

Author's Accepted Manuscript

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www.elsevier.com/locate/envdev

PII: S2211-4645(16)30313-X
DOI: <http://dx.doi.org/10.1016/j.envdev.2017.02.010>
Reference: ENVDEV338

To appear in: *Environmental Development*

Received date: 19 November 2016
Revised date: 25 February 2017
Accepted date: 27 February 2017

Cite this article as: Poshendra Satyal, Hemant Ojha, Krishna Shrestha, Bhaskar Vira and Jagannath Adhikari, A new himalayan crisis? exploring transformative resilience pathways, *Environmental Development* <http://dx.doi.org/10.1016/j.envdev.2017.02.010>

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A new Himalayan crisis? Exploring transformative resilience pathways

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Abstract

This paper demonstrates that a new crisis has emerged in the Himalayas in recent years, as five decades of well-intentioned policy responses failed to tackle escalating environment and development challenges. It then suggests some practical pathways for achieving what we term transformative resilience in the region. Our analysis draws on a critical review of literature, combined with individual co-authors' longstanding experience in the region in both research and policy arenas. We highlight how the neo-Malthusian *Theory of Himalayan Degradation* continues to shape simplistic responses to environment and development problems of a multi-faceted nature, in the vulnerable, complex and politicized contexts of the Himalayas. A key reason for this failure is an obsession with technical reasoning underpinned by the dominance of biophysical analyses of the problems, which have, in most cases, undermined the potential for emancipatory political transformations. The failure is visible in various ways: poverty remains, while environmental vulnerabilities have increased. Foreign aid has often been counter-productive and 'blue-print' development planning has been fragmented and dysfunctional. Likewise, livelihood opportunities and social capital have

seriously eroded due to unprecedented political crises, out-migration, abandonment of productive mountain lands and unregulated remittance economies. We term this phenomenon a ‘new Himalayan crisis’. In response, we argue for the need to open up a transformative agenda for integrating approaches to environment and development challenges, emphasizing an emancipatory multi-scalar politics that has the potential to open up sustainable pathways in the context of dynamic social and ecological changes in the Himalayas.

Keywords

New Himalayan crisis; environment and development challenges; natural disasters; climate change; transformative resilience; emancipatory politics; sustainable development

1. Introduction

The Himalayas have reappeared in the public imagination in recent years, with a series of unprecedented ecological, weather-related and geotectonic disasters that have highlighted the vulnerability of this fragile region. Recent disasters in the region provide a very visible representation of the types of challenges that the Himalayas are facing. In June 2013 severe floods and landslides in Uttarakhand state, India, and western Nepal led to casualties of over 1,000 people, destruction of properties worth millions of dollars and 70,000 people in India being displaced or rendered homeless (Kala, 2014; Cho et al., 2016). The rainfall pattern that led to such floods and landslides was associated with the predicted impacts of climate change on weather patterns in the Indian subcontinent, with record precipitation over a very short period of time. However, the event also revealed a lack of coping mechanisms and adaptive strategies. Initially, this was seen purely as a natural disaster, but subsequent discussions also revealed societal causes of the disaster. The most prominent amongst these were: the lack of

predictive capacity and early warning systems, unplanned urbanization and haphazard erection of infrastructure in risky locations and the construction of large dams and modification of natural waterways.

Himalayan institutions also appear to be becoming redundant in terms of coping with the increased vulnerability, as illustrated by another disaster in the Nepal hills in July 2014. A landslide (commonly known as ‘the Jure landslide’) in Sindhupalchok led to a death toll of over 200 people, washing away 400 houses, submerging two hydropower stations, and blocking 12 km of the Arniko highway, obstructing trade between Nepal and China (MoI/GoN, 2014). While the soil that slid from the mountains into the river was a result of slope instability and excessive rainfall (MoI/GoN, 2014), the damage to people and properties could have been reduced if such risks had been factored into development planning and management. This demonstrates the poorly developed institutional capacity to cope with the scale and intensity of disasters that are becoming frequent occurrences in the Himalayas.

Yet, another dimension of the new Himalayan crisis is the lack of Nepal’s preparedness for the well-known risks of earthquakes in the region. The country was struck by two major earthquakes on 25th April 2015 (7.8 magnitude on the Richter scale) and 12th May 2015 (7.3 magnitude) that killed 8,702 people, injured 22,493 and affected as many as three million people, with damage or destruction to their homes (NPC/GoN, 2015). Total losses from damage to property and income were estimated at USD 7.1 billion (ibid.). The government response was largely ineffective (Ojha and Shrestha, 2016), demonstrating an inability to implement prompt rescue operations, to assess the damage in rural areas and to coordinate national and outside support. International rescue operations were primarily concentrated in

urban centres, and aid agencies and humanitarian organizations were incompetent in executing comprehensive, coordinated and inclusive rescue and rehabilitation operations. Local communities and neighbourhoods, however, provided early and effective help in both rescuing the victims and helping each other for immediate assistance. The Government of Nepal continues to struggle to implement the rebuilding program going forward, despite a considerable international aid commitment (USD 4.1 billion), while earthquake-affected people continue to face further disaster vulnerability and uncertainty. This clearly shows the failure of institutions in dealing with disasters.

