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## Understanding Resilience in Climate Change and Conflict Affected Regions of Nepal

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*In the face of global climate change, strengthening community resilience becomes increasingly important, especially in conflict affected countries with fragile governance. Nepal is such a country, recovering from a decade of civil war while facing several climate and environmental risks, including floods, droughts and landslides. We aim to contribute to the understanding of resilience building by drawing on case studies from Banke, Dang and Rolpa districts in Nepal. To compare the resilience of the districts we conduct field research. None of the analysed approaches to strengthen the resilience are without unintended consequences. The provision of rice in Rolpa increases food security but also creates local preferences for rice that cannot be met sustainably. In Dang and Banke aid resources themselves have become a source of conflict. We conclude that a more holistic understanding of local realities is needed to minimise unintended effects and strengthen resilience under challenging governance and (post)conflict conditions.*

### INTRODUCTION

Driven by increased concern about the implications of climate change on national and international foreign policy agenda, climate change impacts on conflict have increasingly entered the agenda of donor agencies and development organisations. Whilst geopolitical implications of climate change are broad, ranging from implications on population change and demographics,

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the food-water-energy nexus, and climate related movements of people, the focus of policy and research has been on climate and conflict. In his speech of the Nobel Peace Prize, US President Obama warned with respect to climate change “that if we do nothing, we will face more drought, more famine, more mass displacement, all of which will fuel more conflict for decades”.<sup>1</sup> The influential German Advisory Council on Global Change produced a report in 2007 which identifies “hot spots” of “security risks associated with climate change”.<sup>2</sup> The underlying fear expressed in several reports by think tanks in developed countries is that climate change will destabilise already fragile countries which in turn result in increases of “mass migration” which “add to global tensions”<sup>3</sup> and hence become a geopolitical concern.<sup>4</sup> One of the key responses to such geopolitical concerns is to stabilise climate affected countries through increased foreign aid. However, there is a risk that foreign aid contributes to unequal access to resources and mal-adaptation if the aid is disbursed in a context and conflict insensitive manner.

The academic literature on climate change and conflict is dominated by large-n studies that predominantly aim to establish or refute causality between climate change and conflict with state involvement.<sup>5</sup> These studies are of limited use from a peacebuilding perspective as they provide no insights into why there may be a correlation between climatic and conflict variables. Hence, entry points to disrupt potential climate-conflict relations cannot be derived from large-n studies.<sup>6</sup> So far, only qualitative field-based studies<sup>7</sup> have drawn on the wide literature on human security<sup>8,9</sup> to address the complexities between climate change and conflict.<sup>10</sup> However, in this paper we do not aim to review the literature on human security but rather point to the weaknesses of the climate-conflict literature and then contribute to the understanding of resilience in regions affected by climate change and conflict.

Research and subsequent policy responses need to look beyond the general environmental impacts to address the dimensions of resilience, in particular, understanding the knock-on consequences of development interventions on resilience in communities affected by climate change, and addressing failures of governance which limit resilience. And given that resilience exists at multiple levels, from household to state, the analysis also needs to be done at the subnational level while understanding the relations to the wider national and international context.

Resilience is understood as “the ability of households, communities and nations to absorb and recover from shocks, whilst positively adapting and transforming their structures and means for living in the face of long-term stresses, change and uncertainty”.<sup>11</sup> Whilst this is necessarily a broad and multi-faceted concept, the breadth and complexity are necessary to adequately reflect the inter-linkages and feed-back loops within the risk landscape of the conflict affected contexts we are studying. This entails

going beyond the hydro-meteorological impacts of climatic and environmental change to include their interactions with non-physical (socio-political and economic) factors. To understand resilience in climate change and conflict affected regions of Nepal we thus need to understand the interconnectedness of different risks and how these differ between individual, community and national layers. Given the dominance of national level analysis in the existing literature on climate change and conflict, in this paper we focus the analysis to understanding the specific components of household and community resilience and how this fits with national post-conflict dynamics.

Nepal is particularly well suited for studying these interactions. While the country has contributed very little to global climate change, Nepal is ranked as highly vulnerable to climate change and natural disasters.<sup>12,13</sup> Both the WBGU and the Center for Naval Analysis identify Nepal as a country with strong security concerns related to environmental risks. Several international institutions classify Nepal as a “fragile state”.<sup>14,15,16</sup> For institution building in Nepal see<sup>17,18,19,20,21</sup>. Further, Nepal is characterised by a high level of aid dependency. Between 2002 and 2011 Nepal received 6.9 billion USD in official development assistance (ODA). In 2009 the equivalent of 6.6% of its gross national income (GNI) was given to Nepal in ODA and in 2011 the country was the 35th largest recipient of ODA.<sup>22,23</sup> In addition, many of the factors, including unemployment, poverty, and rural-urban inequality, identified as critical for eruption of the civil war, still exist in Nepal.<sup>24,25,26</sup> For example, income inequality (Gini index of 32.8) and poverty levels (25% of the population live with less than 1.25 USD per day) are still high.<sup>27</sup>

The cessation of the decade-long civil war (1996–2006) and the signing of the Comprehensive Peace Accord in 2006 between the Government of Nepal and the Maoists signalled the end of large-scale violence, the re-establishment of competitive multi-party politics, the end of the monarchy, and the beginning of the Maoist’s transformation into a political party.<sup>28,29</sup> However, the period from 2006 to the present has been characterised by political instability and frequent civil unrest.<sup>30,31,32</sup> The results of the long-delayed Constituent Assembly elections which took place in November 2013 are still disputed and the process of writing a new constitution is causing considerable political contestation.

Nonetheless, Nepal has achieved significant progress since the end of the civil war. Between 2006 and 2012 the gross domestic product (GDP) has more than doubled to about 19 billion USD. Personal remittances account for about 25% of the GDP. The Nepali state managed to almost quadruple its tax revenue between 2006 and 2012.<sup>33</sup> This shows the operational capability of the Nepali state. On the other hand, corruption is a central problem in Nepal as a corruption perception score of 31 (rank 116 out of 175 countries) shows.<sup>34</sup> Citizens’ trust in Nepali institutions varies from quite high for local

government institutions, including village, town and district committees to much lower levels for courts, civil services, the parliament and the central government.<sup>35</sup>

Against this complex and dynamic context, this paper aims to contribute to understanding how resilience to climatic and environmental change can be built in regions characterised by political and social instability, and explore the ways in which existing adaptation strategies contribute to building resilience to the linked risks of climate change, poverty and conflict.

