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Spring 2017

EBHR

EUROPEAN BULLETIN OF HIMALAYAN RESEARCH

European Bulletin of Himalayan Research

The *European Bulletin of Himalayan Research* (EBHR) was founded by the late Richard Burghart in 1991. It is the result of a partnership between France (Centre d'Etudes Himalayennes, CNRS, Paris), Germany (South Asia Institute, University of Heidelberg) and the United Kingdom (School of Oriental and African Studies [SOAS]). From 2014 to 2018 the editorial board is based at the South Asia Institute (SAI) in Heidelberg, Germany and comprises William Sax (SAI, Managing Editor), Christoph Bergmann (SAI), Christiane Brosius (Karl Jaspers Centre, Heidelberg), Julia Dame (SAI), Axel Michaels (SAI), Marcus Nuesser (SAI), Karin Polit (SAI), Mona Schrempf (Berlin), Anja Wagner, Astrid Zotter (SAI), Heleen Plaisier, and Arik Moran (University of Haifa, book reviews editor).

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For subscription details and back issues (>3 years)
http://www.digitalhimalaya.com/ebhr

The *EBHR* is published from Kathmandu in collaboration with
Social Science Baha (http://www.soscbaha.org)

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EDITORIAL

Climate change has become an important topic in many scientific disciplines, especially anthropology and geography, which are disproportionately represented in the pages of the *Bulletin*. It has also come to be a central focus for scholars working on the Himalayas, which are often represented as a "climatically pivotal Third Pole," to use the words of Ben Campbell in this issue. Because of their crucial function in storing water, regulating its distribution, and effecting climate patterns throughout Asia and indeed the world, the Himalayas have attracted increasing attention from natural scientists concerned with such issues. Scholars in the social sciences and humanities have followed suit, and this issue of the *Bulletin* includes three articles on climate change in the Himalayas from the perspectives of Anthropology, Ethnobotany, and Religious Studies.

Andrea Butcher applies Actor-Network Theory to understand the different discursive responses to climate change in Ladakh. Kamal Adhikari examines how commercialization of the *yarsagumba* or caterpillar fungus, combined with climate change, poses severe threats to its sustainability. Ben Campbell provides an account of the effects of climate change in northern Nepal that is at the same time autobiographical, ethnographically detailed, and a rousing call to action. All three essays provide excellent examples of how the humanities and social sciences are in the midst of a radical re-thinking of the relationship between human beings and their "natural" environments.

Climate change is, however, not the only item on this month's menu. EBHR 49 also contains a fascinating discussion by Seema Thakur and R. C. Bhatt of the "banking" activities of the village gods in Kinnaur, Katia Buffetrille's review of Tenjin Jinba's fascinating book on Tibetan cultural politics, and a lively response by Indrani Chatterjee to a review of her book *Forgotten Friends* by Phillipe Ramirez (also in this volume). Enjoy!

William S. Sax, Editor
EBHR

Encountering Climate Change: dialogues of human and non-human relationships within Tamang moral ecology and climate policy discourses

Ben Campbell (Durham University)

Abstract

Climate change is fast becoming a dominant narrative for contemporary understandings of Himalayan societies, and the concerns for the wellbeing of communities situated in varying degrees of vulnerability to extreme climate events. This article questions how climate change discourse translates into lived worlds in such places. It reviews arguments that challenge the easy transfer of knowledge about data and models into contested political ecologies of territorial claims and sovereign powers. Using a longitudinal series of ethnographic vignettes, the theme of human dimensions of climate change is explored to connect debates in critical social theory of the Anthropocene with the dialogical remonstrations of communities who experience climate change policies as a new stage in state encroachment on local livelihoods and wellbeing. People in northern Nepal speak of needing to cultivate reciprocal connections to territorial sovereigns, while being aware of not knowing how to act in uncertain political and economic times.

Introduction

In the run-up to December 2009s Copenhagen COP 15[1] talks, mistakes in the data concerning rates of Himalayan glacial melt caused a furore that acquired the label "Glaciergate" (Thompson 2010). Suspicions about the role of climate scientists' and panel chairs' strategic goals helped create a media storm that drowned out a reflective debate about science and action that interdisciplinary scholars had been contributing to by asking 'What kind of a thing is climate change?' Researchers across disciplines

[1] COP talks = United Nations Framework Convention on Climate Change annual "Conference of the Parties"

have brought a tremendously mixed bag of factors, indicators, and trajectories to try and answer this question. These include glacier melting rates, maps of temperature pattern shifts, species on the move, vulnerabilities of a new normal in rural and urban life, factors affecting adaptation and mitigation, and even climate innovation policy agendas. Following this wave of data trends and policy responses came some profound and challenging works on rethinking the parameters of appropriate knowledge for the newly named era of geology, the Anthropocene (Crutzen and Stoermer 2000). Now that we can clearly perceive human imprints in the geological profile of planetary evolution, the classic modern divisions of the natural and social sciences and humanities have been revealed as insufficient to the task of apprehending the kinds of phenomena our attention is necessarily being drawn to. A range of expertly assessed positions of insight enabled by our modern instruments of data sensing and modelling have produced a scenario of climatic trends with transformative bio-physical consequences. We recognise these as coming from and feeding back into human-accelerated trajectories of geo-political hazards veering toward eco-humanitarian disaster and misfortune.

The strong message coming from meteorologists, earth scientists, and biologists is that something out there is going on. The finger of blame points primarily at industrial carbon emissions over the last 250 years (Crutzen and Stoermer 2000). There has for long been a strong critique of the extractivist values and effects of predatory capitalism in colonial and post-colonial eras. These political economic forces have exploited environments and peoples leaving them despoiled, degraded and polluted rather than delivering prosperity and development. But now the signature of industrial society's combustive agency in the evidence of global warming has brought to bear an objectivity on the question of where we are in time and space, and what on earth we are doing. More precisely, what are we doing to the earth, and who are the anthropogenic 'we'?