As a growing body of scientific evidence shows (Ives, 2012; Pandey and Bardsley, 2015; Aryal et al., 2014; Guthman, 1991; Cho et al., 2016; IPCC, 2014), the Himalayan region is facing an increasing level of uncertainty due to growing variability in climate change, natural hazards and (socio-environmental) disasters. Despite over five decades of research and development efforts, institutions in the Himalayas are still grappling with understanding the socio-geo-environmental underpinnings of the Himalayan challenges (see, Singh and Thadani, 2015). As a result, environment and development responses have failed to provide sustainable livelihoods and secure the safety of people, especially those who are socio-economically marginalized. Crucially, these responses have not been able to harness endogenous agency and support the transformational politics and policies needed to catalyse change.

Despite massive development efforts, poverty (especially in terms of human security and development), remains, while environmental vulnerabilities have increased. Foreign aid has often been counter-productive and 'blue-print' development planning has been fragmented

and dysfunctional. Likewise, livelihood opportunities from domestic resources and social capital have seriously eroded due to unprecedented political crises, out-migration, abandonment of productive mountain lands, and unregulated remittance economies.

Accordingly, there are questions on sustainability of livelihoods that are currently adopted, which are mainly supported by remittances sent by young adults working abroad. The prospect of inclusive development is also in jeopardy. We term this phenomenon a ‘new Himalayan crisis’. The aim of the paper is to, firstly, expose key facets of this new Himalayan crisis, demonstrating the technocratic basis underpinning it, and secondly to outline a transformational pathway to address the crisis.

Conceptually, the new Himalayan crisis is seen through an interdisciplinary lens, blending social and natural science perspectives. We argue for the need to open up a new and transformative approach to integrating environmental and development concerns in the Himalayas – with an emphasis on an emancipatory approach to decision-making processes. This should be achieved through a multi-scalar politics of development that is informed by a vibrant and critical politics of knowledge and its application (Leach et al., 2012; Ojha, 2013; Scott, 1998; Walker and Salt, 2006). The key themes and elements that are outlined in this emancipatory approach can inform critical debates around current policies and practices in relation to Himalayan development and sustainability. This approach requires ‘transformative resilience’, which is a process in which social and political relations are recreated so as to redefine the relationship between people and the environment in order to enhance the adaptability of the socio-ecological system (Leach et al., 2012; Stokols et al., 2013; Westley et al., 2011).

The paper is structured as follows. We first highlight a new Himalayan crisis characterized by a number of failed responses amid escalating environment and development challenges (Section 2). We review past and ongoing institutional attempts to address these challenges, based on dominant biophysical perspectives on the Himalayas, which have failed to respond adequately to the complex socio-ecological dynamics that characterize the region (Section 2.1). We suggest, instead, that these challenges are primarily rooted in social, economic and political complexities that can have compounded impacts on people's livelihood systems and the environment, leading to the emergence of a new crisis (Section 2.2). Finally, we suggest an alternative emancipatory pathway as an approach to move forward and tackle this crisis (Section 3). We conclude with some thoughts about the importance of this approach for researchers and development actors concerned about the growing fragility of the Himalayas.

2. Emergence of the new Himalayan crisis

It is more from carelessness about truth than from intentional lying that there is so much falsehood in the world (Samuel Johnson, 1778).

Since the publication of Erik Eckholm's *Losing Ground* in 1976, the problems and prospects of the Himalayas have featured in scholarly and policy debates around the world. Eckholm popularized the *Theory of Himalayan Degradation*, highlighting the link between population growth and mountain deforestation and soil erosion in Nepal, which were presumed to cause downstream flooding in India and Bangladesh. Eckholm (1976: 77) summarized the theory in the following terms:

Population growth ... is forcing farmers onto ever steeper slopes, slopes unfit for sustained farming even with the astonishingly elaborate terracing practised there.

Meanwhile, villagers must roam further and further from their homes to gather fodder and firewood, thus surrounding most villages with a widening circle of denuded hillsides. Ground-holding trees are disappearing fast among the geologically young, jagged foothills of the Himalaya, which are among the most easily erodable anywhere. Landslides that destroy lives, homes and crops occur more and more frequently throughout the Nepalese hills.

