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Asian Symposium: Nepal and Himalayan Geographies: Driving the debate on sustainability, disaster and infrastructure

Organizers: Galen Murton, Katharine Rankin, Dinesh Paudel & Elsie Lewison

Geographers of Nepal and the Himalaya have been convening informally at AAG over the past two years to discuss common points of interest across different geographic subfields (physical geography, human geography, human-environment, GIS). The related themes of sustainability, disaster and infrastructure have emerged as both shared research interests for geographers of Nepal and the Himalaya, as well as key questions of global concern that can benefit from Himalayan perspectives.

The Nepal and Himalayan Geographies group invited proposals for short papers that stake out research directions and critical questions in Nepal and Himalayan geography at the interface of sustainability, disaster and infrastructure. The papers aim to clarify how critical conversations on Himalayan worlds can furnish insights on these key themes that will be of interest to wider communities of geographic scholarship.

KEYNOTE LECTURE

This Keynote Lecture by Dinesh Paudel followed two paper sessions and one panel roundtable devoted to the topic of Nepal Geographies and focusing on the related themes of sustainability, disaster and infrastructure.

Keynote: Dinesh Paudel, *Appalachian State University*

Discussant: Nanda Shrestha, *Florida A&M University*

Discussant: Katharine Rankin, *University of Toronto*

PAPER SESSION 1

How treelines from the Nepal Himalaya are responding to climate change?

Parveen Chhetri*, *California State University Dominguez Hills*

The treeline ecotone is the high-elevation limit of forests, commonly referred to as treeline, timberline, or forestline, and represents transitional vegetation zones between the closed continuous forest below and the treeless alpine zone above. The alpine treeline ecotone is an important component of mountain ecosystems of the Nepal Himalayas; it plays a vital role in the livelihood of indigenous people and provides ecosystem services. In Nepal, few extensive scientific studies have been carried out on the treeline area, but in recent years, there has been an increased interest in treeline research triggered by concerns about the climate change and potential shift in the high mountain vegetation zone. So far, dendrochronological and dendroecological studies on the treelines of Nepal have depicted some site- and species-specific treeline dynamics and influences of climatic and non-climatic factors in the ecotone. However, a proper investigation into the causes of treeline shift was necessary in order to fully understand the treeline dynamics in the Nepal Himalayas. In this paper, I will address the following research questions focusing on the Nepal Himalaya: What are the treeline positions, the species compositions, and the spatial patterns? What kind of structural change has occurred in the treeline ecotone? How will the habitat suitability of treeline species change in future climate change scenarios?

Crop Raiding from Community Forestry to Agriculture in the Mid Hills of Nepal: Implications to Community Forestry Sustainability

Rajesh Bista*, *University of North Carolina at Chapel Hill*
Conghe Song, *University of North Carolina at Chapel Hill*

Community forestry (CF) in Nepal has improved forest condition significantly and has become a key source of rural livelihood. As a result, Nepal's forest cover increased from 37% in 1986 to 45% at the present. Approximately 30% of Nepal's forest is under community management. However, there is no empirical study that assessed impacts of wildlife on crops/livestock with increase in forest cover and improvement of habitat quality because of CF. We adopted the coupled natural-human systems framework to examine the feedbacks to the human from natural systems. We carried out a survey with 215 households in 2018 across seven CF in the Kavrepalanchok, Nepal. We found that crop-raiding is one of the main reasons for agriculture-land abandonment. Study shows that 16% of cropland abandonment were solely caused by crop-raiding by wildlife. 39.9% of cultivated land-parcels have suffered damage from wildlife (mainly monkey, wild boar, porcupine), though the intensity is different among communities. More than 88% of the farmers perceived that the increase in forest stock in CF is the major reason behind increasing incidences of crop-raiding. Farmers from higher caste suffered most as they have comparatively higher amount of land holdings. Though Nepal government has formulated Wildlife Damage Relief Guideline 2069, none of the farmers has claimed for compensation for the crop-damage due to lengthy beaurocratic procedure. Moreover, monkey is not included within the government relief scheme. These findings suggest addressing these issues from policy level as well as recommends introducing wildlife conflict management measures in operational plan of CF.