For theorists like Dipesh Chakrabarty, '(t)o call human beings geological agents is to scale up our imagination of the human... There was no point in human history when humans were not biological agents. But we can become geological agents only historically and collectively' (2009: 206), while for public commentators like Naomi Klein

(2014) quite simply 'this changes everything'. Who can best speak about the phenomena we are witnessing? A strong institutional structure of natural science continues to claim privileged knowledge about the evidence of climate change in terms of temperatures and precipitation, while other commentators have made the case for reorganising knowledge of climate change and the environment more generally among a wider range of theoretical and methodological forms of enquiry (Palsson et al. 2013, Wynne 2010). The deeply social basis of the conditions of possibility for climate science is only hidden from view in climatologists' representations. This can be described in Latour's (1993, 2004, 2013) terms as a purification effect of engineering observable facts in the natural world. The social basis of representing observable climate processes can be seen in many forms, such as the organisation of data to address the socially determined question of whether a 2-degree rise in global warming will be exceeded this century (Carter and Charles 2010).

There are many ways in which climate change can reorient us away from the cosmological starting points of positivist science, including that of constituting a separate and scientifically knowable world of nature "out there." This article picks up these questions and treks into a region where the idea of a natural world has been introduced and imposed on very different kinds of cosmological notions and ways of relating to the non-human. In ethnographic fact nature has had very mixed reviews in indigenous perceptions (Campbell 2005). I am asking 'What are people seeing?' and 'What are they hearing?' in conversations, and in encounters with other people's talk of climate changes and their consequences.

The orientation of this article is ethnographic, and it approaches the enquiry into climate change as a socially embedded set of discourses. It arrives in a power-infused struggle of ethnic, economic and ontological dimensions. Mainstream mitigation and adaptation policies enfold climate change discourse with parties of winners and losers, who can be predicted and reconfigured by climate modelling targeted on analyses of poverty, livelihood and infrastructure planning. This discursive configuration of Himalayan climate change has an epistemic status that is characteristic of the region's relationship to theories of environmental crisis: there is a sense of problem-manageability combined with an exceptional global panorama made possible from the

high ground where its special vantage points enable a whole world scene to be imagined, surveilled, and the principles of cause and effect to be generalised. Seeing the Himalayan region as The Third Pole makes a substantive claim for attention when the region is pitched as climatically pivotal in shaping the central Asian frontier of the great Siberian depression and the Bay of Bengal monsoon. In this fulcrum hydrology, the third pole carries a payload of demographic and geo-political consequence as the source of the river systems that nurture the bio-regions and livelihoods of a third of the planet's human population, and water the two large neighbouring emergent economies who are competing for hydro-power and other resources.

The distanced and commanding landscape perspective achieved from the heights of quantitative science concerning climate change phenomena cannot, however, maintain supremacy over the variety of knowledge systems that co-exist in the Himalayan region. As in previous debates over the Theory of Himalayan Environmental Degradation (Ives and Messerli 1989), it is the gaps in data for arriving at general climatic patterns that are deserving of note.

> The warming in the greater Himalayas has been much greater than the global average: for example, 0.6 degrees Celsius per decade in Nepal, compared with a global average of 0.74 degrees Celsius over the last 100 years... There is a severe gap in the knowledge of the short and long-term implications of the impact of climate change on water and hazards in the Himalayas, and their downstream river basins. Most studies have excluded the Himalayan region because of its extreme and complex topography and the lack of adequate rain gauge data (Eriksson et al. 2009: 1).

This article therefore picks up the trails of enquiry laid out by Chakrabarty in noting that

> (g)eologists and climate scientists may explain why the current phase of global warming—as distinct from the warming of the planet that has happened before—is anthropogenic in nature, but the ensuing crisis for humans is not understandable unless one works out the consequences of that warming (2009: 213).

Thinking about the human consequences in Nepali society anticipates clashing perspectives of truth regimes, and the contours of vulnerability conditioned by deep socio-economic and cultural inequalities. Hierarchies of knowledge and power influence practices of relatedness through which people negotiate, compromise and take refuge in radical specificities of place (housing styles, customary foods, communities of belonging). They find homes within contexts of immensity and great divides (of sub-tropical/ alpine contrasts, systemic differences in material culture, and in dispositions towards alliances across borders). There are historical struggles of meaning and power at play on the battleground of climate change policy practice, but as Shove (2010) effectively argues, we cannot simply reduce these struggles to meaning and power. My intention is to use ethnography to move towards a multi-species approach to the 'feral anthropocene' (Tsing 2016), and support Hulme's (2010) case that there can be no return to normal. However, the evidence for key actors and organisations having the ability to recognise this new state of affairs, and reorient themselves to new circumstances of expertise is not so promising.

Appeals from Nepali science and development organisations for climate-smart policies and projects understandably replay the narratives of powerful global institutions and donor preferences. This risks introducing climate change as a new policy orientation like any other, and for organisations to continue as if nothing has really changed, apart from rearranging the buzzword vocabularies of development need. Documents from ICIMOD (the International Centre for Integrated Mountain Development), for example, standardly appeal for sound science with the goal of reducing uncertainty. In this line of reasoning, institutions such as ICIMOD have been crucial in formulating the problem and the opportunity of climate change in the region. The outputs of many interdisciplinary institutions present approaches intending to reduce scientific uncertainty, and propose managerialist interventions for governing risk and vulnerability. Often referred to as ecological modernisation, this can be seen as a set of technological, regulatory and market mechanisms by which global climate funds can be accessed. As something of an afterthought to the science and market regulation agendas, interdisciplinary collaboration is frequently

invoked to acknowledge how participatory and devolved natural resource governance based on equity and inclusive development have become the accepted paradigm for local community engagement. This has been the case in Nepal, especially since the general effectiveness of community forestry became recognised in sustainable development thinking.