Since the 1980s, this theory has been heavily criticized on empirical, theoretical and ideological grounds (Thompson et al., 1986; Ives and Messerli, 1989; Metz, 1991; Ives, 2004; Ives, 2012; Blaikie et al., 2002; Manandhar, 2007). Some labelled it as overly Malthusian (Ives, 2004), as a myth (Metz, 1989), and as unsupported environmental orthodoxy (Forsyth, 1996, 1998). The 1986 Mohonk Mountain Conference on the 'Himalaya-Ganges Problem' highlighted that the theory was flawed if not completely untenable (Thompson et al., 1986; Ives and Ives, 1987; Ives and Messerli, 1989). In reference to the paucity of facts, Thompson et al. (1986) asserted that it was not a question of asking, "what are the facts?" but "what would you like the facts to be?". Similarly, Hamilton (1985) highlighted that the theory relied on Four Ms: Myth, Misinterpretation, Misinformation, and Misunderstanding. The journal *Mountain Research and Development* served as the main vehicle through which this debate unfolded in the 1980s and 1990s.

Ives and Messerli (1989) provided a comprehensive rebuttal of the theory in their book *The Himalayan Dilemma*. Their main arguments can be summarized as follows: (a) the only generalization that could be made about the Himalayas was that the region was too complex to permit generalization; (b) the poor mountain people had been wrongly identified as the

problem – rather they were an essential component, if not the main component, of the solution(s); (c) there was no single Himalayan problem and, therefore, no single solution; there were numerous problems and numerous potential solutions; (d) some of the uncertainty had been eliminated or reduced, yet additional uncertainty had been uncovered; and (e) the problems were not primarily environmental; they were socio-economic and, above all, political.

Building on several decades of work on the Himalayas, Ives (2012) wrote an influential article in the journal *Pirineos*, where he demonstrated the application of the principles of ‘mountain geocology’ to counteract the political and socio-economic impacts of the Theory of Himalayan Degradation. He reiterated that, although the theory was not based on reliable evidence, it remained disproportionately influential. Ives (2012: 44) summarized his views as below:

The broad sweep of our [Ives and Messerli] 1989 level of understanding had been largely substantiated. The Theory could be dismissed absolutely! Why then did it continue to attract extensive attention in the news media and to influence much mountain policy formulation? Perhaps a simple answer will suffice – we academics had failed to penetrate the news media and the international aid agencies; The Theory retained much of its elegant simplicity, intellectual satisfaction, ‘common sense’.

In earlier work, Guthman (1997) concurred with Ives’s view that the theory still appeared to inform many policies and programs of the government and aid agencies with many negative social, economic and environmental consequences. In this context, Ives (2012) further warns

that the application of broader panaceas based on this simplistic understanding that is widely prevalent within aid agencies and governments is likely to exacerbate the Himalayan problem.

While scholarly debates on the Himalayan region continue, focusing less on environmental degradation per se than on climate change, the Himalayas are going through unprecedented challenges of a multifaceted nature. The emergence of the new Himalayan crisis (as introduced earlier) can be demonstrated in two ways: 1) failed responses to the problems that have been primarily framed through a Western technocratic lens based on the basic premises of the Theory of Himalayan Degradation (and its subsequent adaptations); and 2) escalating challenges rooted more in the social, institutional and political life of the Himalayas than in its bio-physical context.

2.1 Failed responses

Over the past five decades, international environment and development agencies have consistently sought to understand and address the challenges of the Himalayas with a number of policies and practical experiments, but without any effective impacts on the livelihoods of local people or the mountain ecology (see Rueff et al., 2015; Blaikie et al., 2002; Ives and Messerli, 1989; Ives et al., 1987; Ives, 2012; Satyal, 2013 for a review of past interventions). We highlight five major reasons for such failed or inadequate responses.

2.1.1 Overgeneralization of the vast complexity of the Himalayas

The Himalayan region is large, diverse and much more complex than has been imagined in the Theory of Himalayan Degradation and its subsequent adaptations (Ives, 2012). It covers a

vast stretch of mountains extending 3,500 kilometres over all or part of eight countries from Myanmar in the east to Afghanistan in the west, covering an area of 3,441,719 square kilometres (if we include Bangladesh, Pakistan and Myanmar) (ICIMOD, 2012). It is also home to 210,530,000 people of diverse ethnicities, including many of the world's poor. The region is under diverse political regimes – such as China, India, Nepal, Bangladesh, Pakistan, Myanmar, Bhutan and Afghanistan – and is facing a changing regional geopolitics from the rising power of India and China. While the Himalayas as a region is not a political and ecological unit per se for the people who inhabit the region, it is actually a unit created and mobilized by the agencies who use a Western technocratic lens and promoted the notion for organising their research and development interventions in the region. The Himalayas are also not a uniform entity as it is sometimes considered; in fact, they encompass a range of variations in environmental, social and cultural terms (Singh and Thadani, 2015), with some basic elements and uniqueness, such as mountains, ice-fed river systems, remoteness, fragility and marginality, niche environment, and socio-ecological complexity.

