood and “interspecies kin relations” are constituted or how the link between human and spiritual worlds is forged (Govindrajana 2015a; Nadasdy 2007; Remme 2014). Given their centrality to Gurezi social, economic, and spiritual worlds then, the government’s silence on the issue of animal relocation or rehabilitation was also a complete erasure of the multiple ethical, social, and political implications that could potentially arise from the dissolution of the complex forms of human–animal relationalities.

Gurezi conceptualization of land, wood, forests, or animals, it was clear, did not align with the state’s reductive scheme, in which nonhuman components of the environment were shorn of their dynamic characteristics and evaluated only as static and stable property. For instance, the valuation of wooden houses as *kutchu* and therefore worthy of lesser compensation compared to the *pukka*, or the concrete, houses disregarded the vibrant characteristics of wood, its warmth, malleability, and ability to offer greater protection from floods and earthquakes. Indeed, government schemes undermined the ways in which the materiality of the Gurezi landscape, its open forests and meadows, its *nulluhs* and streams, offered Gurezi women a sense of physical and economic freedom they deeply cherished. For women, one of the biggest drawbacks of the forced relocation was the “lack of openness in cities,” which would confine them to smaller spaces and curb their free movement across villages, *nulluhs*, and mountains. Customarily, women were responsible for selling milk in the village, rearing chickens for meat and eggs, and processing sheared sheep fur to produce wool in the winter. In an average household, women contributed 80 percent toward fulfilling the basic requirements for food and livelihood that enhanced their status and prestige within the family. The loss of land and home was an assault on women’s status (*hasiyat*) since an urban life could potentially reduce their economic independence and limit their access to schools and markets. Therefore, while the haunting prospects of being confined to a single plot of land after their displacement, without access to mountains, forests, animals, and rivers, troubled both men and women, the effects were particularly pronounced for women and their abilities to create meaningful lives.

While contestations over the NHPC’s compensation schemes dominated political debates, with the state invested in securing a pure domain of Nature in order to limit Gurezi demands for compensation money by undermining their claims over their animals, forests, water, and glaciers,

the dam also triggered fears among people who did not face the threat of imminent displacements. Many saw the dam as adversely and irreversibly impacting Gurez' ecology in the long-run in ways that the NHPC's environmental assessment reports hardly anticipated: from altering the riverine environment for many fish and animals to polluting the river water and filling it with concrete muck, the dam, Gurezis claimed, posed serious challenges even for those who did not fall into the "affected families/villages" category. Indeed, for many in Gurez, forced displacement of the two villages was only one of the immediate threats posed by the dam. And this threat, to be clear, was at least a known one. The transformed nature of water, sand, and soil and how they might act in the future was a persistent worry since people found it impossible to trust the NHPCs feasibility reports that tracked the past actions of nonhuman environmental constituents in order to predict their future behavior, without being attentive to their potential to act differently or digress from the scientific script. In the following section, we discuss how and why Gurezis feared the changes in their surroundings, using their everyday engagements with animals, plants, rivers, glaciers, and other materials to illuminate the ways in which nonhumans actively participate to constitute environmental assemblages while not always heeding to human will, desire, or intentionality to mold them. More broadly, Gurezi fears underscore the importance of why an analysis of climate change must, first and foremost, account for the ways people experience weather and the multiplicity of relationships they share with other nonhuman constituents and the ways these might be strained or shifting, producing unanticipated and largely unknown outcomes.

"Water Has No Shame" and "Rock Is God"

The NHPC's scientific calculations regarding the scale of displacements did little to allay Gurezi fears about the dam's potential to wreak greater havoc. For Gurezis, the waters of the Kishanganga had "moods" that were variable and unpredictable. A river that was integral to their *pehchan* (identity) and contributed to the fertility of their land could also turn lethal and destroy their lives and livelihoods. The raging waters of the Kishanganga River could swell rapidly without notice and destroy anything that fell in its path. This was because water, Gurezis claimed, "had no shame (*lihaz*); it was blind and couldn't see anything." Such characterizations of water were based on horrific memories from the floods of 1957 and 1992 when the river changed its course by flooding villages and destroying cultivable land in the villages of Khopri, Badwan, and Wanpora. Several