By contrast, there has been a bolder opening up of frameworks of enquiry in the engagement of critical social science with climate change, to address the fact that 'uncertainties of scientific knowledge claims, including climate change models, are seldom acknowledged in public debate' (Barry et al. 2008: 37, cf. Jasanoff and Wynne 1998). This will not be news to followers of the debates of the 1980s and 1990s known as the Theory of Himalayan Environmental Degradation (THED), and of the work of Joelle Smadja and her collaborators in the meticulous studies contained in the volume *Histoires et Devenirs* (in English *Reading Himalayan Landscapes over Time*). Lessons from European collaborations on Himalayan human-environmental change over 25 years have shown the value of rigorous in-depth and multi-disciplinary study, using local knowledge systems and historical records as a vital method to temper the hasty assessments and simplistic remedies for poorly understood crises.

This article therefore situates the social science of Himalayan climate change in historical genealogies of debate on social and ecological change, but aspires to move beyond the repetition of environmental crisis narratives as previously articulated (Grove 1995, Guthman 1997, Saberwal 1999). While it draws on the lessons learned from the success narratives of recovery after prior assessments of ecological crisis, such as through community forestry programmes, it is the diversity of epistemic registers among climate change discourses and their mutual illegibility which makes evident barriers to the democratising of climate science, and to recognising the knowledge-power and ontological dimensions of the phenomena. At issue within this overarching framework are questions of how to take stock of what matters to a great diversity of people in relation to territories, and those territories' potential to change and be viewed through new lenses of value and vulnerability. This takes place in the ways people go about recognising, measuring and acting on their assessments of what is at

risk, invoking compelling presences in the shape of data sets, institutional capacities or spirit sovereigns' mood-swings.

Climate change beyond nature: field encounters

In its standard configuration, climate change is not easily accessible to social scientists. What do we know?[2] What anthropologists can bring to the discussion is an ethnographic sense of the layered alternatives and frictions that are at work when climate change discourse is translated into words, relationships and political economic processes that can have local currency – in places like northern Nepal, where I have been doing research for over twenty five years, among the Tamang-speaking communities of Rasuwa District.

Elsewhere (Campbell 2013), I have argued that the idea of nature as operated by modernist knowledge practices does not figure in Tamang lived worlds. Nature conservation specifically, is a state enactment of territorial dispossession (in the form of national parks), turning a place of multi-species relational interaction into a property regime of scarce resources. With climate change, it is not aggregate global warming that affects human ecology, but rather strange weather as it is directly experienced, and its consequences for livelihoods and relationships with non-humans in a landscape of sentient ecology that is spoken about.

My first direct encounter with climate change in the field came in March of 2009. It was an experience that shook my research attention, and my sense of what was an appropriate way of proceeding in the circumstances. It brought me to think about a new set of material chains of effect and their political and cultural consequence, rather than those I had been expecting to follow up at the time, which had been in relation to the aftermath of Nepal's civil war. The most immediate area of social life affected was the local food system.

Twenty years earlier I had begun intensive research into subsistence farming in Rasuwa district, documenting the meticulous crafting of terraced field systems into productive landscapes supporting Tamang-speaking communities with various species of

[2] There are of course many impressive collective efforts to make a difference in this respect, and just to mention meetings in the UK, the CRASSH 2012 conference on Climate Histories was exceptional in exploring the contributions of arts and social sciences. The Royal Anthropological Institute recently held a conference on climate change in May 2016.

livestock and much species diversity in their staple crops (Campbell 1993). The entire system was predicated on seasonal predictability. In March 2009 things were unrecognisable. Not a drop of rain had fallen since the end of the previous monsoon. Unirrigated mountain agriculture depends on occasional winter rainfall. The terraced fields which at this time should have supported ripening wheat and barley in one area, and in another area should have just begun showing newly germinated maize seedlings, instead revealed a brown, dried-up fan of unproductive mountainside.

I had visited the area two years earlier, when the end of the civil war had brought some reasons for optimism in the country, and people were rebuilding their communities and livelihoods. On this visit, however, the generation of people I had known since the *panchayat* era pointed to the parched soils and told me '*nyima shijim praba*' ('we are walking dead'). The civil war and the effects of out-migration for work abroad had already impacted severely on the villagers' capacity to keep going with subsistence farming and livestock in their transhumant agro-pastoral system, but this drought was a hammer blow to these people's own sense of having the capacity to feed themselves. The civil war had been rhetorically handled by the Tamang villagers with some degree of pragmatic distance from the conflict's central objectives of state capture. They used the trope of 'we are poor mountain people. We have no rich here' to deflect attention from both security forces and insurgents. The main conflict was between leaderships made up of the same ethnic group of Parbatiya Nepali speakers, and so could be consigned within a definite subset of national society, based at lower altitudes and occupied with their own domains of interest, to which Tamang village life was highly marginal.

With this climate change business though, things were far more serious. The entire basis of Tamang subsistence systems was evidently at risk. This is constituted in a capacity for self-reproduction through cultivating crops as an element of cultivating relationships with territorial deities. Through these ritually explicit connections, the soils and fields, animals and plant species are accessed and fertility renewed on a calendrical basis. Climate changes were taken as signs of relational breakdown and communicative impasse, accompanied by nefarious wilful agents causing harm. This non-human threat was not containable

as an effect of the same old structural neglect from the developmental state, but signified a post-normal environment of relational unease.

It was not simply a matter of village agriculture failing to produce enough food to feed most of the people most of the time. The failure of the wheat fields due to lack of winter rain took on further significance as the Tamang house gods were also going to be deprived of their food. In the festive domestic ritual of *chang phit*, the first fruits of the April wheat harvest are made into a beer. The origins of crops that have travelled on people's migratory pathways (from Wi Samye in Tibet down to Gyagar in India, and back up again to the present village site) are chanted before a wooden pot containing some of the new harvest is hung on the ridge pole of the house, as an offering to the clan god of the male owner of the house (*tim ki dabo*). With the house god (*tim ki lha*) having his first share, the human residents could then themselves join in imbibing the nourishing brew, and later eat a meal of the *wa ken* (Nep. *gahun ko dhero*). This was one of the turning points of the year in terms of the villagers' on-going renewal of activities and relationships in the annual cycle of the local food web. When academic discussions are held over the impacts of climate change on indigenous and local people's food security, it is frequently in terms of sheer food availability that this issue is perceived to matter. But there is far more at issue than mere supply of calories. Rather than just security, this is about relationships of food sovereignty (cf. Edelman 2014, www.foodsov.org), which are the lived parameters of connection, value, preference and care that enfold the activities of people maintaining and growing their own social food systems.