2.1.2 Biophysical focus of mountain problems and solutions

Although the Himalayas have not received as much attention in various frontiers of research and development (e.g. funding, networking, capacity building etc.) as compared with other specific geographical hotspots (e.g. polar research), interest in mountain research and development can still be considered substantial. Nevertheless, mountain research efforts have failed to contribute to positive change, as they continue to have a biophysical focus, often with reductionist approaches to science (see Singh and Thadani, 2015 for an example of the limitations of science in contributing to polarized debates on hydroelectric projects). The entire history of research and development in the region has thus centred on fragmented

scientific approaches, such as checking surface soil erosion and managing vegetative cover as a source of mountain conservation (Ries, 1995). For example, the International Centre for Integrated Mountain Development's (ICIMOD) research mandate and budget have been more focused on understanding the geo-ecological dimensions of the Himalayas than active social and policy research. Consequently, the contribution of evidence-based scientific research to policy processes has been limited, as research and policy interventions often fall into siloes.

The Himalayas have a history of misguided research efforts, illustrated best by the Theory of Himalayan Degradation. As discussed earlier, the theory was a Himalayan myth based on a Western scientific construct (Ives, 1989; Ives, 2004; Ives and Messerli, 1989; Ives et al., 1987; Guthman, 1991; Bruijnzeel and Bremmer, 1989; Forsyth, 1998). Such a view was also perhaps bolstered by the popular Shangri-La imaginaries of the Himalayas that have still persisted in the minds of many (Satyal, 2013). The narratives of Himalayan science have changed, but without much effect on the way development agencies and national governments think about and act on the Himalayas. In that sense, how science can contribute has itself become a vexed question. While the dominant mode of science advocates rigorous research (e.g. socio-geo-spatial modelling) before actions can be taken with confidence, such approach ignores the urgency of action needed to save lives, such as through the use of existing practical wisdom.

It is to be noted that disasters follow complex geological-meteorological cycles and it is not easy to establish certain causal relationships between observable surface attributes and the likelihoods of such disasters. The topography of the Himalayas is uniquely characterized to have experienced unprecedented disasters both in temporal and spatial terms. The deaths of

many mountain people in such disasters, as illustrated by three cases highlighted at the start of the paper, have signalled a call for an end to the old wisdom that such catastrophes are just a result of natural systems or immediate human activity in the region. They are indeed a result of complex geological, ecological, social, cultural and political factors – all intersecting to create conditions of vulnerability, for particular groups of people and communities, as the impacts of such disasters fall more heavily on some than on others.

2.1.3 Depoliticization of development actions

By far attempts to bring modernization and sustainable development to the Himalayas have been technocratic, with external development agencies defining the problems, proposing solutions, and even incentivizing the adoption of solutions thus defined through foreign aid. As a result, research and development efforts in the Himalayas suffer from assumptions and misrepresentations, as they are often sponsored by non-Himalayan agencies that are disengaged from local politics and are focused on knowledge extraction.

Thompson and Warburton (1985) tackled the question of ‘knowing where to hit’ in the context of finding solutions to development challenges in the Himalayas and argued that the problems of people-land interactions in the Himalayas are multifaceted and are also represented differently by the variety of groups involved. Himalayan problems are ‘trans-scientific’, as no grand-design solutions work. As Thompson and Warburton (1985: 204) wrote:

To think in terms of ‘Development with a capital D’ when confronted by such a veritable patchwork of institutional heterogeneity, to speak of an ‘integrated approach

to environmental management and development planning' when faced with such a diversity of resource perceptions, and to call for policies to be considered in the 'global framework of the interrelated phenomena of a planned process of development', when the only frameworks that could tell you anything about the efficacy of a policy are those at the most basic level, is, we argue, to invite disaster.

There is a long history of scientific claims that development interventions have failed to achieve their intended goals, which have become a key basis to advance theorizing on problems and potential solutions in the Himalayas (Thompson and Warburton, 1985; Ives, 2004; Ives and Messerli, 1989; Ives et al., 1987; Blaikie et al., 2002). Yet, ironically, the same sets of scholars who take this perspective are engaged in doing research and making recommendations for international actors, thereby overlooking the local politics of change. While critical scholarship has warned that, "we cannot understand environmental problems if we do not incorporate the views of the multiple stakeholders who operate on a landscape" (Blaikie and Muldavin, 2004: 7), research institutions in the Himalayas continue to take 'rationalist or expert-led model' of policy-making.