To achieve this aim we draw on case studies from three districts in Nepal. Each district was selected based on the different levels of climate vulnerability and socio-political stability they face. Dang was strongly affected by the conflicts between the Maoists and the Royal Nepalese Army. Currently, politically fuelled ethnic violence pose a significant risk to community security which in turn limits community resilience. Banke is a major urban centre and administrative and commercial hub for the Mid-Western region of Nepal. As such Banke enjoys a higher service provision. But the district is affected by high rates of criminality and ethnic tensions. The remote, mountainous district of Rolpa was a flashpoint during the civil war, but it is now significantly more stable. Generally, high levels of poverty and water scarcity limit community resilience.

After we have briefly contrasted the academic and the practitioner's approach to the climate change and conflict nexus (section 2), we describe the methodology (3), including the conceptual framework, research region and data collection. We then present the results and discuss them (4). We describe the environmental exposure, the main adaptation strategies and the factors weakening resilience. Against this background we reflect on how governance and non-governmental institutions affect the resilience of local communities (5). The last section (6) concludes with general recommendations on how resilience can be strengthened under conditions of fragile governance and socio-political instability.

## APPROACHES TO CLIMATE CHANGE AND CONFLICT

The aim of this section is not to provide a comprehensive review of the climate change and conflict literature as we and others have done this recently.<sup>36,37,38</sup> Instead we give a broad overview pointing particularly to the weaknesses of the literature against which we stress the importance of integrating resilience into the analysis.

The policy-orientated literature, primarily written by think tanks and non-governmental organisation, mostly discusses the implications of climate change from a security and governance perspective<sup>39,40,41,42</sup> while the academic literature on climate change and conflict can broadly be divided into two methodological strands. The first strand uses qualitative methods

to analyze potential linkages between climate or environmental change and conflict based on empirical case studies.<sup>43,44,45</sup> These studies aim to capture the multi-causal and complex links between climate change, insecurity and governance, mostly on the local level.<sup>46,47,48,49,50,51,52,53,54</sup> Here, the question at the heart of enquiry is “how do you adapt to climate change in fragile contexts”.<sup>55</sup> The second and currently dominant strand uses quantitative approaches based on large-n studies to correlate climate, conflict and potential intermediate variables such as income.<sup>56,57,58,59,60</sup>

One can certainly criticise the methodological limitations of these studies. For example, many rely on weather events as a proxy for climate change<sup>61,62,63</sup> and equally reductively understand insecurity as the incidence of armed conflict.<sup>64,65</sup> However, a more significant criticism is that, despite the greater relevance to policy and programming, the academic literature does little to identify and address social, economic and political risk factors in the face of climate and environmental change and variability. A significant proportion of the climate and conflict articles simplify or aggregate social factors in a way which is overly reductionist for the subject matter.<sup>66</sup>

One reason for the divergence between large-n studies and defence and intelligence analyses relates to the changing nature of modern conflict. The majority of large-n studies only considers conflicts with state involvement, particularly using a definition of at least 25 battle-deaths per year<sup>67</sup> which does not take account of very low level conflicts such as violent protests, criminality, non-state conflicts, or ones in which political goals or parties are not explicitly stated. Yet since the late 1990s, defence and security analysts and policymakers have modernised their understanding of conflict to acknowledge the increasing importance of intra-state, asymmetric and non-conventional conflicts and organised crime.

Also often overlooked in the academic consideration of conflict implications of climate change is that resource scarcity itself is not always necessary to spark conflict. Just as important is a perception of scarcity and of injustice relating to the distribution of and access to the resource.<sup>68</sup> Such approaches are not optimal for understanding complexity: they are methodologically reliant on historical, statistical data rather than qualitative, current and perceptual data; in their drive to establish or refute direct causality, they infer cause from correlation. On the whole, the peacebuilding, policy and practitioner community takes a more nuanced approach with priority given to understanding the interaction between complex webs of proximate, structural and trigger causes in a given context.<sup>69,70</sup> Indeed, the need to understand the complexity and interrelationships between contextual factors such as socio-economic, political and cultural factors and climate is increasingly accepted and requested by those agencies seeking to ameliorate it.<sup>71</sup> And here lies a critical gap in the current academic research on climate change and conflict. The research upon which this paper is based was designed to address this knowledge gap.

METHODOLOGY

Conceptual Framework

To analyse the ways in which climate and environmental change can interact with socio-political and economic dimensions of peace we use the conceptual framework shown in Figure 1. The ultimate goal of positive peace reflects the idea that peace is not only the absence of violence but a situation in which people engage in “inclusive social change processes that improve the quality of life . . . without compromising the possibility of continuing to do so in the future, or the possibility of others to do so”.<sup>72</sup> See also<sup>73</sup>

We adopt a framework for resilience which is based on a broad conceptualisation of the term and which also draws on the principles of resilience to conflict.<sup>76,77</sup> It incorporates five proxies for peace and security, based on International Alert’s peacebuilding framework: governance, equity, livelihoods, access to justice, safety and well-being.<sup>78,79</sup> The approach is based on the premise that individuals or households are not facing single risks in isolation, but rather that resilience by definition is the ability to deal with a complex mix of risks. The framework thus integrates a livelihoods approach and components of disaster risk reduction<sup>80</sup>, and given the focus on fragile contexts, draws on the peacebuilding frameworks which identify the foundations for peace and security.<sup>81,82,83,84,85</sup>

Such a framework was adopted to understand conflicts, livelihoods and disasters, their interactions, and the implications of climate change on all three. This is significant to move beyond analysis of how climate change affects resources and bringing in a wider contextual understanding of power, politics and institutions.