Due to the drought in 2009, other strange weather events were taking place. The sky was actually full of smoke. Villagers were telling me about the fires in the higher forest. On one trip to visit a friend's planned site for a high altitude dairying and cheese-making unit, we went to inspect the source of the perennial village steam for accessing water. It was just a damp patch of mud rather than the continuous trickling flow it should have been. Walking back down the mountainside in the late afternoon our small group stopped at one of the high pastures where the stone and plank bases of a cluster of temporary herding shelters were situated. At one corner a *lungtar* flag fluttered, but there was hardly any grass for cattle to browse on, and looking up past

the *lungtar* pole, the sky was an eerie bronze colour from the accumulation of smoke in the close atmosphere emanating from the smouldering forest. The afternoon sun was dimly visible in shape through the haze. My companions told me the particular site we were stopped at had a very capricious *shyibda* (Lord of Soil). If they were to go ahead with the dairying unit, they would need to be wary of this place. Once, a cow of one of my companions had disappeared from this area for a whole week. They had given up hope of ever seeing it again and presumed it had been taken by a leopard or fallen over a cliff. Then all of a sudden it showed up, none the worse for wear. Mysterious happenings and twists and turns of fortune that affect living beings in environmental interactions are mostly attributable to these *shyibda* deities, responding to people's behaviours in their domains.

A couple of days later, I was with the same companions in the village house, drinking tea and talking about their problems with getting permission to locate their proposed dairying unit within the Langtang National Park. A wind had picked up, making the tin roofing sheets rattle, and as is normal on such occasions, running repairs were made. Restraining wires and ropes were pulled taught, and some rocks were rearranged from above to stop the tin sheets from banging and flapping about. The gusts of wind only got worse, and after some calling to and fro with people in the street and through the walls to the next-door house, we abandoned our house to escape the very severe winds that were by now hurling rocks and other objects through the air. As we saw tin sheets peeling off a roof across the way, we dived down into a secure basement room of a neighbour and joined a huddle of about twenty people.

For about an hour the wind raged with a truly fierce intensity, leading to collective gasps of breath and anxious utterances of concern for property and persons. We eventually emerged to a scene of blasted debris and devastation, with many outhouses and lean-to shacks smashed up. By the end of the day conversations had passed up and down the valley, with a growing consensus emerging that a *shyibda* whose sacred domain is located high above the village of Thulo Bharku was most likely responsible for sending the terrible wind. This was perceived as retribution for people having caused fires in forests in the Thulo Bharku area. The fires had encroached into the god's intimate

sacred grove, enraging the territorial sovereign and provoking this outburst of demonstrative power, reminding people to behave properly and with respect for the gods of place.

Impacts and opportunities of climate change

There is a sense of vulnerable connections in contemporary Tamang livelihoods in northern Nepal, significantly pre-dating the terrible earthquake of 2015. Here the state, the market and strange weather converge in twists and turns of accidental and patterned effects, which the different generations and genders try to make sense of and do something about. There are direct impacts of climate change in the frequency of failed winter crops, and dried-up pasturelands. There are indirect manifestations of climate change in the ways that state institutions have re-equipped themselves with this new scientific and policy agenda to challenge the entitlements of villagers and rural citizens to forests and pastures in national parks and other protected areas. Climate change policies can bolster authoritarian tendencies in state environmental practices. There are combinatory effects of political economy (most notably labour migration) and winter drought that conspire to leave the older generation describing themselves as 'walking dead', and vesting women with an inordinate burden of keeping domestic life going at depleted capacity. On the other hand climate change offers the educated Tamang youth opportunities for contact with international NGOs, renewable energy technology initiatives, conservation advocacy and eco-tourism. Climate change can provide a discursive basis from which vulnerable connections in remote areas can be remade. The livelihood deficiencies of infrastructural and political neglect experienced under previous development regimes can be turned into a positive locatedness from which to articulate decentralised, off-grid, bottom-up and low carbon adaptations to climate change effects, as is proposed in new climate-smart agricultural systems (FAO 2012), and the UN's Sustainable Energy for All programme.

Taking on the agenda of climate change provides anthropologists and other social researchers of the Himalayas with possibilities for reassessing our regional understandings of long-term change in human-environmental interactions and landscapes (e.g. Smadja 2009). There appears to be little work that explores the translations of global climate

change discourse into the diversity of lived worlds and shifting relationships of understanding and exchange between ecological and cultural zones of the Himalayas. We know the terms of interaction between lowlands, mid-hills and mountains to be characterised by long-standing, multi-factor and conflict-laden inequalities (Blaikie et al. 1980, Shrestha and Conway 1996 Gellner 2003, Gurung et al. 2014, and these can be anticipated to repeat their old machineries of power and exclusion in the new paradigms of climate change policy (Nagoda 2015). However, a commitment to ethnographic groundedness and to participation in emerging critical debates across natural and social sciences (Latour 2004, 2005, Shove 2010) brings a responsibility not to prejudge and recycle old scripts of unequal power relations. The challenge of understanding the human dimensions of climate change requires both rejecting a reduced social slot in the disciplinary division of labour (Leach et al. 2005), and listening to accounts of the lived worlds of people beyond the metropolis as reasons for questioning the habitual thought patterns of liberal theories and methods for claiming to understand change in human relationships with the world, which is now revealed as undergoing human-induced climate change (Barry et al 2013).