tracts of land that were spared by the river in 1992 remained uncultivable. Haseena, a seventy-year old Gurezi woman who had experienced the devastating impacts of the previous floods, recalled how the gushing waters brought down with it big boulders and pebbles and dumped them on a highly fertile land. Now it was the Kishanganga dam that she feared. Haseena expected the water from the dam to rise beyond the demarcated levels and flood her home and fields. The NHPC forgets that “water can make its own course. It is independent (*khudmukhtar*) and does not need anyone’s permission to flow.” For Haseena, Kishanganga had a “mind of its own”; it would rise according to its “will” and destroy villages, fields, and homes if its tracks were dramatically altered. When blocked or re-routed the river would transform everything: from weather to vegetation to people’s social, economic, and political lives.

Despite their precise data regarding the behavior of water and other materials in and around the dam, several engineers and geologists shared Gurezi conceptualizations of matter, speaking painstakingly about how their efforts to re-engineer water depended in large part on the capacity and willingness of the surrounding rocks and mountains. Indeed, they agreed that for any engineering work, especially in the Himalayas, “rock was god.” The capacity of matter to act either on its own accord or in conjunction with human will introduces an element of unpredictability in geological work, which the geologists duly recognized. Despite this knowledge, they often felt compelled to elide these critical details or minimize their significance because of the political expediency associated with building a dam on a river that was disputed between two nuclear rivals, India and Pakistan. For Gurezis, however, who did not require an affirmation from geologists, it was a given that the dam would alter the personality of the Kishanganga River, the outcomes of which would harm human life but also set in motion changes among the nonhuman constituents of the environment that were difficult to predict. So, for instance, there was very little agreement between geologists and Gurezis about how the dam would affect the local temperature in the long and short term. Gurezis were certain that the average temperature in the area would drop substantially over time because of the accumulated water in the reservoir, creating a situation where many Gurezis would be forced to migrate to warmer areas. Most geologists, however, dismissed these fears as paranoia or rejected them as politically motivated allegations that were designed to derail the timely completion of the hydropower project.

Gurezis, however, based their fears on what they perceived to be “commonsense,” wisdom and foresight derived from their collective memory

and their sedimented knowledge of the landscape that included years of experiencing the local weather and the gradual, and at times erratic, changes in the local temperature, amount of snowfall or precipitation, and the behavior of their crops, vegetables, and animals. Most Indian and foreign engineers and geologists denied the construction's far-reaching effects on village communities or on the local ecology even as a plethora of reports suggest that the large number of dams in the Himalayas have remarkably changed its ecology and made mountain communities even more vulnerable to climatic shifts (e.g., Dharmadhikary 2008:3; Grumbine and Pandit 2013; Rana, Sati, and Sundriya 2007; Valdiya 1992). Most Gurezi engineers who were well-versed with the local ecology and hydrology also feared the dam's far-reaching effects. Indeed, for them, the "paranoia" among vast swathes of the local population had a clear scientific basis. In their view, there was little doubt that the dam was changing the character of water by stopping and storing it in a reservoir, which would produce greater precipitation and substantially lower the local temperature or alter the "microclimate" around the river. For villagers, who shared these views, it was usual for the Kishanganga River to freeze during winter. Once stored in a reservoir, portions of the river would freeze even faster and for longer periods, bringing the temperature down and producing more fog in the region. Exchanging stories about rapidly changing weather with villagers from Uri and Batote, where the state was building two more hydropower projects, lent further credence to people's anxieties. Stories about "the sun not coming out until mid-afternoon in Uri" or "people going days without feeling the sun on their skins," or the rainfall becoming more frequent alarmed people who were already experiencing the effects of cooler temperatures.