Whilst the concept of resilience is necessarily wide-ranging and risks over-simplification offering little beyond the generic, we have endeavoured to incorporate complex socio-political and economic dynamics by looking at the components that are deemed to constitute resilience.<sup>86</sup> Understanding

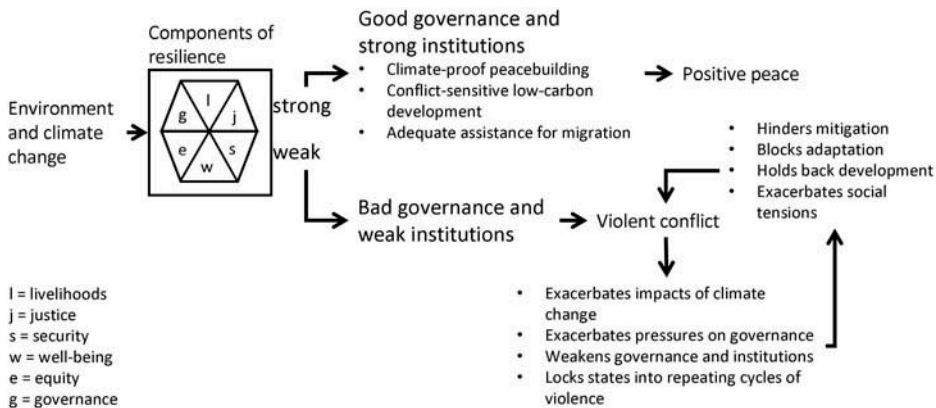


FIGURE 1 Conceptual framework (the authors based on<sup>74,75</sup>).



the components of resilience for each layer of risk – individual, community, state and their institutions – is critical to effective resilience programming in conflict affected contexts. Here we focus on the individual and community levels, with a cursory look at the national and institutional levels, acknowledging that the latter two levels are beyond the scope of this paper.

Interpreting these components as modules in an attempt to quantify and thus measure resilience can be problematic as it risks decontextualising resilience, making it difficult to assess how specific risks shape people's responses to them. Looking at quantitative components of resilience also risks overlooking certain factors such as power relations, which may be important determinants of vulnerability but which may not be captured through simple, measurable indicators.<sup>87</sup> For these reasons, we place a methodological emphasis on qualitative data through individual testimonies. Whilst this limits scope to scale up and generalise findings to the district and national levels, the findings nevertheless offer illustrative examples and enable a deeper understanding of some of the risk pathways experienced.

No distinction is made between those environmental changes influenced by climate change and those that are not. This is for two reasons. First, because downscaled climate data at district level are problematic and historical data at the sub-national level are at best patchy. Second, because respondents do not distinguish between the causal origins of the risks that they face. People simply experience risks and only need to qualify and categorise them for the purpose of meeting development aid criteria. Survey questions did not require respondents to delineate between environmental and non-environmental risks. Terms such as 'climate change' and 'environmental change' were avoided entirely in an attempt not to bias or delimit respondents' perceptions of the risks they faced through categorisation. Environmental risks are thus analysed together with non-environmental risks to reflect that communities do not face risks from environmental exposure in isolation, but rather in conjunction with socio-political and economic contextual issues.

Risk is usually defined as a function of the (potential) impact of an event and the likelihood of it occurring<sup>88</sup>. Risks can increase the vulnerability and decrease the resilience of a community. Vulnerability in turn is usually understood as a function of exposure to change, sensitivity to change and a community's capacity to adapt to change.<sup>89,90</sup>

In this paper we focus on the resilience of the village and communities but also look at how they are tied to the higher levels of governance. A higher level of resilience is likely to contribute to peace while a higher level of vulnerability increases the likelihood for violent conflict. Acknowledging that local perceptions are just as relevant as facts in post-conflict contexts, the methodology is designed to collect data on perceptions and attitudes at household level to better understand how individuals perceive their risks and resilience.



## Research Region and Data Collection

Nepal is a landlocked country divided into three primary ecological zones mainly running east–west: (i) the Terai, (ii) the Hill area in the middle, and (iii) the Mountain area in the north. There are five administrative regions: Eastern, Central, Western, Mid-Western, and Far-Western. The country is further divided into 75 districts. The decade-long civil war which ended in 2006 was believed to have started in Rolpa, and certainly the Mid-West was a focus of a lot of the conflict.

The field research was conducted at the Village District Committee level in the village of Khajuraha in Banke district, Gadhwara, Rampur and Narti villages in Dang district and Whama village in Rolpa district. The three districts of Banke, Dang and Rolpa, all part of the Mid-Western administrative region, span the Terai and Hill area in terms of ecological zones and were chosen to compare locations with different levels of environmental and socio-political and economic vulnerability. The vulnerability mapping conducted for Nepal's National Adaptation Programme of Action (NAPA) ranks all 75 districts according to various vulnerability indices, including exposure and adaptive capacity.<sup>91</sup> The vulnerability indices in the NAPA do not look at political or conflict risks. The assessments are based on environmental risks and a range of socio-economic factors such as population density and infrastructure. Rolpa consistently ranks within the lowest two quintiles for all vulnerability indices, whereas, on average, Dang and Banke rank within the second and third quintiles of vulnerability. The three districts also represent different topological characteristics with Dang being a valley, Banke characterised by plains and Rolpa's landscape being dominated by hills.<sup>92</sup>

Banke, in the Terai is home to the regional headquarters, Nepalgang, which is the base location for the majority of international institutions and development agencies working in the Mid-West region. The district is less exposed to climate and environment impacts.<sup>93</sup> Nepalgang in particular



**FIGURE 2** Research districts in Nepal (the authors).

and Banke in general enjoy greater service provision than the other two study sites. The district is relatively food secure, with widespread irrigated paddy cultivation. The security situation in Banke is impacted by several armed groups, including Himali Tiger, Terai Mukti Morcha and Jawala Singh, operating in the district (Table 1).

Dang borders the Indian state of Uttar Pradesh and is characterised by valleys and plains. Whilst livelihoods are largely dependent on agriculture, the district suffers from poor soil quality and dependence on seasonal river flow for water. It is a highly ethnically and caste diverse district; the majority ethnic group are the *Tharu*, and the major power holders are the *Bahun* and *Chhetri* castes. Dang benefits from the main east–west highway running through the district which enables better trade links with the rest of the country. Since the Maoists have withdrawn from the government and the Tharuhat Liberation Army was founded in 2008, the district is perceived as more secure (Table 1 and <sup>94</sup>).