Recent debates in the influential journal *Global Environmental Change* have berated the terms of understanding of human dimensions of climate change. Following naïve expectation that interdisciplinary collaborations would yield compatible datasets and cumulatively increase knowledge and reduce uncertainties, the perspective presented by Castree et al. (2014) argues for greater acceptance of critical spaces and tensions in the diversity of knowledges coming together over climate change issues.[3] Turning these debates towards moral concerns and normative outcomes, Barry et al write:

[3] Castree et al. characterise the dominant framing of human dimensions in global environmental change thus 'The frame's major presumption is that people and the biophysical world can best be analysed and modifed using similar concepts and protocols (for example, agent-based models). A single, seamless concept of integrated knowledge is thereby posited as both possible and desirable, one focused on complex systems. The frame positions researchers as metaphorical engineers whose job it is to help people cope with, or diminish, the Earth system perturbations unintentionally caused by their collective actions.' (2014: 764). They go to note that 'This science offers little or no sense of humans as diverse, interpretive creatures who frequently disagree about values, means and ends; and there is nary a mention of power, violence, inequality and the perennial

> we cannot conveniently 'read off' how to cope with climate change from scientific analysis, nor can we 'outsource' the solution to climate change to natural science and technology. Thinking through climate change... is not something that can or ought to be left to experts. Science and technology can only offer insights into climate change once we recognise its core normative dimensions, both in moral/ethical terms as well as in political/policy terms (2013: 375).

The next section explores these terms of enquiry within the climate change affected lived world of the Tamang-speaking communities in Rasuwa. It seeks especially to look at the anticipatory effects of climate change thinking, and their contingency with rapid shifts in ways of life and their normative underpinnings.

Fieldwork in the slipstream of Climate Change

By 2011, things had taken a different turn in my encounters with climate change. Visiting in Thulo Bharku I was drawn into conversations about pressure being applied to the operation of the yak cheese factory at Shing Gombo. The Langtang National Park was now threatening the cheese factory with severe consequences, closure at worst, if they could not reduce the levels of forest resource use in the area of high forests, which are home to red pandas, musk deer and snow leopards. A new military commander of the army section posted at the national park had discovered that one of the high altitude, seasonal dairying units for the cheese factory had used freshly cut green wood to build its encampment and working area. This use of construction timber was on top of the cheese factory's consumption of fuel wood to pasteurise milk and make cheese, which is claimed by the park to exceed the rate of tree timber replenishment. Reports of the problem reached national newspapers in February 2010, and while climate change did not feature prominently in the newspaper's narrative of this new forest protectionism, it became a frequently encountered point of

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desire of some people to replace one socio-environmental regime with an entirely different one.' (2014: 765).

reference and legitimatising concept for a host of conservation and development policy initiatives at this time.

Climate Change conferences were held in Kathmandu in 2010, and in April 2012, Prime Minister B. Bhattarai gave an introductory speech to the International Conference of Mountain Countries on Climate Change. He pointed to the evidence for rapid warming 'in our observations of increased snow and glacial melt and the frequency of extreme events such as devastating floods and droughts, which have exacerbated problems of hunger and poverty in mountain regions.' He not only urged attending to people's sufferings and survival needs, but also 'preserving the ecosystem that nurtures them'. While acknowledging uncertainty and gaps in knowledge, he emphasised a 'need to bring the climate change program down to the local level by demystifying and de-jargonizing its notion and approaches. We need to make climate adaptation as people-friendly as possible' (ICIMOD.org, accessed May 2012).

The Government of Nepal established the Climate Change Management Division in the Ministry of Environment in 2010. With the aim of protecting infrastructure from climate change effects, a policy of the National Planning Commission instigated climate-resilient planning tools in the same year. The Ministry of Environment brought a focus on climate adaptation, reducing risk and disaster, promoting low carbon development and climate resilience, applying finance to manage risk and adaptation, engage in relevant capacity building, and increasing research on technology development for climate-friendly natural resources management. This process was the first national attempt to mainstream adaptation by NAPA (National Adaptation Program of Action) and the policy represented a push to make climate change issues of concern across a range of development sectors (Nachmany et al. 2015: 4). The Nepal Climate Change Support Program received assistance for a first phase of Euro 16.5 m (NRs 1.8 billion) targeted to reduce vulnerability to climate change of two million women and men in the Mid and Far West of Nepal.[1] The funding came from the EU (Euro 8.6m) and the UK (Euro 7.9m) and technical support from UNDP.

With this high level of climate change awareness being promoted from Kathmandu, it was not surprising to find it in the text of a report entitled 'Overview of Cheese Production Business & Its Impacts in Bio-

diversity Conservation in Langtang National Park' produced during this period by LACCOS (Langtang Area Conservation Concern Society), which is a local NGO sponsored by WWF and supportive of the Langtang National Park positions. The report consisted of a set of bullet points and one of them stated 'Impact of climate change has been prominent and prevalent in LNP area' (LACCOS n.d.).

The forests of Nepal were now being drawn into new policy fields beyond simply stopping deforestation and preventing soil erosion, which had been the major concerns of the 1970s when the national parks were set up. The primary environmental cause became encapsulated as preserving biodiversity during the 1980s. The carbon sequestration logic had now arrived as the latest externally recognised rationale for conservation, and the state's claim to restrict livelihoods and development in areas of territory for nationally and internationally validated conservation policies. Climate change and the potential for looking at Himalayan forests as sources of cash from emissions trading through the REDD+ scheme (Reducing Deforestation and forest Degradation) were indeed audible in discussing relevant knowledge and policy contexts in Kathmandu (UN-REDD 2014). The more critical voices among the NGO community in the capital understood how state policy worked outwards from the centre to take shape and remould the terms of interaction in rural contexts, and to bolster previous state-territorialising stances with regard to environmental access and rights with new criteria and rationales.