Himalayan problems and development actions are highly political. The Himalayas, which are also described as the Water Tower of Asia (Schild, 2008), for example, can have downstream consequences across political borders in terms of water related disasters. However, the hegemony of the concept of 'realism' in international relations has led to transboundary issues being overlooked as the nation-state is emphasized in this concept as a unit and borders are considered opaque (Chakma, 2009). This focus will become obsolete in the management of resources, mitigation of disasters or in developing adaptation mechanisms for disasters. On

the other hand, local and regional politics have made it hard to foster transboundary collaboration. This is particularly so in view of the historical strains in the relationships among the South Asian nations (Chakma, 2009). Although changing regional geopolitics with the rising power of India and China provides new hope for cross-scale collaboration and economic cooperation in the sustainable development of the Himalayas (ICIMOD, 2012), it still remains a distant dream. As Ives (2004: 249) pondered:

I believe that there may be a way out of the encroaching crisis, although it will be long and arduous; sustained stability and prosperity for all may be a utopian dream. Yet, for millennia the Himalaya have been a source of inspiration and they are part of the world's priceless natural and cultural heritage. The security of a very large proportion of humankind may be determined on how the resources of the Himalaya are managed.

2.1.4 Sectoral and institutional fragmentation

Another critical issue contributing to failed responses is sectoral and institutional fragmentation and a lack of recognition of the nexus between water-land-energy-livelihoods and politics. Those individuals and institutions involved in research and development work on the Himalayas often bring disciplinary and sectoral bias based on their focus, expertise and strength. As a result, the knowledge they produce and the policy prescriptions they propose become fragmented and disconnected. Such fragmentation also reflects disconnected and layered policies by government agencies, which tend to hold particular agendas and have no incentive to collaborate (Rueff et al., 2015; Forsyth, 1998). Due to the lack of an interdisciplinary approach, and the dominance of a monopolistic hard science and bureaucracy-heavy policy-making culture, research and development activities often fail to

understand and address the interrelated nexus among water-land-energy-livelihoods and politics, and thus Himalayan challenges go unabated.

There is also a lack of cross-scalar linkages in relation to research, development, politics and civic mobilization, all of which have mono-scalar tendencies. Multi-scale language is limited to some social science work and it is not really a matter of concern among policy makers.

2.1.5 Faulty policy prescriptions

Failed responses are also due to faulty policy prescriptions arising from a lack of consideration of critical socio-ecological systems such as watersheds and landscapes.

Understanding critical and complex socio-ecological systems such as the Himalayas, and formulating policy responses to address the challenges the region faces, require holistic and integrated approaches (cf. Berkes and Folke, 1998). Research and development efforts in the Himalayas have often overlooked the importance of considering wider socio-ecological systems (consisting of a bio-geo-physical unit and associated social actors and institutions), which have also contributed to flawed or inadequate diagnoses of the problem that have thus resulted in failed responses to address the crisis. Related to this are also the politics of foreign aid and the tendency of blueprint planning through Western agencies, as the Himalayas have often been the playground of development experiments (Shrestha, 1997; Satyal, 2013).

2.2 Escalating challenges

The emergence of the new Himalayan crisis is also fuelled by the escalating environment and development challenges in the region. The changing climate and development trends have a

profound impact on the ecology and society of the complex Himalayan system. We identify five critical challenges facing the Himalayas.

2.2.1 Severity and frequency of climate related disasters

Climate change, climate variability, and disasters have become more pronounced in recent years (Cho et al., 2016; IPCC, 2014). Projections of the impacts of climate change in the future are concerning, albeit with contested predictions on the fate of the Himalayas owing to the complexity of the earth's biophysical processes and limits of human knowledge, computer simulations, and climate science itself (Singh and Thadani, 2015; Schiermeier, 2010; Panday and Bardsley, 2015; Petley et al., 2007; Shrestha et al., 2012). With the third largest ice mass on the planet, and supporting about 1.5 billion people in South Asia alone (including some of the world's most disadvantaged groups), the Himalayas have once again become a hotspot of socio-environmental crises. As discussed earlier (Section 1), various catastrophic disasters (floods, landslides and other natural calamities) have frequently hit the region, with a death toll of thousands of people each year. The Himalayas are an tectonically active zone and are prone to geological catastrophes (Avouac et al., 2015), as evident from the recent major earthquakes in Nepal and Pakistan/Afghanistan.

While climate science has now established the effects of climate change on the Himalayas and is presenting uncertain future scenarios, the societal roots of the crisis have become chronic, with additional dimensions unfolding in recent years. National governments in the region have formulated plans and policies for sustainable development on a piecemeal basis and there is a sense of dissatisfaction at the local levels resulting from a disjointed approach to Himalayan development. More importantly, differences across the Himalayas continue to

fuel tensions and instabilities. Climate risks and “vulnerabilities do not just fall from the sky” (Ribot, 2009), and some development policies and practices coupled with existing social differentiation in the Himalayas (Satyal, 2013) exacerbate the effects of hazards on the society and environment, and distribute the risks differentially across society.