Rolpa is significantly underdeveloped,<sup>95,96</sup> experiencing higher than average levels of poverty and lack of infrastructure. Food security, potable water and transport are the major challenges faced in the district. The potential for irrigated rice fields along the Mardi Khola river is limited by the river's narrow inner gorge. This valuable land is predominantly owned by *Pahari*, *Bahun Chhetri* and *Newars*. The indigenous *Kham Magar* inhabit upland fields unsuited to rice cultivation. Upland harvests of maize, millet and barley are falling and Rolpa in general and the upland inhabitants in particular face chronic food deficits. Whilst Rolpa was a major flashpoint in the 1996–2006 civil war, and traditionally seen as a Maoist stronghold, Rolpa is presently significantly more stable and experiences lower levels of insecurity than Dang and Banke (Table 1).

To capture the perception of the community members a qualitative approach was chosen to collect the data. We interviewed 72 respondents in five focus group discussions. The community interviews were supplemented by 18 key informant interviews, mainly conducted in Kathmandu. The informants were members of different groups including women's groups, natural resource user groups, the business sector, government officials, political parties and beneficiaries of local development projects. Of the total number of respondents 27 were female. All efforts were made to ensure different socio-economic, age and ethnic perspectives. All interviews were based on common research principals.<sup>101,102</sup> For example, interviews and focus group discussion were always conducted by at least two interviewers to maximize objectivity. Semi-structured questionnaires were grouped around general changes, political context and external interventions. The questionnaires captured key elements of resilience while being sufficiently open to capture indirect factors affecting resilience. The informants were not directly asked about "climate change" to avoid biasing responses towards climate

**TABLE 1** Key Characteristics of Banke, Dang and Rolpa<sup>97, 98, 99, 100</sup>

District	Population	Ethnic groups	Political context	Economic context	Security context
Banke	385,840	<ul style="list-style-type: none"> <li>• Muslim</li> <li>• Tharu Chhetri</li> <li>• Brahmin</li> </ul>	<ul style="list-style-type: none"> <li>• 2008 elections: two constituencies won by UCPN-M; two won by MJF</li> <li>• Politically aligned trade unions are active and frequently clash with employers</li> </ul>	<ul style="list-style-type: none"> <li>• Agriculture-based economy, grain and rice as main produce</li> <li>• Trade with India</li> <li>• High unemployment</li> <li>• Limited business investment due to violent conflicts</li> </ul>	<ul style="list-style-type: none"> <li>• Poor security situation, although improving since elections in 2008</li> <li>• Various armed groups operating in the district</li> <li>• Major security challenges include strikes, domestic violence, death threats, abduction threats, extortion, availability of small arms and crimes related to drug abuse</li> </ul>
Dang	462,380	<ul style="list-style-type: none"> <li>• Tharus</li> <li>• Brahmins</li> <li>• Chhetris</li> <li>• Yadavs</li> <li>• Kumals</li> <li>• Dalits</li> </ul>	<ul style="list-style-type: none"> <li>• Prior to 2008 elections stronghold of CPN-UML and NC</li> <li>• After elections UCPN-M became strongest party</li> </ul>	<ul style="list-style-type: none"> <li>• Agriculture-based economy</li> <li>• Other economic activities include beekeeping, dairy farming, coal mining and cement production</li> <li>• High unemployment</li> <li>• Infrastructure suffered during civil conflict</li> </ul>	<ul style="list-style-type: none"> <li>• Battleground in civil conflict between Maoist and Royal Nepal Army</li> <li>• Improved security situation since Maoist withdrawal from government into opposition</li> <li>• political party cadres interfere with police work and justice system</li> <li>• Insecurity related to cross-border crime</li> </ul>
Rolpa	210,004	<ul style="list-style-type: none"> <li>• Pahari</li> <li>• Bahun</li> <li>• Chhetri</li> <li>• Newars</li> </ul>	<ul style="list-style-type: none"> <li>• UCPN hold power since 2013 constituency assembly elections</li> <li>• Political and social marginalisation of indigenous Magar Kham population</li> </ul>	<ul style="list-style-type: none"> <li>• Limited economic output</li> <li>• Subsistence agriculture based on rice, maize, millet and barley</li> <li>• Food deficiency</li> <li>• Very high poverty</li> <li>• Low level of human development</li> <li>• Limited infrastructure and market access due to mountainous terrain</li> </ul>	<ul style="list-style-type: none"> <li>• Conflict hotspot in civil war</li> <li>• Despite armed violence around the elections in 2008, the security situation has much improved</li> <li>• Strikes are the major security challenges</li> </ul>

UCPN-M: Unified Communist Party of Nepal – Maoist; MJF: Madhesi Janadhikar Forum; CPN-UML: Communist Party of Nepal-United Marxist Leninist; NC: Nepali Congress.

change. Instead questions were asked about general changes, in particular those related to the informant's livelihood.

A qualitative case study approach was adopted to bring the required level of community level granularity to the research. However, the approach also has limitations. Compared to the total populations of each district, our sample size is small. Hence, any conclusions drawn from this study are location specific and cannot be generalized for the entire district. Instead the case studies should be seen as specific illustrations of interaction between environmental changes, fragility and resilience.