It was in this context that I chose to pursue an invitation from the herders' community to initiate a project to substitute the cheese factory's use of fuelwood with biogas, produced from yak-cow dung (funded by a small grant from Durham University's Energy Institute).

In the conversations taking place at ground level sites of field research, such as with NGOs in the renewable energy sector, climate change policy effects are now present as background elements of almost any decision-making. During a number of meetings I and my energy engineer colleague Paul Sallis from Newcastle (also accompanied by NGO staff from the Kathmandu-based Biogas Support Programme), held with Rasuwa-based national park officials, the cheese factory personnel, local political leaders, and the committee representatives of the local herding group at Shing Gombo and Dhunche, the explicit issue of

climate change was hardly raised at all. The greater attention was spent on the direct repercussions for livelihoods of the national park's intention to follow through on the withdrawal of rights to fuelwood. The *hariyo ban* plan of government and WWF for the Chitwan-Annapurna zones is one of the policy sources that can be seen as setting the tone:

> most of the lower and mid-hill forests in the subtropical and tropical zones are vulnerable to climate change impacts, whereas the temperate upper montane and subalpine forests will be more resilient. Relatively large (>500 ha) patches of contiguous forests will remain as climate 'macro-refugia' along the montane regions ... should be conserved because of their high biodiversity values. Further degradation from short-term anthropogenic drivers should be prevented (Thapa et al. 2013: iv).

The areas with supposedly lesser climate vulnerability are thus deemed to merit greater protection for their biodiversity. The competition between food sources of red pandas and yak-cow herds (Fox et al. 1996) were entering a new phase. Rights to fuelwood and pasture have been at the centre of the environmental crisis debates in the Himalayas since the 1970s. A very influential paper at the time spoke of 'archaic rights' to headloads of fuelwood and fodder reducing the capacity of forests to regenerate and provide inputs to peasant farming (Wyatt-Smith 1981). By the 1990s the heated debates over the crisis resolved into growing recognition that community forestry was patently producing positive results, as rural Nepali communities demonstrated significant institutional capacity to manage themselves with common aspirations for a healthy zone of biodiversity where they could keep an eye on who was taking what. Such participatory resource management systems are now frequently presented as the best means for adapting to climate change (Aryal et al. 2014), but this is not universal, and not always encountered in field-site conversations where climate science is instead mobilised to ignore local knowledge connected to practices of environmentally based livelihoods, or condemn it as ecologically destructive or as illiterate superstition.

During initial meetings in Kathmandu held with Biogas Support Program, the influence of the REDD agenda was mentioned as likely to be responsible for the thinking behind stepping up action on intensifying protection measures on biodiversity. More generally, a connection was being made about the anticipation of a new kind of view of trees as stores of carbon, which will constitute measures of accounting value in a new cash economy of forest management. Any activities that would diminish the stock of carbon in forest areas would obviously be negatively perceived, as would activities that complicate land use priorities from a managerial point of view. Climate change discourse and policy was evidently seeping into national conversations of opinion formers, and finding affinities among participants in the national conversation for whom positions on climate change helped other agendas at the same time.

It is noticeable with the example of biogas that the original impetus for funding its active promotion in southern Nepal had been overwhelmingly the goal of reducing the extraction of forest biomass on the edges of the national parks. Two cows provide a household with enough dung to generate sufficient biogas to remove the need for householders to fetch fuelwood from the forests. The environmental priority was originally to enhance the protection of biodiversity, rather than sequestering carbon or reducing CO2 emissions from burning wood.

During a further trip in May 2014 to investigate progress at the biogas trial site at Shing Gomba a group of masters students from Tribhuvan University were interviewing residents, lodge keepers and the cheese factory manager about their experiences and perceptions of climate change. Their group leader was Prof Roshan Bajracharya of TU, whose research has focused on carbon cycles in different patterns of land use. His study of smallholder agro-forestry in Rasuwa environments reveals carbon content of 48.6 tons per hectare of soils in mixed agro-forestry systems, and demonstrates the benefits of multiple use landscapes for resilient livelihoods that are still compatible with policies to reduce CO2 emissions. The research team's publication (Pandit et al. 2013) concludes that

> [t]here is substantial scope for reducing carbon emissions from agriculture and yet increasing productivity because Nepal's farming practice is largely carbon-friendly and there are opportunities for further strengthening and enhancing carbon-rich farming by supporting many of the traditional farming practices. Nepalese farmers have been practicing agroforestry without any financial incentives for their contribution to carbon sequestration and will continue practising this land use as long as they continue practising agricultural systems comprising field crops, trees and livestock. Hence, traditional systems modified to diversify production while concomitantly achieving carbon capture promise to be the best option for the future (2013: 485).

Given this positive assessment of agro-forestry carbon recycling capacities, the categorical assumption that protection of standing timber should displace other land use practices can be regarded as an arbitrary decision, especially where carbon sequestration is considered a key environmental value, and where mixed livelihoods of mosaic field systems, herding and tourism can be a complex that enhances sustainable options for communities of people under many sorts of economic pressure alongside those of climate change.

Human Dimensions and Non-human Dispositions

It was in talking with a Tamang woman in her seventies in one of the mobile yak-cow (*chauri*) dairying camps that the contemporary dilemmas of the way of life tied up with supplying the yak cheese factory with milk was brought home to me. She spoke of problems in the low milk yields when rains are not dependable in the early milking season. She disparaged her husband for preferring to maintain his friendships with other male herders in livestock deals, rather than obtain the price he could achieve by putting the four-legged assets of his operation foremost. She bemoaned the death of one son away working in Malaysia, and the absence of her daughter, who was also out there rather than helping the old couple. What was she to do? Should they just sell the herd as their children were not evidently keen to carry on the dairying way of life? She said the children aren't doing what children should do, and 'look even the chickens these days refuse what

they are given. They won't eat maize and demand rice. The whole world has gone topsy-turvy'.