In a context where people worried about the deteriorating quality of their *aabohawa* (surroundings) or about the rising waters of the Kishanganga or about their inability to survive the intensified cold, mass displacements of people from Gurez was often considered a future possibility, only if to express their deep cynicism in the face of massive socioecological transformations. For those not displaced by the dam immediately, the concern was more long-term and related to the uncertainties of the future. Many feared that the dam would eventually force them to relocate from their ancestral lands by irreversibly impacting the local environment and making the villages of Wanpora, Khandial, and Kanzalwan even more vulnerable to future floods and other climate-related furies. The terrain of the Gurez Valley was such that there was very little cultivable land and villagers confined themselves to areas protected from landslides and

avalanches. For villagers from Wanpora, Khandial, and Kanzalwan, who were already “experiencing” the vagaries of a changing climate, government-generated figures that adopted a short-term view on dam-related displacements discounted people’s accumulated wisdom about the local weather and the changing behavior of the surrounding trees, plants, vegetation, rocks, mountains, and glaciers.

Stunted Crops, Marshier Land, Melting Glaciers

Based on the discussion in the previous section, it is clear that contrary to dominant narratives that link climate change with a warming planet, Gurezis did not perceive or experience climate change as a rise in temperatures even though, according to the Indian meteorological department, Kashmir has witnessed a rise of 1.45 degree Celsius in average temperatures in the past two decades (Talib 2007). Yet, for Gurezis, their immediate experiences and imminent fears were of a colder Gurez, triggered in large part by the forced accumulation of water in the dam’s reservoir, where it would have a greater predilection to freeze. At first glance, this might be precisely why the Anthropocene narrative with its exclusive focus on large-scale and human-induced climatic shifts might make sense since Gurezi conceptualizations of local weather do not always corroborate with big-data pictures produced by climate scientists. And yet, as we demonstrate in a later section, the experiential dimensions of changing weather are as critical to our understanding of climate change and the multiple ways it might be named, understood, or felt through everyday shifts in a wide array of human–nonhuman relationalities. For now, we would like to reiterate that scientific data indicating an average rise in temperatures in Kashmir did not always cohere with Gurezi fears about colder and harsher winters. For some the outcomes of a colder Gurez were already underway: The dam was “stunting the growth of crops or killing the prized trout fish” – events and experiences that the villagers used to indicate that the average temperatures in Gurez were indeed dropping. The stunted crops or the disappearing fish were only some of the indications of changing weather. The reservoir was also making the land in the village of Badwan, which already had a relatively high water table, marshier and harder to cultivate. Gurezis therefore viewed official reports of the dam’s impact and viability with deep skepticism, given that these relied on weather patterns of the previous fifty to hundred years but perilously ignored water’s *khudmukhtar* personality or Kishanganga’s desire to act on its own accord.

It was also obvious to many Gurezis that the dam had substantially changed the character of glaciers, with consequences for their crops, soil, and the annual agricultural cycle. They spoke at length about how and why glaciers were losing their “homes” and “dwelling.” Glaciers were disappearing not because the temperatures were getting warmer, as many scientists argue, but because their “homes” were being destroyed (Murtaza and Romshoo 2017; Talib 2007). “When glaciers are formed, they need to dwell. They need a place to stay.” Their *nullus* were filled with glaciers because they could live in the forest, amid a thick vegetation of trees and bushes. But now that the forests were almost gone, glaciers, too, had lost their home. The metaphors of home and dwelling, living and losing, imbued glaciers with a social life, one that relied on the forests for survival and longevity but was now threatened by the denuded forests and reduced snowfall.

The seeming irreconcilability between Gurezi and scientific explanations regarding why glaciers were melting illustrates the significance of taking into account multiple climate narratives, in which the characteristics of and relationships between different environment constituents are understood and interpreted differently. Such differences are not limiting but can indeed be mobilized to develop a broader, more inclusive politics of climate change in which local insights on human–environmental histories as well as local political contexts are considered alongside quantitative metrics on environmental behavior. For instance, according to Gurezis, glaciers were “angry.” Huge military settlements in the mountains coupled with massive construction on the dam-site had destroyed their “homes,” which had resulted in the increased frequency and intensity of avalanches, causing more death and injury. A young villager died under an avalanche in 2012 because the NHPC engineers demanded the opening of the road in January, a time when the road is buried under at least six feet of snow. Gurezis blamed the military and the corporation for being “unresponsive” to the rhythms of glacial shifts and behaviors; their overwhelming focus on security or efficiency, they argued, treated glaciers as non-actors, an “unfortunate move” in their view for a space carved by the swelling and retreat of glaciers, their ebb and flow as well as by their wrath and generosity. Indeed, many Gurezis predicted that the dam would eventually be hit by an avalanche, a scenario most geologists dismissed entirely, based on the certainty of scientific data that had guided them to an “ideal” location for the dam, where glacial action or other environmental vagaries would have the least impact.