An unquiet countryside: Power networks, legislation, institutions, and environmental governance in the Manas Tiger Reserve (Assam, India)

Dhananjaya Katju*, *Texas A&M University*

This paper extends the concept of environmentality through land use within and adjacent to the Manas Tiger Reserve (MTR) by the Bodos (a so-called tribal group) as a domain for the organization of both thought and action. It details how the category of being tribal mediates the gap between environmental legislation and its implementation through a socio-cultural and political process that justifies illegal occupation of MTR land. It demonstrates how the gap is enacted and maintained by both tribal and State institutions through an interactive process that enables the creation of a specific environmental subjectivity primarily benefitting the Bodo community through an alignment with a system that privileges conservation enclosures (World Heritage Site) over one that favors a human-environment system (biosphere reserve) approach. It facilitates Bodos in positioning themselves as protectors of the MTR landscape, enables an array of benefits for a minority of elite interests (political, governmental, and NGO), and focuses managerial efforts to a relatively small section of the MTR landscape (the core area) at the expense of a clear majority of the space (Reserved Forest blocks). The Bodos thus stand to gain from the governance system while actively occupying MTR land, illicitly extracting timber, and displacing non-Bodo communities from land parcels both within and on the fringes of Manas. The result is a contradictory domain that produces inconsistent environmental subjects who both participate in and reject the technologies of the State, thus straddling the gap between environmental legislation and its implementation.

Translation of Climate Smart Agriculture from global narratives to local realities: Lessons from Nepal Himalayas

Rajiv Ghimire*, *School for Future of Innovation in Society, Arizona State University*

Netra Chhetri, *School for Future of Innovation in Society, Arizona State University*

Agriculture sector has gained renewed global attention with the introduction of Climate Smart Agriculture (CSA) which aims to attain triple benefits of enhancing productivity, climate adaptation and mitigation. Driven primarily by global organizations, research on CSA are devoid of local perspectives. Our study explores how the idea around CSA has translated from global discourse to local practice and how implementing organizations at the local level innovate the idea as they move forward. Further, we also explore the aspirations of farmers regarding technologies associated with the CSA that are being practiced. Methodologically, this study involves semi-structured interviews with key officials of implementing organizations, visits of program sites, and interviews with participating farmers. Our findings reveal existence of different CSA models in Nepal. One most commonly promoted approach is the Climate Smart Village (CSV), introduced with the aim of increasing uptake of CSA technologies. While CSA technologies have remained largely same in all programs, each program differs in terms of implementation mechanism and priorities. The agencies who are currently implementing CSA programs have recognized challenge of achieving triple benefit, especially the mitigation part. On the bright side, all programs have emphasized issues related to gender, social inclusion and community engagement. In many cases focus has shifted from agriculture to other sectors. Although, CSA technologies introduced by various programs are not entirely new, they depend on how they are packaged and distributed. The adoption of CSA technologies is high among farmers incentivized by CSA programs and nominal among non-CSA farmers.

Glacial Floods, Infrastructures, and Sustainability in the Sagarmatha (Mt. Everest) National Park and Buffer Zone, Nepal

Milan Shrestha*, *Arizona State University*
Alton Byers, *University of Colorado, Boulder*