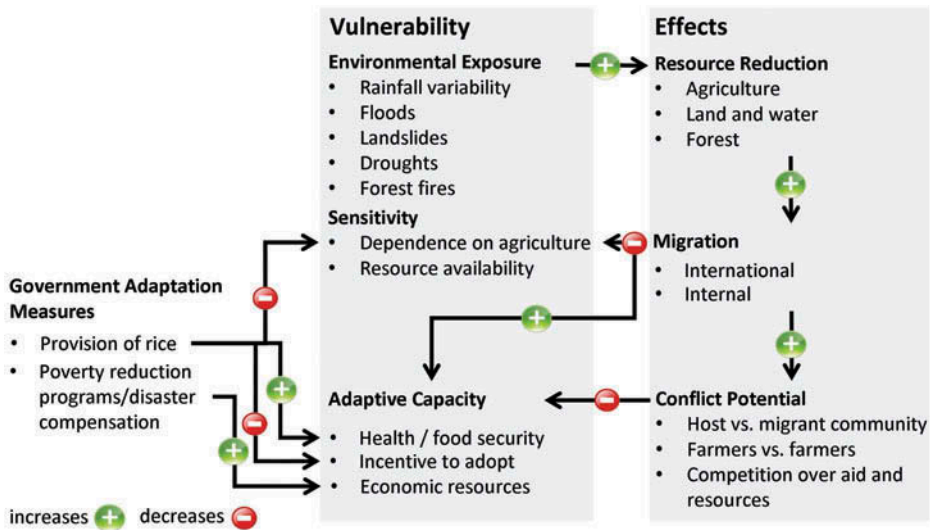
## RESULTS AND DISCUSSION

The results section gives an overview of the environmental exposure and sensitivity (4.1) before adaptation strategies (4.3) and factors weakening resilience are discussed.

### Environmental Exposure and Sensitivity

The environmental risks identified by our respondents range from increased forest fires during the dry season, winter drought and excessive rainfalls in the monsoons, to landslides and floods (Figure 3).

In Banke and Dang floods were the major environmental concern for the respondents while drought and landslides dominated respondents'



**FIGURE 3** Schematic overview of key interactions between adaptation measures, vulnerability and effects (the authors).

responses in Rolpa. Analysis of district level historical data going back twenty-two years showed that whilst there was no clear trend in the nature of the environmental risks over this time, the frequency and intensity of incidents had increased in all three districts. This was also reinforced by community perceptions of changing environmental patterns. Rainfall fluctuations were the most prominent climate and environment related risk identified by respondents in all three locations. For example in 2009 in Rolpa, there were both severe drought and excessive rainfall. The 2009 monsoon was significantly delayed. Its late start affected the paddy crop adversely. Dang has experienced floods and landslides every year since 2007 and also increased incidence of forest fires more recently. According to respondents, the major factor affecting decision-making processes and ability to plan for the future in all three locations is the unpredictability of these events. This uncertainty is manifested in monsoons shifting between a number of weeks to a number of months year by year, fluctuations in temperature reaching new highs in the summer, and in some cases, failed rains. Respondents in Dang mentioned difficulties in planning their lives around this uncertainty. Farmers can no longer tell seasons apart, or count on the monsoon rain coming at the right time, making it difficult to know when to plant crops. One farmer in Dang stated that: "life dependent on farming cannot be sustained if this kind of rainfall continues". These changes have meant that farmers have had to face a wider range of problems, for example, different and more pests effecting crop yields, different cropping cycles and diminished viability of certain crops. These impacts are very specific to small geographic areas (varying from one village to the next in the same district), especially in Rolpa, because of the micro-climate in the mountains.

However, the impacts of climate and environmental change are not exclusively negative. For example in 2011 there were floods in Dang and the following year farmers observed a decrease in maize production but an increase in paddy production. Whilst forest fires were mentioned by a number of respondents as a change in environmental conditions, these were not seen as a major risk.

Resilience to these environmental hazards is mediated through a range of broader contextual issues that determine how sensitive households and communities are to these hazards. The most prominent endogenous factor underpinning the sensitivity of households was where there was a dependence on climate-related livelihoods, namely subsistence agriculture. The most frequent exogenous issues cited by respondents across all three districts were external interventions and the political context. Specifically, the political uncertainty around the agreement of the new constitution, the process of reintegrating ex-combatants in 2011, and certain large-scale humanitarian and development interventions, namely food aid and the forestry programming.

## Adaptation Strategies

Based on the field research, three main adaptation strategies can be identified: (1) migration to urban centres or starting of local business, (2) shifting crops and (3) drilling of bore holes. The following sections briefly describe these strategies and their implications.

Migration either to the cities in Nepal, to India (most cited location was Delhi) or to the Middle East (Figure 3), was the main adaptation strategy identified by the majority of respondents, especially for the younger generation. Circular migration around crop cycles has long been a norm within agricultural communities; however, almost all respondents noted an increase in numbers of migrants, particularly amongst the young male population, and for longer periods of time. Migration was also a coping mechanism adopted during the civil war in Nepal.<sup>103</sup> The consequence of the migration is more female-headed households which benefit from remittances but at the same time women have to deal with the lack of agricultural labour. The interviews suggest that this lack is partly compensated by more children working in agriculture. For the children this means decreased possibilities to attend school, receive a formal education and earn an income outside of agriculture. Whilst there are always multiple factors determining an individuals' decision to move, decreased predictability of rainfall, environmental risks and increasing costs of agricultural production were raised as the main push factors. Community members differentiated between permanent migration in response to floods and landslides, while hill communities of Dang and especially Rolpa stated that the changes in the rainfall patterns make them migrate temporarily but more often. Respondents in all three districts mentioned opportunities to generate income and existing networks in urban areas as key pull factors. This illustrates that migration is not only a strategy to adapt to changing environmental conditions but also to capitalise on perceived economic opportunities in urban centres.

Many respondents, particularly rural youth, said they wanted to be involved in small businesses rather than farming. However, private sector growth, particularly amongst small to medium businesses, is slow in Nepal as a whole, limited by on-going political volatility and weak infrastructure – particularly energy supply and roads. Whilst Dang is strategically located on the main east–west highway, the poor quality of the roads and frequent landslides mean this greater access to markets is not capitalised upon. A further obstacle to private sector development is poor electricity supply. Nepal's power supply is volatile with seasonal outages of up to 12 hours a day.<sup>104</sup>

Shifting of crops was the second most raised adaptation strategy. Some of the farmers are trying to adapt to the changing rainfall patterns and temperatures by moving from water and labour intensive crops such as paddy to less climate sensitive or labour intensive high value cash crops such as banana or oranges. These changes tend to be predominantly on a smaller

scale, experimental basis and practised by wealthier farmers who can afford to make long-term investments. Furthermore, respondents noted that the decision to switch crops is only available to wealthier farmers who own their own land, and not an option for poorer tenant farmers. Some of these shifts are encouraged by external interventions which aim to support food security. However poorer farmers raised concerns about the consequences of these initiatives on labour. In general, shifting of crops is not a new adaptation strategy in Nepal but the current shift from cereals such as paddy to high value cash crops is seen by some farmers as reinforcing local inequalities because cash crops need fewer agricultural labourers and hence decrease income options for poorer, less skilled people.