To an extent, the unpredictability of glacial action and its effects on people, water, and landscapes was corroborated by Sonam Lotus, a Ladakhi

weather specialist, who too emphasized the “experiential” dimensions of climate change. He recalled his childhood memories of seeing “white and crystal clear glaciers” that had now lost their “color, magnitude, and thickness. I have seen the gradual melting of glaciers with my own eyes, the gradual thinning of glaciers has changed how I see mountains now: from lofty snow covered peaks to barren and naked.” For Sonam, who was both a scientist and a villager from Ladakh, mountain communities did not require any “proof” to know that the glaciers were indeed melting. “One doesn’t need proof when one’s livelihood and survival are at stake,” he claimed. Besides, a lot of climate change science or evidence was based on how the scientific community read or interpreted “empirical proof” to track climate-related changes. Echoing assessments of climate change being “contextual” and “situated,” he too argued that climate change “behaves differently in different places; it is not a pattern, it is uncertain,” therefore we must also rely on experiential data to track how people’s engagements with their environments might have shifted over time. For instance, in a meeting held in Kashmir University in 2013, specialists vigorously debated the state of groundwater in Ladakh, which, according to Sonam, had increased in 2012, a surprising shift given that the overall discharge from the river Indus had decreased that year. But, as he rightly pointed out, the rising groundwater levels could be due to the melting of glaciers in Ladakh, a fact that most scientists failed to address. It is the “holistic” view of how environments behave that is crucial for interpreting climate-related changes, which includes taking into account people’s stories about changing weather: how the soil is behaving, or how or why the land is getting marshier, or why the sun is becoming harder to spot. Indeed, as Sonam pointed out, sometimes people’s experiences also suggest new ways of assessing climate-related changes and the ways they affect specific groups of people, based on their physical location. For instance, the immediate consequences of climate change, contrary to public opinion, might not even be negative as the rising ground-water level or the increasing temperatures in Ladakh suggest. Because of a warmer climate, Ladakhis were experimenting with different crops and vegetables; “they now grow apples that even taste good,” Sonam claimed. In the long term, however, the consequences of such shifts in agricultural and horticultural practices were far from certain.

Reduced Snowfall and Dried Roots

The “holistic” view of how environments behaved or how adequate snowfall was critical for maintaining optimal levels of moisture in the soil were

narratives Gurezis, too, shared widely. Indeed, people narrated anecdotes that they had heard from their ancestors, in which legendary moments of human survival in the face of massive snowfall and the abiding cooperation between humans and animals during this time were both a source of inspiration and nostalgia. If people were old enough to draw from their experiences with Gurez' harsh winters, they did so in order to punctuate time and to mark it through particular references to Gurez' climate, its changing forest cover, and its modified landscapes. In a way then, people's lived history was expressed through direct references to the materiality of the environment: the amount of snowfall Gurez received, the kinds and thickness of its glaciers, the ebb and flow of the Kishanganga River, and the density of its trees and forests. Altaf, who worked as an agricultural expert in the forestry division at Kanzalwan, claimed that the quantity of snow in Gurez in the peak of winter used to easily bury the 2-meter tall gate of his institution and massive snowfall often cut-off villages and disconnected family and friends for months at a time. Those were also times when each household had to clear their roof at least ten or twelve times every day, compared to now when they do it ten or twelve times every year.

When asked why Gurez no longer received as much snowfall, most Gurezis pointed to the Kishanganga dam and the irreversible ways it was changing their mountains and glaciers. Much like their *jimns* and animals, the snow, too, they claimed, "had started to disappear due to the loud explosions in the mountains." The blasting of mountains required to build the dam's infrastructure was why Gurez received inadequate snowfall, according to Altaf. And Gurezis recognized that reduced snowfall had triggered multiple changes in the environmental assemblage, making it difficult for people to go about their routine agricultural chores. For instance, Altaf seemed anxious and perturbed as he explained to us the consequences of reduced snowfall: "If there is adequate snow, then the land remains hydrated for sowing in April. If the snowfall is less than adequate, then the land dries up by March and we are left with no water for sowing. Even the roots of our grass dry up. And if there is no snow, there is no grass for our animals."

