Title: The Impact on Disaster Governance of the Intersection of Environmental Hazards, Border Conflict and Disaster Responses in Ladakh, India.

Authors: Jessica Field[a] and Ilan Kelman[b].

Affiliations:

[a] Jindal School of International Affairs, O.P. Jindal Global University, Sonipat, Haryana, India.

[b] Institute for Risk & Disaster Reduction and Institute for Global Health, University College London, London, U.K. and University of Agder, Kristiansand, Norway.

The Impact on Disaster Governance of the Intersection of Environmental Hazards, Border Conflict and Disaster Responses in Ladakh, India.

Abstract

The Indian border region of Ladakh, in Jammu and Kashmir State, has a sensitive Himalayan ecosystem and has experienced natural hazards and disasters of varying scales over the decades. Ladakh is also situated on a fault-line of multiple tensions, including ongoing border disagreements and intermittent conflict with China and Pakistan. The Indian army has thus become a permanent fixture in the region. This paper examines the implications of the intersection of these environmental and security factors for disaster governance in the region. Using Social Domains theory, the paper argues first, that a hazard-centred paradigm of 'universal' disaster science emerges from the colonial period, which has continued to dominate disaster management in the region today. Secondly, it argues that, as the border military complex expanded significantly in Ladakh from independence in 1947 and the region faced a number of conflicts, disaster governance has been additionally shaped by national security priorities. The paper then examines the impacts of that hazard-centred, military-led disaster governance for the population of Ladakh. These include: a relief-orientated disaster management approach, reduced civil society presence and capacity in

the region, and limited local ownership of disaster risk reduction activities. This case study provides important insight into why disaster risk reduction has been slow or absent in conflict zones.

Key Words

Hazards; Disaster Governance; Ladakh; Social Domains; Military; Securitisation.

1. Introduction

On 6 August 2010 the Himalayan city Leh, India, and 70 other towns and villages in the Ladakh region were hit by a cloudburst, which sent muddied and debris-ridden flood water gushing through the city and nearby villages, killing over 200 people (Gupta et al., 2012). Many spontaneous – and often duplicative – donation distribution sites were established in Leh and people did not know who was meant to be responsible for what. Almost immediately, the military and civil defence forces kicked into action for emergency rescue, airlifting in supplies and out the injured. Running alongside local and national aid were the efforts of a steady stream of tourists and onlookers,[1] some of whom were changing travel plans in order to offer assistance or survey the damage – which has been argued elsewhere as "disaster tourism" (Kelman and Dodds, 2009).

The response was felt by many local people as reactive, ad hoc and largely insufficient (Interviews, June 2017). Recognising shortfalls, the local administration – the Ladakh Autonomous Hill Development Council (LAHDC) – devised a Disaster Management Plan for Ladakh 2011-12. Its aim was to enable the District Administration 'to effectively deal with disaster in future so that loss of life and property is minimized' (LAHDC, 2011: 2). Though, it has yet to be tested in practice at any great scale, interviews and conversations in Leh some six years later portray a cynicism over its implementation: 'people in Ladakh don't know what disaster management is', noted one Ladakhi who had worked on the Plan with the LAHDC; 'Nothing has changed… no preparations [for future hazards]', noted a member of a prominent Buddhist religious association. Constructions, sometimes illegal, and made of non-resilient materials in high-risk flood areas, continue apace; flood mitigation projects remain unfinished; and local knowledge of what to do in the event of a hazard warning is based on experiences of the 2010 cloud burst, rather than any systematic, village-level assessments of vulnerability and disaster risk reduction (DRR).

The intense level of construction and development in Ladakh, particularly in the urban centre of Leh, has long been acknowledged as driven by increased tourism to the region since the 1970s (creating an explosion of service-orientated businesses and general wealth among tourism entrepreneurs) and globalisation processes driven by increased international connections (through the younger generation seeking education elsewhere, inward investment by foreign individuals and businesses, trade, tourism, and labour migration) (Norberg-Hodge-1991; Michaud 1996). Observations of the deleterious socio-environmental impacts of this construction, urbanisation and modernisation date back almost as far as these developments (Norberg-Hodge, 1991: 101-120).