Sustainability is rarely a focus of the conventional response to glacial floods or other disasters risks in which the more urgent needs is often an emergency remediation strategy. A growing body of literature suggests that building “community resilience”—rather than a singular focus on a hazardous glacial lake or other natural hazards—is a more effective and sustainable solution. What would be the meaning of ensuring community resilience in high mountains like the Mt. Everest region? Communities in this region have lived through three major glacial lake outburst floods (GLOFs) and several smaller glacial floods, which seriously damaged their physical infrastructures. However, the societal response has been somewhat slow and complicated (e.g., lowering of glacial lakes, fear of flood), as communities have perceived with these “wicked problems” in a different way than scientists and disaster management agencies typically do. In this paper, we present some of the preliminary findings of our ongoing interdisciplinary study conducted in the Mt. Everest region, which focuses on a science-driven and community-based approach to reducing glacial lake outburst floods. Using a combination of quantitative analysis of household survey data and ethnographic techniques, we analyze the intersections of socio-cultural, economic and institutional factors with GLOF disaster risks in the region. We also discuss the potential role of “boundary institutions” in sustainable disaster risk management. Insights on how communities perceive GLOF risks and construct social memories can add tremendous value to the scientific assessment of GLOF risks, local risk mitigation strategies, and potential community resilience pathways.

PAPER SESSION 2

Complementary Roles of Civil Society in Disaster Relief Operations

Dikshya Devkota*, *Gorkha Foundation Nepal*

This paper analyses disaster response during the 2015 Gorkha Earthquake in Nepal and its immediate aftermath. There are multiple ways in which disasters are addressed globally. It focuses particularly on civil society engagement in supplying most essentials such as solar lights, tarpaulins, cooking utensils, and fuel in remote villages in Gorkha District. The present paper is an empirical inquiry that investigates a phenomenon within its real-life context into the management strategies in the circumstances of disaster and their impacts on Gender Equality and Social Inclusion (GESI). The paper is focused on post-earthquake relief and reconstruction efforts by civil society, such as NGOs in general and the author's involvement with the Gorkha Foundation at the time. GESI is articulated in the impact of the earthquake on females and various trajectories in the relief operation. Data were collected on the "lived experience" by the author herself during the operation, and from newspaper reports, the use of district level civil society networks of school teachers and volunteers. The author's experiences included activities and efforts based on transparency and accountability to avoid rent-seeking behavior such as price gouging. While the role of the security apparatus of the Government of Nepal was effective in immediate intervention, local civil societies were complementary by involving themselves in addressing tragedies occurring at the deeper level by understanding inherent specific needs of women in cultural and traditional roles. Heuristically, such narratives offer effective strategies for future relief operations.

Grappling with the Tyranny of Distance: Scuffles with roads, landslides, and sustainability in Nepal

Robert Beazley*, *Cornell University*

In the 1960s the first motorized route from Kathmandu to Tibet, named the Arniko Highway, was built with Chinese aid. In December 2014, a second route connecting Kathmandu to Tibet in Rasuwa, named the Pasang Lhamu Highway, was completed again with Chinese aid. In 2015, both routes were rendered impassable by the Gorkha Earthquake Sequence. Since that time countless machine and manpower hours and money have been spent on trying to rehabilitate both highways but seasonal monsoons have continued to force closures every year. While both highways are part of the Strategic Road Network and as such should have been well planned and constructed evidence suggests that their sustainability is not only in question but it also depends largely on foreign aid from China. Meanwhile rural roads, which require much less oversight, are expanding exponentially and are often impassible within several years of construction. In the Trishuli Valley (route of the Pasang Lhamu Highway) rural roads built by hydropower projects as part of their social responsibility to hydropower affected villages are largely designed and built as a result of local politics rather than sound mountain road engineering principles. This paper, based on ethnographic research along both highways in 2014-2015, explores how natural disasters can impact infrastructure and their sustainability. This research seeks to enliven and expand the discourse about infrastructure development, including roads and hydropower, and its sustainability within the context of natural disasters including earthquakes, landslides, and floods.