The correlation between the quality of their soil or crops and the variations in the amount and frequency of snowfall or its "gradual disappearance" to indicate a changing climate is not limited to Gurezi farmers but is indeed a wider trend in the Himalayas. Vedwan and Rhoades (2001) suggest, for instance, that the changes and variation in snowfall, or its timing and intensity, are used by many farmers in the Himalayan region as an indicator of climate change, which, they argue, is causing a

substantial decline in the production of their apples and altering their color and appearance (also see Roncoli et al., 2009). Such “visual and narrative representations” that people provide of their environments or the nostalgic renderings of an altered landscape are significant cues to map the human components of climate change and to underscore that people experience climate change as part of a complex web of interactions and engagements with their nonhuman environmental constituents (Roncoli et al., 2009:92).

For instance, it was clear to Gurezis that grass would not grow without adequate snowfall and that dry land would make lives extremely difficult for humans and cattle. Therefore, while human labor was critical for a bountiful harvest, Gurezis recognized their limitations in the face of changing weather, the clear indications of which, among others, were “colder temperatures,” “disappearing snow,” “fewer trees,” and “foggier mornings.” Indeed, in the Gurezi worldview, human labor was only one component that made survival possible in an ecologically vulnerable place such as theirs. As we have argued previously, people relied on many nonhuman environmental constituents such as wood, animals, snow, and trees, whose continued participation in ensuring human welfare – which included insulating people from the cold, providing them meat and milk, or maintaining optimum levels of moisture in the soil – were critical for sustaining Gurezi social and economic life. Indeed, for Gurezis, many nonhuman constituents played a vital part in producing the local environment, and their “altered character” or “disappearance” signaled a collapse of the human moral universe, an indication for many devout Muslim Gurezis that the day of judgment (*qayamat*) was not far.

An Altered Moral Universe or Climate Change?

As already stated, anthropologists are increasingly documenting the ways climate change is experienced, interpreted, contextualized, and understood by differently situated communities across the globe (Barnes and Dove 2015; Crate and Nuttall 2009; Dove 2014). One significant thread that emerges from this discussion is how people engage religious and spiritual categories to interpret climate change or how, in many instances, climate change is not an “emic” category used to explain the increased frequency of natural disasters or the altered behavior of snow, soil, or glaciers (Khan 2014). During fieldwork in Ladakh, for instance, the shortage of water over several years was attributed to “angry deities” who lived in the mountains where frequent cross-border wars between India and Pakistan had left

behind massive debris of unused shells and fragments of used bullets and artillery (Bhan 2014a). Likewise, in the Himalayan state of Uttarakhand, as Mathur (2015) reports, the increased incidents of big cats or bears attacking human populations were not tracked to deforestation. Instead, these incidents were seen as an outcome of the unequal power relations that existed between people from the mountains and those from the plains, a long-standing inequality that had corrupted plainspeople, who dumped their old and infirm animals from their zoos into the forests of Uttarakhand. In Gurez, too, the increasing presence of bears in the villages and the dangers they posed to humans and their crops were considered markedly different from the times when bears were confined to the forests and posed no danger to human settlements. While many Gurezis attributed the increased hostility between humans and bears to the denuded forests, destroyed habitats, and thinning glaciers, they also relied on spiritual metaphors to explain what they saw as a clear sign of a deteriorating human morality and the onset of a calamitous future for all (*balai*). For people who had coexisted with animals for many generations and had ascribed certain characteristics and meanings to them, a changing ecology was first and foremost a sign as well as an outcome of an altered moral universe, in which bears too acted and responded differently: rather than relying on the forest, they now ate crops that were meant for human consumption. Indeed, many in Gurez had stopped cultivating maize, one of their staple crops.