2.2.2 Prevalance of poverty and socio-economic marginalization

Poverty, marginalization and socio-economic disadvantage continue, fuelling conflicts and political instabilities in certain contexts (see Guha, 1989 for an early example of peasant resistance in Indian Himalayas, and Adhikari, 2014 for a decade-long Maoist conflict in Nepal). Although reducing poverty and removing inequalities are regular policy rhetorics of the national governments, complex deep-rooted problems of engrained poverty (with a widening gap between the rich and the poor), unequal access to and control over power, resources, opportunities and decision-making, and social exclusion and discrimination, have persisted in the region. The pervasive sense of deprivation and inequality among mountain dwellers has led to conflicts and civil war (such as in the Nepal Himalayas, some parts of the Indian Himalayas, the Pakistani part of Kashmir, mountainous areas of Afghanistan, and parts of Tibet in China) and can also cause political instability and the failure of effective governance.

2.2.3 Unplanned development and haphazard urbanization

Unprecedented urbanization and penetrating glocalization is affecting resource management, livelihood choices and people’ dependencies in relation to nature and places (Mishra, 2013; Adhikari and Bohle, 1999). South Asia is among the fastest urbanizing regions and much of the urbanization is taking place without proper planning and public policy regulating the

process. As a result, land ownership is becoming fragmented, and productive agricultural land is being abandoned in the villages and being used for rapid building in the cities. Rapid urbanization and haphazard globalization/glocalization on agrarian political economy base of the Himalayas have not only affected people's livelihood choices, but also brought negative impacts to local cultures and nature (see for example, Gurung, 1992; Gartaula et al., 2012; Maharjan et al., 2012).

2.2.4 Limited livelihood options and out-migration

Despite substantial mountain development interventions, there are inadequate livelihood opportunities, with an emerging trend of male-specific out-migration. Development efforts in the mountains through some government and international aid projects have appeared to be less effective and largely anecdotal which instead created dependencies by stymying the emergence of local innovations. Mountain people (particularly working age males) are moving for jobs and employment to cities and foreign countries, leading to an unprecedented change in social, economic and cultural domains (Adhikari and Hogley, 2015; Sanders and McKay, 2014; Gartaula et al., 2012; Maharjan et al., 2012; Adhikari et al., 2006; Seddon et al., 2002). This is being catalyzed by a silent revolution of communication and mobile technologies. As society gets more differentiated and dispersed (with a majority of females, ageing and younger populations at home) while able-bodied men seek alternative livelihoods elsewhere (such as in bigger cities or abroad in Gulf states), questions of development now have to confront the challenges of enhancing adaptive capacity and resilience amid increased vulnerability to disaster risks..

Moreover, mountain areas in the Himalayas have not benefitted much from the money and skills earned by its residents through working elsewhere (abroad or in bigger cities). For example, although remittance contributes approximately 29 per cent to Nepal's Gross Domestic Product, there is little evidence to suggest that the money is being circulated into or invested in the development of mountain areas (Sanders and McKay, 2014; Maharjan et al., 2012; Adhikari and Hobley, 2015). Remittances have rather been invested more in consumption, causing the imports of goods and services to rise rapidly. In some cases, the shortage of labour caused by out-migration and use of remittances for the import of goods and commodities, have led to a tendency towards luxury lifestyles, a decline in local production, a shift away from existing food habits based on local foods, and consequently leading to a decline in agro-biodiversity and diversity in food consumed (Gartaula et al., 2012; Maharjan et al., 2012).

In addition to the significant scale of out-migration due to inadequate livelihood opportunities within their communities, there are other patterns of modernization that have increased migration. For example, unbalanced development and gaps in growth, especially between rural and urban areas, is leading to rapid rural to urban migration (Roy et al., 1992; Iversen, 2006). Urban areas have become unsustainable with the growing presence of ghettos and slums. Poor urban planning along with this increase in unplanned settlements has increased the risks of disasters like floods in urban areas and earthquakes (Sanderson et al., 2016). Migration has also increased vulnerability to disasters resulting from various natural and human causes, and one of these is a result of climate change. For example, the number of people displaced by climate-related and extreme weather events within South Asia in 2011 were 3.5 million (ADB, 2012).

2.2.5 Democracy deficit at the local level

Local democratic spaces are squeezed despite the proliferation of community based and participatory development initiatives. While there has been an increase in the number of community based and participatory development initiatives in the Himalayas in recent years, such activities have limited impacts in terms of providing true forums for democratic deliberations and debates. In fact, local democratic spaces have been further squeezed with ‘tyrannies of participation’ (cf. Cooke and Kothari, 2001) and external actors (private companies, state agencies, international non-governmental organizations) imposing their own agenda and plans in the region. In some cases, bolder forms of patronage politics and elite capture at the local level have aggravated the problem. For example, in Nepal, the lack of locally elected governments for at least 19 years or so has been replaced with a series of different ad hoc arrangements (handing authority to bureaucrats, unelected political elites, or an all-party mechanism), eroding a functional democratic space to influence local decision-making (cf. Ribot 2016).