20 Decision-Aiding Transit-Tracker Methodology for Bus Scheduling using Real Time Information to Ameliorate Traffic Congestion in the Kathmandu

Keshav Bhattarai*, *University of Central Missouri*
Mahmmud Yousef, *University of Central Missouri*

Sunil Lama, *University of Central Missouri*

The bustling urban environment of Kathmandu Valley is characterized by unprecedented traffic congestion. Due to its bowl-shaped geography, gusty wind rarely swipes vehicular emissions from the urban atmosphere, making Kathmandu one of Asia's most polluted cities. Over 500,000 vehicles ply daily on over 1,600 kms of roads. Thousands of low occupancy vehicles are added each year to the urban public transit system (UPTS). Kathmandu faces worst and unreliable traffic from the current UPTS mostly with low occupancy vehicles. Around 4.5 million urban denizens, both permanent and transient residents, suffer from unreliable UPTS. Traffic rules and daily transportation schedules are rarely followed, resulting into frequent traffic jams and accidental disasters. Once experienced, visitors try avoiding UPTS. Tourism, annually contributing almost 8 percent to GDP, also suffers from poor UPTS. Planners, policy makers, and politicians (P-actors) are seeking ways to improve sustainable UPTS to ameliorate stresses to family life and working hours for the urban majority. Aiming to help P-actors, we propose a transport tracker model that uses real time information (RTI) in mobile phones and web-embedded devices to inform travelers, drivers, government authorities, and sub-admins. We argue that unreliability in UPTS motivates urban elites to add more low occupancy vehicles, which in turn reduces already shrunken urban spaces and contributes more per capita air pollution than multi-occupancy vehicles. Since mobile and smart phones are capable of utilizing RTI to inform various stakeholders, we argue that replacing low occupancy vehicles with multi-occupancy buses on main roads with fixed schedules would improve UPTS.

20 Heritage and its Discontents: Newar Urbanism and the Political Economy of Everyday Life

Sabin Ninglekhu, *Nanyang Technological University, Singapore*

Patrick Daly, *Earth Observatory of Singapore, Nanyang Technological University, Singapore*

Pia Hollenbach, *University of Zurich*

The proposed paper draws on an ongoing ethnographic research project that investigates the politics of rebuilding taking place in the traditional Newar settlements in the Kathmandu Valley. The research takes up the 'household' as a primary unit of analysis to broach the issue of how claims of community for the right to rebuilding according to the heart's desire come up against governmental programs seeking to institutionalize norms of 'heritage' that are coded into the rebuilding by-laws. While planning furnishes cultural preservation and economic revitalization as rationale for foregrounding 'heritage' in the rebuilding of private homes, such a mandate also creates economic challenges for ordinary households as heritage-centered design are expensive to build or restore. The research, as such, is located at the interface in which state-endorsed aspirational project of heritage confronts the everyday life of the ordinary filled with uncertainty. It is on this interface that this paper grapples with the following questions that may have normative implications for the field of planning, namely: What are the political-economic conditions of marginality that are reproduced through the cultural-spatial logic of 'heritage'? How do local households and community reframe their identity and re-enact subjectivity in response to the state-endorsed heritage rebuilding by-laws? And finally, how do the preceding questions reveal the dynamics of exclusion to enable progressive politics of inclusion?

Reframing disaster governance: Lessons from Nepal's 2015 20 earthquakes for inclusive and just disaster management

Krishna K. Shrestha, *University of New South Wales (UNSW), Sydney, Australia*

The Himalayan region is a global disaster hotspot, with the interlinked problems of poverty, inequality, climate change, and marginalisation, particularly affecting women, poor and indigenous communities. As disasters in the Himalaya have become frequent and building resilience is the pressing issue, current disaster governance approaches of 'building back better' are important but elusive, especially in learning from local and indigenous communities. Little work has been done to recognise and mobilise indigenous knowledge and practices of inclusive disaster resilience. Drawing on Nepal's disaster recovery practices in Gorkha, the paper investigates differential experiences of disaster by local communities and examines the question of how local indigenous communities relate to, and work with, governments, international agencies and non-government actors in responding to disasters in situations where the state is weak and politics is volatile, such as in Nepal, has received little attention. This paper highlights elements of the disaster justice and disaster management by reflecting upon the performance of the wide range of actors involved and distils lessons while the Nepali community, civil society and government continue their challenge of 'building back better' approach to disaster governance. The Nepal case provides important insights into the dynamics of 'building back better' in the presence of a largely unaccountable political system in which those affected are often disengaged from local politics and governance, hence the need for reframing disaster governance.