The increased presence of bears in the villages was not the only change signaling the “End of Time.” The dam, too, a vibrant assemblage of materials, was “exerting a force” to unsettle existing configurations and arrangements between humans and nonhumans, spawning new ecological fears and imaginaries even as it was transforming the local ecology by invading the mountains, rivers, and glaciers. For Gurezis, then, quite unlike the geological experts and the engineers who relied on years of geological data to ascertain the dam’s behavior over the next 100 years, the dam’s materials, the rock and concrete, the sand and pebbles, the gravel and steel, were way too unreliable and restive to follow or comply with human writ. Indeed, they had their own “will.” The dust from the crushing plant had settled on glaciers, plants, wild fruit, and vegetables, “dirtying them” and rendering them impossible for human or animal use. Even their cattle refused to eat the grass that grew in the vicinity of the dam, while people complained of increased frequency of asthma and other respiratory disorders due to inhaling the mix of dust and rubble. An older Gurezi villager recounted how on his way from Bandipora to Gurez there was a spot where a bunch of monkeys always gathered, feeding on the grass and

fruit in the forest. In the last two years, he claimed, “the monkeys, too, had vanished.” Instead, all one saw was dust, rubble, and stale, black air hanging from the trees and the rooftops. “How are we expected to live in a place which our monkeys, too, have abandoned?” he asked.

Weather, Climate, and the Anthropocene’s Nature in Gurez

As the discussion in the previous section demonstrates, the effects of the 330 MW hydropower dam on the river, glaciers, forests, and animals in Gurez underscore the importance of taking seriously the experiences and interpretations of communities who are most visibly impacted by such changes. This chapter explained how Gurezis viewed their rivers, forests, cattle, and glaciers as important constituents of a sociomaterial order and as actors that were indispensable for their everyday survival but also potentially ruthless. Nonhumans were vital participants in a social order in which herbs, trees, wood, rivers, glaciers, and dust acted as allies but also contained in them unpredictable impulses that could disrupt the foundations of human social life. Stories about lively and sentient nonhuman actors that played a vital role in constituting people’s social lives were many, forcing us to situate climate-related transformations within the complex web of interconnections that characterize the vast array of human–nonhuman relationalities. Furthermore, an attention to nonhuman actors as “vibrant matter” allows us to see rivers, glaciers, and forests as “matter(s) on the go” (Bennett 2010:17,18), as actors in motion, without “[re]enacting dualistic ontologies that locate the natural and social in separate realms” (Sundberg 2011:318). Such an approach provides a solid ground for discerning the everyday affinities and alliances but also differences and disagreements that exist between human and nonhumans, compelling us to engage with existing configurations of materialities and, at the same time, be mindful of those that are yet to emerge.

At the same time, an emphasis on human and nonhuman engagements raises a host of questions about how to, or if it is even possible to, reconcile local changes in and experiences of weather with the larger reality of global warming. Especially for anthropologists, who do not conventionally engage large-scale categories such as earth or global climate, how might such detailed empirical work about weather and its everyday effects on people help nuance the otherwise overwhelming emphasis on big-data interpretations of earth and natural sciences? Indeed, anthropologists have already shown the merits of bringing scientific knowledge about climate change in dialogue with how weather and climate change is understood through

local categories, experiences, and terminologies, thus emphasizing the need to develop a more holistic framework that privileges a multi-scalar analysis of climate change, in which both scientific and experiential data can act as drivers for policy change (Fiske et al., 2014:55). So, therefore, what we propose here is not a move away from the categories of global warming and climate change or the findings of earth system scientists even when local communities might not always engage such categories in their analyses. Indeed, we want to stress here that crucial insights from earth system science, with its focus on human–nonhuman relationalities, must be kept apart from the narrativization of these relationships in the Anthropocene descriptor. Pitting Nature against Society, which is foundational to the Anthropocene narrative, is precisely what prevents a fuller and serious engagement with the ways in which communities express weather-related anxieties, which might or might not always cohere with meteorological data sets about climate change. For instance, Gurezis worry about colder winters, not necessarily hot summers, while at the same time they understand glacial melting as an outcome of denuded forests. In the latter instance local perceptions might jibe well with large-scale climate data on the role of carbon sequestration to reduce global warming; glaciers' homes in forests may indeed be related to a former time of greater carbon sequestration. In the former instance, however, Gurezi anxieties about colder winters might be discredited as “ignorant” by climate scientists who rely on technical indicators of climate change, and not on every day and shifting materialities or spiritual or cultural registers, to assess the scale and extent of global warming.

