



Social production of vulnerability to climate change in the rural middle hills of Nepal



Prativa Sapkota ^{a, b, *}, Rodney J. Keenan ^b, Jana-Axinja Paschen ^b, Hemant R. Ojha ^c

^a International Centre for Integrated Mountain Development, Nepal

^b University of Melbourne, School of Ecosystem and Forest Science, Australia

^c University of New South Wales, School of Social Science, Australia

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ABSTRACT

This paper explores the social roots of rural communities' vulnerability to climate change, based on a field study conducted from 2012 to 2015 in the Panchkhal region of the Kavre district in the middle hills of Nepal. Drawing upon Bourdieu's concept 'field of practice', we identify three themes that are helpful to generate insights into the way vulnerability is socially produced in the hamlets of this region: social isolation, financial authority, and knowledge based supremacy exercised by the community elites and public officials. These factors operate to sustain social hierarchies and consequently constrain the long-term adaptability of marginalised groups. Three emergent adaptive strategies are also identified: human mobility, collective action, and occupational change. We conclude that vulnerability to the effects of climate change continues to be a largely socially produced phenomenon, shaped by complex interactions between social, cultural, economic and political processes happening in different places at different time scales.

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1. Introduction

Rural communities in the developing world are at high risk from climate change, and adaptation has become crucial in developing sustainable livelihoods (Parry, 2009; Smith and Wandel, 2006). Responding to this risk, climate change impact assessment and response discourses have shifted from a previous focus on vulnerability (Blaikie et al., 1994; Cutter, 1996; Sen, 1981) towards adaptation (Pielke, 1998; Smit et al., 2000). However, as we argue, work on adaptation still need to be informed by research into vulnerability, a complex phenomenon that varies among countries, regions and communities. Contemporary approaches to adaptation focus mostly upon proximate causes of vulnerability, for instance mechanisms of production, exchange and asset accumulation (Swift, 1989), and largely ignore the underlying causes of vulnerability (Ribot, 2011). Critical social researchers recognize the complex social roots of vulnerability (Blaikie et al., 1994) and the

contentious interpretation of these underlying causes (Ribot, 2014). Resonating in these studies is the need to understand the proximate and more underlying causes of vulnerability as we aim to enhance adaptation to climate change.

Among developing countries, Nepal is one of the most vulnerable to climate change (Maplecroft, 2011) due to the high rate of poverty, low level of development, high dependence on subsistence agriculture, and its mountain-based geographic location leading to greater impacts of increasing temperature and increasing exposure to climate risks such as Glacier Lake Outburst Floods (GLOF) (Agrawala, 2004; Eriksson et al., 2009; Ives, 1987). The Middle Hills region of Nepal is considered one of the most vulnerable parts of the country due to high topographical variation and a complex interaction of social, ecological, political and economic factors (McDowell et al., 2013; Shrestha et al., 1999). The presence of multiple ethnic and socio-economic groups, particularly resulting from a rigid caste system - means that more nuanced analyses and localised studies are required to understand climate change vulnerabilities in this region.

In this study we aimed to assess the causes of vulnerability in rural communities. We go beyond explaining the proximal causes of vulnerability - which is the prominent mode of vulnerability analysis in Nepal - to investigate how socio-cultural interactions,

* Corresponding author. International Centre for Integrated Mountain Development, Khumaltar, Lalitpur, GPO Box 3226, Nepal.

E-mail addresses: prativasapkota@hotmail.com, psapkota@student.unimelb.edu.au, prativasapkota@gmail.com (P. Sapkota), rkeenan@unimelb.edu.au (R.J. Keenan), jpaschen@unimelb.edu.au (J.-A. Paschen), h.ojha@unsw.edu.au (H.R. Ojha).

and deeply entrenched interrelationships among people, produce and reinforce vulnerability. We also aim to explain why and how different social groups in the community experience varying degree of vulnerability. We used Bourdieu's theory of practice (Bourdieu, 1972) as a framework of analysis. In order to simplify Bourdieu's language, we use the terms *cultural codes*, *social agent* and *dissonance* (Nightingale and Ojha, 2013) to correspond with Bourdieu's concepts of *Doxa*, *habitus* and *hysteresis*. By exploring these underlying causes of social difference, the paper demonstrates how multiple fields and subfields interact within the dynamic process of social construction to cause differential vulnerability of individuals and households in a community that ultimately affect the way they adapt. 'Social production' here is used here broadly as a cause and effect chain linkage among the social factors. This analytical perspective advances our understanding of why certain people become more vulnerable than others in the same locality, and also how communities' vulnerability conditions get worsened by underlying social structure and relationships. As such, this analysis also highlights the need to temper adaptation research with better understanding of social dynamics causing vulnerability to climate change.