Climate change does not feature here as a general phenomenon in the terms we have become accustomed to think of it. Instead a more general confusion of expectations, an unreliability of domestic roles, and difficulty in making decisions has pervaded interpersonal, and inter-species relationships. This disrupts ongoing flows between daily efforts and economies of care in the patterns of ecological practice that convert into income and a sense of value and life-worth. Back at the cheese factory and trekking lodge settlement, one of the lodge keepers was to touch on this predicament with insight and good humour. He said the young people either go for education or work in cities, rather than adopt this life of suffering in the rain, or enduring droughts. Perhaps there could be another thirty years or so during which people might follow this path, but he saw the prospects as terminal for the herding community that he and his generation were born to. Young people now are drawn to places that his age group only ever dreamed of. The human experience here of global warming is inextricably linked to a global outpouring of their young people who are the active labour force for their economy, but whose contributions to their parents' domestic purse come, if at all, with uncertain timing in the form of remittances. The opening up of global space is the marker of newness in these times. This is the other side of the story from the paranoid perceptions of people in the wealthy parts of the globe looking at climate refugees arriving on their shores. The global outpouring has climate-related elements, but the driver of migration is the inequality between the allure of wages earned abroad, fused with post-agrarian values of personal worth and accomplishment since the migratory turn, as compared to a failing and under-capitalised occupational niche in the mountains. This *bhote* way of life was always held in low esteem by modern national citizens of Nepal, and the more powerful representatives of the state in the shape of the national park, who now have climate change also to use in their armoury of reasons why this traditional disposition for livestock pasturing should be further restricted.

I will finish the ethnographic episodes with a return to the first village where I described the drought and terrible winds occurring. In

2014, I was proudly taken to observe how well a path-building project had been completed with assistance from the office of Soil and Water Conservation. The path to a once difficult to access water source had been cleared of obstructions and some flights of steps and the small bridges repaired. Going in the company of a young shaman (*bombo*), and another friend, we took nearly two hours getting there at a steady incline from the village. This spot was known for its healing water (*men chu*), constantly spurting out of a mossy and fern-covered rock face where some stonework provided a framing ritual enclosure for the scene. The young *bombo* lit some brushwood incense branches and chanted facing the spring for about twenty minutes, renewing his acquaintance with this healing water spirit, and bringing home a pot of the healing water. Back at the edge of the village where his house is located below that of the Kami (blacksmith) family, another water source beneath the walnut tree (*kadongbo*) was known more for its vindictive rather than healing qualities. This particular *shyibda* or *naag* had caused trouble to a whole host of neighbours and people whose animals had passed by. One of the Kami family's daughters working in Malaysia was said to have been struck sick by this deity's malign affect, even at such a distance. In a couple of days, a low stone enclosure, and some angle iron poles and fencing had been put up to mark off a ritual territory of existential danger, before a small crowd scene that witnessed the honouring, and purification of place, removed from potential defilement, by the *bombo*, who chanted to restore public recognition of the local lord's abode.

These actions marked a remaking of relationships with the local environmental sovereigns, whose cantankerous whims or benign protective influence depend on maintaining relational obligations and active attendance to avoid neglect.

Weathering Debates of Fact and Value

The dominant kinds of discourse doing the rounds in climate change debates concern firstly scientific information, secondly unequal vulnerabilities to its effects, and thirdly the policy mechanisms and financial relief coming into place to address adaptation and mitigation. It is notable how narrow the views of human dimensions of climate change are in most of the literature. The science and political economy

of climate change is of course hugely important (Gupta 2011, NEFIN 2014), but the question of what kind of thing climate change is for different people, and in their own normative frames, or their contextual vulnerability (Nagoda 2015) is apparently not being asked. The anticipation of compensation mechanisms (UN-REDD) and the inadequacy of distributive capacity (Tiwari et al. 2014) dominate discussions of market models to manage global warming, to the exclusion of asking, as the Tamang villagers ask, "Where are the vital sources of our life world?" They are pondering how to renew effective mutual relationships with these sources of life.

There are questions to ask about how to break through from the old nature/culture dichotomy thinking, which still infests most of the data collection and analysis of Himalayan climate change. There are new terminologies, concepts and approaches to be experimented with and projects of work to carry through, which offer critical thinking and comparative case studies. Among these, the most obvious are the longitudinal landscape histories of Smadja (2009). The historical tracks of Himalayan climate change research could be pursued as Schaffer has proposed more generally for mountain research (Diemberger et al. 2012). But as Strathern comments in the same climate histories conversations, rendering a perspective of the perspective of mountain regions with climate change as a singular object of enquiry, creates them as versions of each other. By contrast, a perspectivist view could apprehend

> a world that is also many worlds and where oneness rests in the human endeavour of being and understanding. In this truth, there is a multiplicity (at once infinite and interrelated) of climate problems and an extraordinarily uniform consensus that change is afoot (Diemberger et al. 2012: 239).

Global warming envelops and obscures differently framed cosmological scenarios and social realities of climate change. Anthropogenic climate change belongs in a cosmological family of environmental risk perceptions, which effectively externalise the systemic effects of global socio-economic inequalities (Moore 2016). It is analogous to the way natural science objectivism construed excessive human agency

(growing numbers of poor subsistence farmers) as causing deforestation, soil erosion and degradation of fragile mountain ecosystems without bothering to speak to the assumed perpetrators. The way that mainstream literatures organise and target climate change scenarios for the Himalayan region is a new edition in the same book series as the Theory of Himalayan Environmental Degradation (Ives and Messerli 1989), with an updated version of the call for programs of urgency as a globally vital need (e.g. ICIMOD's report on the HKH region for the 2012 Rio+20 conference). Global warming risks repeating old environmental oppressions.