3. Towards transformative resilience

Given the escalating challenges in the Himalayas, and failed responses to address them, there is a need to think of a transformative approach, both in terms of resilience and development (Leach et al., 2012; Stokols et al., 2013; Walker and Salt, 2006). While there is a long tradition of multi-scalar governance of the natural resources, what remains lacking is an explicit recognition of the need for emancipatory politics across scales. We highlight five aspects that are critical for emancipatory multi-scalar governance.

3.1 Embracing politics of knowledge

It is important to recognize and promote the politics of knowledge as an essential and unavoidable process across a range of aspects, including gender, culture, political stakes, science and common sense, ideologies and practices. The real possibility of change lies beyond the formal systems of knowledge produced in the name of ‘science’. In fact, “innovative knowledge institutions and partnerships are needed...” (Bawa et al., 2008: 136). It is also timely to see politics both as a problem and a solution. If politics continues to remain unresponsive, science alone cannot address Himalayan challenges. A new vision of change must start from the recognition of messy politics and associated challenges of governance. This also calls for better reengagement between those who want to understand the world (i.e. researchers) and those who want to change it (i.e. activists, practitioners and policy makers). In that sense, more concerted efforts are needed towards inter- and multi-disciplinary research, emphasising social and ecological systems as coupled systems (Berkes and Folke, 1998; Walker and Salt, 2006; Forsyth, 1998). However, little is known about how this can occur in real world scenarios. As Ives (2012: 59) argues, “yet even as the natural and social and environmental sciences become increasingly integrated amongst scholars, ... how can this be transferred into the decision-making process?” For this, it is necessary to move away from decontextualized epistemological practices and technocratic fixes that are often pursued as development and management actions in the Himalayas.

The possibility of emancipatory governance can be harnessed by drawing on practical wisdom, which can be found in the institutions of state, civil society and business, all of which have mastered various forms of knowledge to navigate complex dynamics in problem-solving mode. For example, district level disaster committees in Nepal have accumulated rich

experiential knowledge in understanding and responding to disasters. Revitalization of local democratic forums can be crucial pathways, while also institutionalizing such knowledge at local levels.

We also need to engage with the politics of knowledge about the problems and solutions while understanding the social and ecological complexity of the Himalayas. Until now, truths about the Himalayas have been produced by a small community of scholars drawing on Eurocentric epistemology and visions of change. The study of the Himalayas has been a fascinating topic for external observers, while the views and visions of the diverse cultures from the region have hardly been represented in planning and governance practices. We need to promote three different forms of knowledge simultaneously: (a) hard science, (b) soft institutional memory and experience of organizations and actors, and (c) indigenous knowledge. Central to these is gender analysis and feminist epistemology of understanding problems and exploring visions of progressive change (cf. Anderson, 2004). This is particularly important, as a large number of working-age males are out-migrating from the Himalayas, leaving behind all the farming responsibilities to women including the task of responding to the increasing climatic variability and sudden disasters. There is thus a need to acknowledge the special roles and knowledge of the mountain women who are shouldering numerous tasks in the changing context, often crossing traditional cultural boundaries. In addition, the practical wisdom of local communities should not be equated with a romantic view of indigenous knowledge (Berkes and Folke, 1998; Walker and Salt, 2006), which can be far too inadequate and partial to understand and explain complex dynamics in the Himalayas. Empowering the people living in the marginal and most fragile locations, particularly socially and culturally marginalized groups, can also expose new and unexplored

forms of knowledge.

3.2 Transcending institutional boundaries and interests

It is important to recognize that the possibility of innovations and change lie not in continuation of institutional pathways and boundaries, but in the way multiple institutions interact. As Thompson and Warburton (1985: 204) argued, the alternative to grand-design solutions is to:

retain and respect all these different perceptions by untangling some standards of the web of interrelationships that support them...and much can be learned from interacting with institutions as they now exist and from monitoring the momentum of the particular processes that have led to the present institutional configurations.

Besides change in thinking, modalities and practices of institutions, it is also imperative that scientific communities engage more actively with policy makers so as to enrich the policy process with evidence-based research. As Blaikie and Muldavin (2004: 7) rightly caution, “policymakers may continue to rely on environmental and political narratives (usually of blame) that have been refuted by reputable new research, and may find it difficult to evaluate and act upon new scientific information, especially if it comes from outside the policymaking elite”.