Drilling of bore holes to access groundwater was an adaptation strategy found in and around the village of Khajuraha (Banke). A significant number of respondents noted that the drilling has caused conflicts between neighbouring farmers and even between families (Figure 3). The deep boring remains unchecked by local authorities because there is no government monitoring. Presently, disputes are resolved within the community. Furthermore, villagers and key informants explained that drilling bore holes remains the preserve of the wealthiest in the community as it requires hiring heavy machinery. This means that access to water is often predicated on economic grounds. Besides increasing wealth inequalities, drilling of bore holes can be considered unsustainable as respondents have reported water contamination and dropping groundwater levels as a result of the drilling.

Whilst it is beyond the scope of this paper to assess how robust and sustainable these strategies are, they serve to illustrate the nature of existing mechanisms which make up community resilience. This also shows how resilience depends on an individual's socio-economic status. Unpacking these strategies reveals a number of common components which are necessary for individual resilience. These are economic opportunities, social capital (connections to neighbours and family and participation in society), spare capacity such as savings, and personal strength to organise and adapt.<sup>105</sup> At the community level, Matthew and Upreti<sup>106</sup> found that necessary components for resilience were leadership and organisation, equitable natural resource management and usage systems, diverse livelihood opportunities, conflict prevention and resolution mechanisms, appropriate infrastructure and services, trust and socio-cultural cohesion.

### Factors Weakening Resilience

The resilience of the communities in the study area was mostly found to be weakened by the following three factors: limited planning in agriculture, incompatibility of different aid priorities and competition over aid (Figure 3), all of which come down to governance and have political repercussions.



Many respondents within farming communities explained that they were not planning for the long-term future or that they no longer saw the purpose in long-term planning. Older respondents explained that this was due to the legacy of Nepal's decade-long civil conflict. For the local communities the conflict caused significant material loss, mainly land, livestock, crops, and homes, personal loss, for instance of family members and intangible loss, for example the inability to continue a job or education.<sup>107</sup> More than 13,000 people lost their lives as a direct consequence of the war. The Mid-Western region (see [Figure 2](#)) was a hotspot in terms of conflict casualties, see also<sup>108,109</sup>. During the war, there were high levels of uncertainty about what was going to happen. There was little state presence in many places, including Rolpa and much of Dang and Banke and security and justice provision was unaccountable and arbitrary. Rights were not secure and basic services such as water for irrigation were not maintained. Whilst people learnt to live without much state intervention, this living was on subsistence, day-by-day level. People were not aware of what the future would hold and as such could not make any decisions around the future. This means that now, although the conflict is over, several community and key informant respondents stated that a culture of fatalism remains, and many traditional, historical adaptation approaches have fallen out of use and were not passed on to the next generation who grew up during the conflict. Furthermore, no new adaptive methods were developed during the conflict period which according to one key informant held back farmers' adaptive capacity in Rolpa by ten years.

Various Food Aid programmes, for example in Rolpa, offer heavily subsidised rice in return for work. This not only created a disincentive for local farmers to adapt to changing climate and environmental conditions ([Figure 3](#)), it also created an appetite and expectation for rice, even though it cannot be grown sustainably in the hills. Whilst certain indigenous crops such as buckwheat, barley and millet are better suited to Rolpa's climate than rice, there are political drivers for continued paddy cultivation. Historically mountain and hill people would eat a range of cereals and food varieties such as buckwheat and oats, millet and root vegetables which were more suited to the climate and terrain. Since the end of the conflict, there appears to be an emerging hierarchy in food staples, and rice is seen as a top staple as it is eaten by the wealthy. Thus, whenever food aid is needed, the government distributes rice. This has created an appetite for and dependence on rice in regions which did not historically consume rice and where rice is not sustainable particularly the mid hills and the mountains in the west. As one respondent in Rolpa noted: "Rice is good enough for the rich in Kathmandu, why isn't it good enough for us?" This demand for rice amongst the poor was reiterated by key informants working on food security projects in Banke. At the time of our research, food aid was being scaled down with a view to ending it in Rolpa. This means that local farmers would have to rapidly adjust

to having to grow cereals in increasingly unviable or unpredictable environmental conditions. However, political parties are unlikely to ever stop rice aid, as they will be seen as anti-development and discriminating against the poorest.

In another example, a government of Nepal pilot project to address energy security and reduce deforestation through promotion of biogas plants was planned to be rolled out in nine districts. The switch to biogas was intended to curb deforestation for fuelwood, thereby decreasing risks of soil erosion and landslides. But the pilot implementation was halted in three districts – Saptari, Udayapur and Siraha – due to the local security situation. Respondents noted that this decision left the deselected communities doubly vulnerable: both to the lack of sustainable energy sources and because of pre-existing insecurity. Adaptation programmes geared towards addressing only the physical impacts and which ignore the social and political processes could be even worse than no adaptation at all simply because they could stifle other efforts by communities to build resilience and thus further exacerbate social cleavages. Similarly, humanitarian aid which fails to consider longer-term environmental implications can create unsustainable and potentially destabilising norms. These examples evince that more analysis is needed of how development, humanitarian, climate change adaptation and peacebuilding goals affect each other in the context of fragile peace.