In the history of Himalayan environmental knowledge politics, it is all too clear from knowledge of what happens in specific places that science can often come not as open enquiry, but as a blunt instrument to allocate the distribution of blame among local offenders, and point to new values in the interactions of people and territories. The climate change agenda has turned protected areas from being refuges of biodiversity into carbon sinks for global ecosystem services. Anthropologists and other social scientists need to challenge the mainstream consensus regarding what kind of phenomenon climate change is taken to be (Wynne 2010). We need to attend to how climate change scenarios put in motion political and institutional discourses that mark local forms of knowledge as inferior, when the voices of authority advocating climate change action have shown little curiosity in acquiring evidence of human dimensions other than in signs of human-induced environmental degradation. Climate change policies risk turning back the clock regarding the progress of participatory elements in environmental policy. Jason Moore's (2016) collection on Anthropocene or Capitalocene makes some of the best arguments yet for refusing the flattened version of the human that is casually smuggled into discussion of the Anthropocene, while implying the concept is transformative.

As climate change discourse arrives in climate-affected societies, it is working through a set of rapid class transformations. In Rasuwa and other districts of Nepal many indigenous rural youth are appropriating the environment and climate change as a language through which they can legitimise a refusal to take up the subsistence pathways of their peasant parents. The Tamang youth have gone feral, off the farm, via

the insurgency and migration. The 50-somethings now have to calculate and financialise what was previously habitually dependable: on-going social life, enacted in seasonal, intimate collaboration between humans and non-humans, fields, forests and four-legged creatures. This change throws into question collective and personalised relations with local non-human lords of climate and weather events. The intimacies of connection to life processes entail breaking out of the skin of the human organism and recognising the consubstantial flows of medicine water into the human life flower.

Out of the district capital where climate change discourse works for career purposes among youth groups and NGOs, in the village orbit there appears to be renewed ritual interest around effects of desiccation and water precarity. Cantankerous and badly behaved subterranean spirits visit unpleasantnesses on humans transgressing on their patch of ground. Even in the exceptional global moment when children of Dalit families from Nepal are now migrant labourers in far off Malaysia, the Blacksmith family's non-human neighbour from the underground is deemed to be causing sickness all those miles away. Thus, concerns of water sources at risk lead to recognition and containment – a need to make an enclosure, and performatively exert some control over straying people, animals and gods in what is now termed the feral Anthropocene (Tsing 2016).

In the transformational spirit of collaboration and intimacy around our forms of enquiry and analysis concerning climate change, the question of human agency needs to be disaggregated from being viewed as a generic environmental threat (whether to do with GHG emissions, or biodiversity loss), and be given life and contextual vulnerability (Nagoda 2015) in the meaningfully lived worlds that have to be addressed, if indeed we are to change how things are. Rather than the default instrumentalist, rational choice version of human behaviour that Wynne (2010) sees as characteristic of a generic human subject, we can turn to ask how choices and the relational circumstances of making decisions are encountered along scales of fatalism, (mis)fortune and auspiciousness. The conditions in which acting to make a difference takes place should not simply aim to reduce scientific uncertainty but address the not-known extent of our uncertainty, through recording the idioms of the times we are living. As the woman *chauri* herder told me

her children lost to her, she doesn't know what to do in these times that are topsy-turvy, when even the chickens are brats!

Conclusion

Questions of the human dimensions of climate change need to be addressed for a variety of reasons. These include attending to the direct consequences of floods, droughts and the increasing unpredictability of environmental conditions that adversely affect the livelihoods of people whose understandings of these events do not generally share in the modernist cosmology of climate change. They bring us to question the unequal distribution of harm to different human communities that have hardly contributed to the causes of global warming at all. We need to see whether attempts to mitigate and adapt are effectively helping the poor or making life even more difficult for them. People in Nepal are encountering climate change within a set of struggles that are economic, ethnic and ontological. The human dimensions framing also takes us into thinking about how different human communities themselves make sense of what global discourse has stabilised as climate change. This is a particular construction that has come about through an epistemic genealogy of over 150 years (Schaffer 2012), and congeals sets of aggregate data concerning the bio-physical environment, which are there for us or our leaders to respond to.

This is a very particular elite discourse of power that a restricted set of the human community is analytically equipped to engage with and act upon. To participate in the conversation at all presumes some minimal scientific literacy, the ability to conceive of the bio-physical environment as an object of thought and management, and a notion of responsibility and power to realign collective values and environments. In their perspective piece on the limitations of the human dimensions as discussed in Global Environmental Change, Castree et al. write that '[human dimensions] science offers little or no sense of humans as diverse, interpretive creatures who frequently disagree about values, means and ends' (2014:764).

Instead of the objectivist bio-physical ontology of climate change, the notion of a sentient moral ecology better describes Tamang relationships with strange weather events, but the distinctive Himalayan setting of eco-cultural intimacies embedded within niche

differences puts that sentient ecology in opposition to other environmental discourses of sovereignty and power. State environmental actors are using science and policy of climate change to reposition their legitimacy after the substantial loss of control over rural society since the Maoist People's War, as was seen in the speech from former PM B. Bhattarai pleading for people-friendly climate adaptation. However, the new Nepal includes voices alert to new values of carbon.

Since REDD is related to the carbon trading for the mitigation and adaptation of the climate change, rights over any kinds of decision either to agree or disagree over the carbon trading of the forest should go to the indigenous peoples. (NEFIN 2014)

Looking at Himalayan climate change from the diversity of human dimensions breaks up the hold of global framings, and brings home the variety of ways in which people, and not just research institutes, are thinking of what climate change can do for them. In their own terms and their collective quandaries the Tamang people in Rasuwa are attempting new narratives of adaptive protection and solidarity with some of the humans and non-humans amenable to rebuilding old understandings of relationships in mutual connection. In response to unprecedented change, people are cherishing and indulging their animate local weather lords to be more favourably disposed to resident clusters of increasingly confused humans, contemplating the world their children will be responsible for. The causal and contingent movements of children out of the farming world connected with the changing climate of that world has hit home in a normatively transformational way. These dimensions of the human domestic habitats of climate change speak in terms that concur with Hulme's (2010) cautioning against any idea about returning to a climate of things as they were.

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