Nonetheless, while these observations and critiques were (and remain) pertinent, they are, for the most part, "disaster-silent".[2] Despite the frequent occurrence of floods, landslides and other hazards over the centuries there has been limited recording and analysis of them and how, more broadly, the changing relations between nature and society are increasing the incidence and nature of damaging impacts of hazards on human life (Rautela, 2016). Thus, the first aim of this paper is to begin to fill that gap. Part one will frame hazards and disasters in Ladakh in their wider historical context, highlighting several major incidents and responses to them over the last two centuries,[3] and beginning to tease out processes of change – including the evolution of disaster governance from local levels to state and national government. [4]

Moreover, it is important to go beyond narrative accounts of historic hazards and processes of change and to consider contemporary developments and their implications for understanding disaster governance. Increased vulnerability to hazards in Leh, and wider Ladakh, in recent decades is certainly affected by the same processes of change identified in development and economic literature on Ladakh (Norberg-Hodge 1991; Rizvi, 1999): i.e. modernisation, urbanisation and globalisation. Nevertheless, given that critiques of such processes, and observations of their impacts, have been around for decades (Michaud, 1996) – with recommendations of how to mitigate their effects seeing limited results (Norberg-Hogde, 1981) – analysis must dig deeper and ask: What *else* is contributing to the continuance/acceleration of these maladaptive socio-environmental relations? Are there other processes limiting inclusive and effective disaster governance?

The second and third parts of this paper are dedicated to answering these questions by focussing on the contemporary nature of disaster governance in the region, and how it

has been impacted by much broader shifts in national security governance, including a heavy military presence in the state. To undertake such an analysis, we use the theory of Social Domains expounded by Dorothea Hilhorst (2003).

Social Domains, Hilhorst (2003: 41-42) explains, are areas 'where ideas and practices concerning risk and disaster are exchanged, shared and … organised', both internally (within a single domain) and externally with other domains. The three domains Hilhorst lists as dominant in the sphere of disaster response are: the domain of international science and disaster management, the domain of disaster governance, and the domain of local knowledge and coping practices. These domains are not exclusive, with people moving fluidly between them depending on their role in society at any given moment. Moreover, the ideas and practices shared in the domains can be conflictual and contradictory as well as affirmative, underlining the need to accept complexity in disaster management rather than seeking the singular, universal explanation or "solution". Building on this framework, part two of this paper will explore historically how knowledge and practice of disaster governance in Ladakh has been exchanged, shared and organised.

The main argument of this section is not that disaster management knowledge in individual domains is inherently wrong or that they are distinct from each other. Nor is it that, for example, there are "solutions" lurking in long-forgotten local knowledge. Rather, that understandings of risk, and therefore expectations of responsibility over mitigation (and the effectiveness of these interventions), have been affected by more than just environmental change, modernisation and urbanisation; they have been shaped by developments in international science, by the securitisation of the border zone, and by state and national political exigencies.

Using a critical historical approach to frame the wider context and Social Domains theory to examine contemporary practice, this paper hopes to offer new ways of thinking about disaster governance in the region. In doing so, it offers an important case study that i) speaks to wider discussions around civil-military relations in a securitised context where a disaster occurs (Hofman and Hudson, 2009; Madiwale and Virk, 2011; de Graaf, 2013; Thapa, 2016), and ii) contributes to a growing body of literature examining local and national capacities when hazards devastate the Himalayan region (Kala 2014; Ziegler et al 2014; Rautela, 2015; Maikhuri et al 2017). Moreover, as the security threat in Ladakh is primarily external (from China and Pakistan) rather than internal (e.g. through insurgency or

terrorism), this case study offers the opportunity to explore how disaster governance evolves when the civil-military relationship is not, by and large, antagonistic, such as in the case of Kashmir in India (Espada, 2016), or Pakistan (Madiwale and Virk, 2011), but is instead cooperative and the military is viewed as a protective force.

2. **Methodology**

This paper is based on seven months of desk, archival and interview research in New Delhi (National Archives of India), Jammu and Kashmir (J&K) (State archives) and Leh, Ladakh (interviews and library research) from January to July 2017. Desk research included the wealth of secondary literature that has emerged since Ladakh opened to tourists and researchers in the 1970s. The focus of archival research was largely in the National Archives of India on official disaster management and response records. A brief scoping of records in the J&K State archives was undertaken, focusing particularly on council records of meteorological change, but much more remains to be done with these documents. Finally, nine semi-structured interviews were undertaken with 14 individuals involved in disaster management, including the District Commission, faith based non-governmental associations, NGOs, and local experts and researchers working on the subject. The majority of representatives in the NGOs were at a senior management level. While not exhaustive, these key informants represent a significant cross-section of the various formal actors involved in disaster responses in the region, and their interviews are used illustratively within the analysis. It was not possible to engage with the Indian Army during the course of this research which remains a limitation of the study and a gap for future analysis.