Competition over aid between different political parties perpetuates political segmentation within civil society, which occasionally escalates to violent conflict. This was most evident in Dang and Banke. Whilst these two districts were ranked as significantly more resilient to climate risks than Rolpa, farming communities here expressed concerns about coping with uncertainty as well as the politicisation of aid (climate change and other sources). Despite its lower vulnerability ranking, Dang is a recipient district of equal if not greater levels of climate change-related aid and intervention as Rolpa. In both Dang and Rolpa, services such as citizenship, disability certificates, and different (hybrid) seeds were reported to be granted as favours. At the national level, there is resistance within line ministries responsible for natural resources and environment and peace and security to acknowledge the relevance of each to the other which presents a major obstacle to holistic programming on resilience. This aversion to collaborative and holistic working is underpinned by a reluctance to share financial resources across other sectors.<sup>110</sup>

Despite the challenges and negative effects of food aid identified by the respondents, international aid can be successful in Nepal. Tanaka for example finds that non-governmental organisations (NGOs) can achieve “inclusive aid”<sup>111</sup> if they cooperate closely with local organisations. Sharma and Bhattarai<sup>112</sup> stress that during times of sound economic policies, international aid contributes to economic growth in Nepal, see also<sup>113</sup>. [Table 2](#) summarises the key points of sections 4.1 through 4.3.

**TABLE 2** Environmental Change, Catalysts and Implications for Existing Conflict Drivers (the authors)

Climate/environmental Change	Catalyst/intermediate factor	Implications for existing conflict drivers/risks to peace
<p>Changing rainfall patterns</p> <p>Increased frequency of extreme events:</p> <ul style="list-style-type: none"> <li>• Lack of rainfall</li> <li>• High rainfall events</li> </ul> <p>General environmental degradation:</p> <ul style="list-style-type: none"> <li>• Unsustainable resource use</li> <li>• Pollution</li> </ul>	<p>Droughts, floods and decreased predictability of rainfall:</p> <ul style="list-style-type: none"> <li>• Changes in supply and access to water</li> <li>• Crop failures</li> </ul> <p>Landslides:</p> <ul style="list-style-type: none"> <li>• Direct hazard to human well-being (deaths and injuries)</li> <li>• Destruction of infrastructure (e.g., roads and electricity)</li> </ul>	<p>Food insecurity:</p> <ul style="list-style-type: none"> <li>• Increased dependence on aid</li> <li>• Resentment of external intervention in agriculture (hybrid seeds which fail, new farming techniques)</li> </ul> <p>Increased unemployment (especially amongst young men)</p> <p>Reduced household capacity and labour</p> <p>Reduced access to health and education</p> <p>Limited access to markets and trade opportunities</p> <p>Elite capture of natural resources (including drilling of bore holes and capturing of climate aid):</p> <ul style="list-style-type: none"> <li>• Reinforces historical political divisions</li> <li>• Increases political apathy and weakens social contract</li> </ul> <p>Biased land distribution:</p> <ul style="list-style-type: none"> <li>• Rights to land or compensation allocated on the basis of ethnic and caste lines or political allegiance</li> <li>• Rights to highly climate vulnerable (reserve) land granted as political favours</li> </ul> <p>Rural–urban migration (mostly men):</p> <ul style="list-style-type: none"> <li>• more female-headed households, physical isolation</li> <li>• decreased labour</li> <li>• increase in children working in agriculture/decreased education</li> <li>• increased strain on urban infrastructure</li> </ul>

## REFLECTIONS ON GOVERNANCE AND THE ROLE OF NGOS

The policy areas that will be most affected by climate change and that could potentially put additional strain on the state-society relationship are water, agriculture, energy, health, migration and urbanisation. Matters are further complicated in fragile states where political and economic elites are organised in such a way as to give themselves privileged access and control over resources and opportunities. Climate change impacts could incentivise or even virtually compel elite groups to further tighten their grip on resources and/or manipulate adaptation funding to their own benefit through patronage and clientelism, with contracts for adaptation projects providing both licit and illicit money-making opportunities.

Inappropriate interventions around climate change by the international community could provide an opportunity for political and economic elites to strengthen their positions in a fragile situation, thus increasing the risk of instability and possibly conflict. Ill-informed climate-change adaptation policies and interventions that do not take into account the broader socio-political and cultural contextual realities can unwittingly reinforce existing tensions, engendering greater poverty, inequality and conflict, rather than build resilience. In some situations, the implications of mal-adaptation could be worse than the impact of climate change itself.

Most policies and activities are planned and prioritized from the capital, Kathmandu. Yet resilience to climate change and environmental risks are highly dependent on local-level context. Many statements by our respondents suggest that there are insufficient efforts to address the local-national paradox in dealing with governance and power dynamics over natural resource access in relation to climate change. Nepal's NAPA commits to spending 80% of resources available for adaptation at the local level of implementation.<sup>114</sup> The government of Nepal is piloting a Local Adaptation Programme of Action which aims to reinforce the NAPA at the local level as it moves into its implementation phase. However, local implementation has not been as effective as envisaged.<sup>115</sup>

The NAPA and other climate policies such as the Pilot Programme for Climate Resilience do not address the challenge of unequal access to and control over resources. Meeting the needs of the most vulnerable to climate change will also require a strong local finance delivery mechanism, already identified as a major weakness in the national financial management system<sup>116</sup>. Furthermore, centralised party structures mean that there is little communication between the capital and the grass roots leaders in the provinces, and as such there is a concerning lack of awareness of national plans and policies at the local level. Party leaders in Kathmandu might actually agree to policy change but at grass roots party level, local leaders do not toe the party line and accordingly block things already agreed by national government. Sometimes local party representatives do not know who their

national representatives are, let alone what positions they hold. Local leaders are very autonomous and there is little coordination of local leaders within the party hierarchy. This lack of communication causes confusion in implementing policies at the local level. For example, in Rolpa, the District Agriculture Development Office was promoting the use of a local variety of rice which had actually been banned at the state level.

Lack of accountable and transparent local governance was also identified by respondents in all three districts as an issue of concern. Some community members felt that an elected local body might improve things, whilst others could see how, in the absence of effective mechanisms to promote transparency and oversight, both elected and appointed models had their drawbacks. One NGO respondent in Dang commented that “even if there is an elected body, it doesn’t mean it will be fair. If it is an elected body, it will simply be five people deciding what happens for the whole village.”

A number of community members identified the lack of checks and balances on local governance holders. The Local Development Officer is unelected and holds power over all development projects and funding allocation in the district, including all future climate finance at the district level, yet there is no political or civilian oversight of this role. Some respondents suggested increasing participation of NGOs and INGOs in reviewing official processes and implementing projects. However, there is a potential for corruption within NGOs who receive INGO grants, for instance, when grants are not used to implement projects.