3.3 Enhancing local democracies

It is critical to strengthen local democracies in the Himalayas through effective decentralization and transfer of authorities to locally elected bodies (Ribot, 2016), while at

the same time fostering multi-scalar democratic politics for effective upward political articulation and downward accountability. There should be a nested approach in research and development interventions with an emphasis on multi-scalar governance and democratic politics (Satyal and Humphreys, 2013; Ribot, 2016), linking decentralized local structures with higher-level institutions that are transparent and accountable to their activities and intentions. Yet, a key question remains about the politics of scaling, as knowledge dissemination and political articulation often take a top-down approach and influence local activities. Similarly, there is no mechanism to inform activities at higher levels from learning at the local level. In that regard, alternatives can still be explored amid the diversity of governance regimes found in the Himalayas, with a focus on democratic governance and capacity strengthening of local institutions and decision-making processes so as to foster critical, adaptive and interactive governance approaches. In this case, one needs to learn how marginalized communities have been organizing and adapting to link knowledge and activities at different scales. Specific examples of the Federation of Community Forestry Users Groups and the National Land Rights Forum in Nepal, and the National Slum Dwellers Association in India, which span governance scales, can illustrate how local and higher levels can be transcended for action and knowledge generation. Similarly, the role of agencies like ForestAction Nepal and the Community Self-reliance Center in Nepal, and The Society for the Promotion of Area Resource Centers in India, can be illustrative of how knowledge-based institutions can work together with people and their organizations across scales, and generate knowledge from action of the rights-holders (see Ojha, 2013 for Nepal).

3.4 Engaging multiscalar deliberations

It is imperative that deliberative planning be employed across multiple scales (both in temporal and spatial terms) within a country and across the countries in the Himalayas to harness both domestic and transboundary challenges and opportunities. Short-, medium- and long-term planning and visions are required to address the current and future challenges in the region. For this, individual nationstates in the Himalayas have more pro-active and supportive roles to play. A collaboration of government, people-operated organizations (such as the community forestry groups and their associations and community irrigation management groups), regional intergovernmental organizations and development partners is important to generate practice-based knowledge and inform policy-making. Accordingly, the mandates of these institutions also need to be changed so that they can adapt a framework of networking and deliberative policy-making informed by critical action research on the ground.

3.5 Fostering critical learning

There is also a need to focus on a critical social learning approach to test, experiment with, and innovate operational and governing frameworks (Huitema et al., 2009), spanning mountain development and environment sectors. Research and development initiatives should pay attention not only to evidence-based findings of formal research, but also to indigenous knowledge and practical wisdom. For this to happen, local researchers are required. Hence, the capacity of local people and researchers needs to be strengthened (Singh and Thadani, 2015; O'Brien, 2012) so that they not only challenge dominant presuppositions guiding development practices but also generate independent knowledge within the region. In

that sense, a new mindscape – consisting of local researchers and mountain people and embracing new ways of thinking and acting – is needed to tackle the new Himalayan crisis. Possible solution pathways can thus be found in locally grounded works in parts of the region that can reconnect research, practice and policy on the Himalayan agenda.

4. Conclusion

The Himalayas offer opportunities to comprehend multifaceted environment and development challenges in a complex mountain system. Insights gained from the experience of the Himalayas can also be useful in understanding and dealing with the challenges of similar socio-ecological systems elsewhere. In this paper, we have recast a new Himalayan crisis in the face of changing climate, development trends and persistent socio-political failures in representing and addressing the crisis in ways that lead to resilience and improvement of mountain ecosystems and the livelihoods of the people in the region. Using an interdisciplinary lens, we critically reflected on current practices and responses and demonstrated that these are based on flawed assumptions, with a limited role of deliberative processes for multiple actors at different levels. A key challenge lies in the methodological approach to linking science with policy. Institutional locations of research and development agencies also matter – with increasing need for transformational development practices, beyond the legacies of post-colonial development. We highlighted some important strategies and issues, including the politics of knowledge, crossing institutional boundaries, cross-boundary collaboration, and multi-scale interactions. Most importantly, there is a need for locally engaged policymaking and strengthening of local institutions for evidence-based decision-making. Attention to meso- and macro- level institutional dynamics is also important for research and development interventions, thus going beyond the nation-state and

the local community. Also important in this aspect is a new form of research and development cooperation based on the emancipatory and transformative pathway that we have highlighted, involving more deliberative, demand-driven, outcome-oriented, locally empowering and innovative efforts. An interdisciplinary and interactive approach to research that incorporates both social and natural sciences as well as the local wisdom and scientific knowledge is required for understanding complex mountain socio-ecological systems and more collaborative efforts are required for managing the environment and development challenges of the Himalayas. Events like the Uttarakhand floods, Jure landslide and Nepal Earthquakes are likely to happen again, but their devastating and disproportionate effects can be minimized if environment and development is planned differently i.e. taking a more integrated and just approach. There is also a need for more deliberative and cooperative politics, crossing the geopolitical boundaries of the Himalayas.

Acknowledgements

We are thankful to Jessica Budds, Dinesh Paudel, Basundhara Bhattarai and two anonymous reviewers for their valuable feedback and comments on the paper. We also benefitted from useful discussion and interactions with Andrea Nightingale and the participants of the Future Himalaya Dialogue in Edinburgh, 23-24 May 2016.

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