How can we as anthropologists address the sometimes irreconcilable local and big-data picture on climate change, and to what ends? The irreconcilability, we argue, exists in part because people often rely on experiential categories to narrativize their culturally situated and shifting relationships with their environments. Compared to particular articulations of causality proposed by climate scientists, people might rely on a different set of material and cause–effect relationships, as well as different conceptions of action, agency, histories, and politics, which are shaped in large part by their everyday engagement with forests, trees, glaciers, dust, and concrete. If we want to build a more inclusive politics of global warming, we require an approach that treats the fears of a collapsing moral order that Gurezis use as an explanatory tool to describe the range of ecological transformations with the same seriousness with which it engages with the validity of scientific data regarding global warming, melting glaciers, or rising sea-levels. It is important, therefore, for environmentalists to

recognize that ethnography offers more than localized perspectives on climate change – although these are critical too. Ethnographic perspectives reveal the rich array of material and cultural relationships as well as different conceptions of sociality through which people make sense of their worlds, as culturally, materially, and historically constituted spaces. These relationships are important to consider if earth and climate scientists want to engage with the ways humans and nonhumans populate their environments, live with and in it, or change it. And this is also why we need to depart from the Anthropocene narrative.

A description of the complex interactions that exist between people, animals, land, water, and glaciers in Gurezi forcefully points toward the inadequacy of relying on the designation Anthropocene to make sense of the myriad human and nonhuman actions, all of which have played a critical part in producing the Gurezi landscape, both historically and in the contemporary moment when a multitude of other dynamic actors such as concrete, concertina wires, guns, and bombs also populate the Gurezi environment. Be it the concertina wires of the military that kill animals by “stinging” them or the rocks that make land difficult to cultivate, or, for that matter, glaciers that carve paths and provide wood, a reliance on the Anthropocene designation and its emphasis on “overwhelming human agency” and unabashed anthropocentrism does little to make sense of the complex worlds inhabited and created by humans and nonhumans, alike. Many proponents of the Anthropocene applaud it for focusing attention on the large-scale “geological” transformations in the earth system, the kind of focus that is needed to draw urgent attention to the ways human activities have irresponsibly altered our climate that are causing glaciers to melt in Gurezi, or for foregrounding some of anthropology’s longstanding concerns with the artificial binaries between Nature and Society and human and nonhuman. We argue, however, that the Anthropocene, in fact, limits both our conceptual framing of environmental and human histories and our politics as it pertains to discussions about climate change. We will elaborate on this in Chapter 5. At the moment, however, we would simply like to highlight that with its foundational premise of pitting humans versus Nature, or transforming the *anthropos* into a single homogeneous force, the Anthropocene prevents us from fully grasping the politics of human and nonhuman vulnerabilities or from taking seriously alternative worldviews, in which the actions of bears, glaciers, and forests form significant aspects of the ways in which weather is experienced or interpreted. And, as the case of Gurezi illustrates, alternative worldviews about the ontology of the environment and people’s everyday experiences and engagements with

weather are critical to build a more inclusive politics of climate change, in which local capacities, categories, and cultural values can meaningfully shape the discourses around social and environmental justice. The term also, as we have argued in previous chapters and will elaborate further in Chapter 5, fails to capture the different degrees of social and ecological vulnerabilities humans experience along gendered, raced, classed, or locational axes (Howe and Pandian 2016; Malm and Hornberg 2014). Instead of creating room for addressing such vulnerabilities or making way for alternative ontologies, the Anthropocene reinforces idealized notions of an external realm of Nature that, as we demonstrated in Chapter 3 and return to in Chapter 5, has not existed for much of humanity's time on earth. Hence, the Anthropocene's Nature, despite its progressive directives to train public attention on recent anthropogenic climate change, might actually impede a progressive politics of global warming that we detail further.