Another particular problem of legitimacy and representation at the local level of government was that there are overlapping layers of participation in key functions and little clarity or awareness of different roles and remits. For example, there is uncertainty about where the responsibility for irrigation maintenance lies between the District Agricultural Development Office, District Development Committee, District Environment Office and the Water Committee.

Donors and development agencies, such as the World Bank and the Asian Development Bank, are expected to work simultaneously with national governments to ensure interventions are in line with national development goals, and also with local government and implementing agencies to ensure effective disbursement of funds on the ground.<sup>117</sup> Poor systems for communication and cooperation between capital and the districts significantly hamper effective local programming. Resilience to climate change risks will be highly dependent on local-level context, governance and power dynamics over natural resource access. Furthermore, national law dictates that all international donors must work through District Development Committees, and cannot implement development activities themselves, but rather all aid must be implemented through local implementing agencies – be they NGOs or private companies. Development agencies and local communities can only do so much without infrastructure and with weak local capacity which needs

to be supported not just by national but also local government. International institutions thus need to maintain strong links with local government, but to do so, they will need to find ways to address the human resource and capacity constraints of local administrations.

Transitional states such as Nepal need to plan adaptation in ways other than purely top-down, while acknowledging that bottom-up approaches alone will also not suffice. Top-down planning fails to grasp micro-level vulnerabilities, the intricacies of community relations and tensions, and focuses more on national interests. Further, in communities where there is deep mistrust for central government – for example, in Nepal where actors in the current administration were party to the recent conflict and when there is a history and legacy of government marginalisation of particular identity groups – top-down government-managed adaptation assistance might come across to local communities as an unwanted and potentially harmful imposition. On the other hand, local communities alone cannot take on the responsibility for providing basic needs and services for themselves. Community-based adaptation is strongly promoted by many development actors as an effective means of ensuring context-specific interventions but care must be taken to not usurp the legitimate role of the state. If communities take over roles which ought to be done by the government in return for the tax revenue they receive from citizens, the social contract is weakened. There is a strong correlation between the perception that a state is not upholding its side of the bargain – for example spending taxes on provision of basic needs and services such as security and roads – and the incidence of political instability.

Certainly, adaptation needs to be locally informed through bottom-up processes, but top-down leadership is also required. Dogmatic pursuit of the former at the expense of the latter could be problematic if it reinforces a system whereby the national government receives taxes and yet is not expected to provide basic services pertaining to climate resilience. Ensuring an accountable and legitimate government is vital for peace. Interventions should bolster governance, not fuel corruption or bypass state systems and create a para-state system run by NGOs.

## CONCLUDING REMARKS

The paper shows that building resilience in regions characterised by fragile governance and social instability such as Nepal is complex. Adaptation to risks related to climate change requires significant rethinking in order to meet the specific challenges of fragile states on the road to peace. There is a need for an understanding of the conflict potential of both climate and environmental change and of the policy responses to climate change. Here the definition of conflict at the heart of inquiry into climate change and

conflict should not be as state-focused as in most of the current large-n studies. Preliminary evidence on environmental pressures points to local-level conflicts which have the potential to be politicised and nationalised under certain circumstances. It is therefore necessary to move beyond traditional frameworks of analysis based on (inter)state conflicts to understand the dimensions of community grievances and potential for escalation. Any study of the conflict potential of climate change also needs to include a normative dimension, as the politics of climate change – and importantly, responses to climate change – are imposing new demands for equity and justice on global, regional and national systems. External interventions are likely to have unintended, potentially negative, consequences. Examples from this study include the promotion of shifts from traditional to less climate sensitive crops. While this shift increased food security it also decreased the demand for labour and hence the income opportunities in agriculture. Similarly the provision of rice by the government has increased food security but at the same time created a general demand for rice in Rolpa that cannot be met locally and sustainably. Observations from Dang and Banke have demonstrated that aid resources themselves can become a source of conflict. Should we therefore push back any geopolitical concerns and refrain from any external interventions and leave communities to themselves? Given the increasing environmental exposure, in parts related to global climate change and unsustainable local adaptation practices as seen in the example of the bore holes, the answer is certainly no.

At the national level, with large-scale international adaptation funding likely to continue growing, the Nepali government will need support to effectively utilise funds and oversight mechanisms must be strengthened. In some situations, direct access to large-scale adaptation funding, combined with low capacity within government, will limit the ability to effectively use it. It is possible that funds could be diverted into the hands of various factions of the political elite. With public expectations of the in-flow of climate funds, people's hope for support – for example, compensation for flood victims – are rising, and, where they are not met, we are likely to see an increase in protests and political instability.

To strengthen resilience to environmental changes in regions characterized by fragile governance and social instability we first have to realise that communities do not face environmental risks in isolation, but rather in combination with social, political and economic challenges and risks. Resilience is hence about being able to cope with a combination of interrelated risks. Interventions have therefore to consider the multiple dimensions of interlinked factors including governance and power, livelihoods and assets, justice and equity, security and well-being. Based on a more holistic understanding of these interactions and a careful consideration of the local realities, resilience can be strengthened, even under challenging governance and (post)conflict conditions.



If responses to climate change take account of the broad dimensions of what makes people resilient – not just drought-resistant crops and embankments to protect them from floods but also the interlinked factors of livelihood options, good infrastructure, social inclusion and effective governance – there is a good chance that responses to climate change could yield a double dividend: increasing resilience to both climate change and conflict. Failure to take account of the linkages, however, could result in the billions of dollars of funding for adaptation actually becoming part of the problem.

Finally, a more fundamental question – which addresses the core tenets of development and thus requires further investigation – is why certain societies faced with environmental change have survived and even thrived, and why others have collapsed into vulnerability and conflict. This is essentially a question of governance and institutional effectiveness – understanding how some formal and informal governance mechanisms have built resilience while others have struggled. Addressing this question would require a comparative analysis of the resilience of different societies and the different paths taken to get there. Answers to this question may call for substantial rethinking of how climate change adaptation aid is disbursed in fragile contexts.

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