The paper is organised as follows. An overview of contemporary trends in research on vulnerability in relation to limitations in policy and practice is presented in Section Two. In Section Three, we present the methodological approach and describe the study area. In Section Four, we describe how climate change impacts on people's livelihoods, the emerging adaptive strategies and how socio-cultural hierarchies and cultural codes affect adaptation outcomes in different parts of the society in the case study area. In Section Five we show how the social production of vulnerability is historically entrenched within the socio-economic differentiation in this particular society and discuss how and why these causes of vulnerability have been systematically disregarded in policy arenas. In Section Six, we conclude by linking our findings with existing theoretical knowledge.

2. Vulnerability – current knowledge gaps and framing in this study

The concept of vulnerability can be traced back to research on risks and hazards (Blaikie et al., 1994; Cutter, 1996), food security and famine (Watts and Bohle, 1993), and to development studies on coping by the poor (Chambers, 1989). Previous studies of social vulnerability utilized deductive and empirical approaches to strengthen the research proposition that differentiation in socio-political power exacerbates vulnerability at grass roots levels (Aryal et al., 2014). Likewise, studies (Becken et al., 2013) that recognize cultural dimension of climate change are limited to understanding perception of impacts in livelihoods. What appears of particular concern to scholars here is that marginalized people are more likely to be affected by climate change (Adger et al., 2001; Downing, 2003; Smit and Pilifosova, 2001) for multiple social, cultural, economic and political reasons (Adger, 1999; Jones and Boyd, 2011; Ribot, 2014). Moreover, interactions between these processes are occurring at different places and times, which makes the assessment of longer term vulnerability more complex (Ribot, 2010). This realisation has led to the application of grounded approaches to explore the underlying socio-cultural dynamics that lead to vulnerability.

Vulnerability to climate change has been studied in a variety of ways. The basic premise is that pre-existing conditions of any individual or household determines their capacity to anticipate and respond to climate change (Adger, 1999, 2006; Blaikie et al., 1994; Sen, 1981; Watts and Bohle, 1993). Another widely accepted inference across this body of work is that vulnerability is an inherently

complex phenomenon. For instance despite the realization that poverty exacerbates vulnerability (Adger et al., 2003; Eriksen and O'Brien, 2007), using economic condition as the only proxy of vulnerability is found to be a limited view. Because vulnerability is constructed through social, economic and political processes and their complex interactions (Blaikie et al., 1994; Ribot, 2010), deconstruction of those processes is a necessary step. Moreover, vulnerability studies can be incomplete if they do not consider the historical and spatial dimensions that underpin the causality of vulnerability (Ribot, 2014). Even those studies that recognize these dimensions (Ghimire et al., 2010) often do not provide an adequate account of the cultural politics of adaptation (Jones and Boyd, 2011).

Developing adaptation policy has been a priority in most highly vulnerable developing countries however adaptation policies generally do not recognise the cultural and historical constructs of vulnerability. These policies and strategies have predominantly been built upon the IPCC guide (IPCC, 2001, p995) that defines vulnerability as 'the degree to which a system is susceptible to or unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability is a function of the character, magnitude, and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity'. Previous vulnerability studies conducted in the Nepalese context have been dominated by this deterministic approach (Ghimire et al., 2010; McDowell et al., 2013; Pandey and Bardsley, 2015; Panthi et al., 2016). However, this approach has been criticized for overlooking non-climate related issues, thus restricting its ability to explore the social, cultural and economic causes of vulnerability (Hinkel, 2011).

Instead of relying on determinants and indicator-based assessments, more critical approaches have analysed the underlying social and cultural politics of vulnerability. Watts and Bohle (1993, p.46), for instance, define vulnerability as "multi-layered and multi-dimensional social space which centres on the determinate political, economic and institutional capabilities of people in specific places at specific times". This framing of vulnerability encourages a deeper understanding of the multiple social, economic and political processes at play across different spatial and temporal scales. It is more appropriate for Nepalese society which is characterized by a long-standing and deeply-rooted hierarchy (Regmi, 1999) manifested through wealth, class, caste and gender discrimination, and which potentially exacerbates the vulnerability of some communities and groups (Gentle and Maraseni, 2012; Jones and Boyd, 2011; Nightingale, 2011). However, despite offering a spatial-temporal account of vulnerability, this framing still lacks insights into how cultural politics underpins vulnerability. This study aimed to provide some new insights into how cultural dimensions affect vulnerability and adaptation of marginalized groups in rural areas of Nepal.

Our study was based on the ontological assumption that vulnerability is contextual (O'Brien et al., 2007) and is differentiated along socio-economic and cultural disparity lines. However, it is problematic to expect that respondents themselves associate their vulnerability with the differential power relations that operate at multiple temporal and spatial scales. By examining the situation using subjective analysis and abductive reasoning (Haig, 2005; Ong and Kok, 2012) we were able to better understand what determines vulnerability at a local level. In so doing, Bourdieu's theory of practice was used to link these subjective and objective forms of knowledge (Bourdieu, 1972).

Following Bourdieu (1972), constructing the field of practice (Fig. 1) was the methodological entry point. Field is the conceptualisation of unstructured reality into a structural context. According to Bourdieu, this makes delineation between different fields possible and manageable, such as the fields of politics, culture

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