3. **Ladakh's Hazard Histories**

3.1. Locating Ladakh: A Historic Border-Conflict Zone

Ladakh is an isolated mountain region and its boundaries, geographically and culturally, have long been complex and contested. In 1834 the kingdom was invaded by Hindu Raja Gulab Singh and his Dogra army, and in 1846 it was incorporated into the princely state of

J&K, which acknowledged British supremacy over the Indian empire. Since partition of the Indian subcontinent in 1947, Ladakh has remained within J&K state as part of the Republic of India, but with contested borders to the north and east with China, and contested rule over the majority of the state, with Pakistan. In the late 19th century, boundary commissions designed to demarcate J&K (the princely state) and its neighbouring state Himachal Pradesh (under direct British rule) were primarily driven by trade priorities – specifically, trade routes with Western Tibet and Central Asia (Howard, 2011). Upon independence of India and Pakistan in 1947, the boundaries were redrawn once again with national concerns in mind: Pakistan sought to include the Muslim-majority Kashmir Valley within its sovereign boundaries, however the ruler of the J&K princely state, Maharaja Hari Singh, signed the Instrument of Accession with India for reasons that remain disputed (Bray, 2011: 23). The resultant border lines have been the subject of continued contestation and violence on both sides, and resulted in the division of families. Moreover, wars between the two countries erupted in 1948, 1965, 1971 and 1999. On the eastern side of J&K's border, peace has fared little better.

Due to historic ties to Tibetan Buddhism, Ladakh 'remained more in the orbit of Tibet than of Kashmir' right up to the 19th century (Bray 2011: 13). When the British took over administration of it in the mid-19th century, officials determined that 'the Ladakh-Tibet boundary "was already sufficiently defined by nature, and recognised by custom"' and so did not need readjustment (Aitchison cited in Rubin, 1960: 103). Though this customary boundary was imprecise and included the vast, uninhabitable and un-demarcated Aksai Chin region.

When a newly-communist China annexed Tibet in the 1950s, it occupied the Aksai Chin region. Resultant conflicts with China, most notably the Sino-Indian War of 1962 and their occupation of the Aksai Chin, have led to the securitisation of the border, and the stationing of tens of thousands of Indian troops across the region. This boundary is known as the Line of Actual Control (LAC), with cross-border movement prohibited.[5] Border antagonisms have continued unabated. In the last few years alone, the eastern Ladakh region has seen the Chumar standoff, a 2014 incursion of China into what India view as their side of the LAC following Chinese construction of a road; and a second 'intrusion' over the border by the Chinese following perceived illegal road construction in 2016, this time by India (Hindustan Times, 2016).

Such an extensive military presence with 'live' hostilities all-but guarantees the Indian army as key responders to disasters – they are an extensive and mobilised resource, and it is their primary concern to maintain stability in the region. Moreover, because of Ladakh's strategic geopolitical importance, 'New Delhi, together with the [J&K] state capital, Srinagar, [have become] involved at every level of socioeconomic policies related to the 'development' of Ladakh' (Le Masson, 2013: 127; Deng, 2010). This historic securitisation of the border region and top-down governance of its development has had profound effects on the way the Ladakhi polity frames natural hazards and, as a consequence, experiences and mitigates risk. The following section will chart that hazard history in a little more detail, examining which disasters made the records (and why), and what the implications of that record are for post-independence disaster governance.

3.2. Colonial Hazard Histories: Taming the environment

Official, historical records of hazards and disasters in Ladakh are patchy and dispersed. In the National Archives of India (NAI), based in New Delhi, post-independence disaster documentation primarily sits within the Ministry for Home Affairs collection, particularly that of the Prime Minister's Office, which directs urgent disaster appeals from the centre. However, these records are sparse and, when they exist, are often incomplete or have not yet been transferred to the NAI for cataloguing. At the state level, the relevant records are kept in the Jammu Archives and specific mentions of hazards are dispersed within standard colonial Council records, though more work needs to be done on the extent to which disaster experiences in Ladakh and wider J&K have been captured since independence.

This inconsistency of record-keeping on hazards and disasters is similar to historical records of disasters across the rest of India (and it is certainly not unusual, globally). As Anu Kapur (2009: 62-63) explains, while the documentation of disasters in a semi-systematic fashion began during the rule of the British over India (particularly 1930-1947), this was for governance purposes and focused largely on disasters that impacted their administration – particularly famines. After independence, there was a lull in disaster research and a continued, reactive focus on relief, which saw the early militarisation of disaster responses (a subject to which we shall return to shortly). What both the colonial and post-

independence records show is a framing of hazards as a disruption from the norm and a lean towards reactive, technocratic solutions.

Perhaps one of the most significant colonial records of a disaster in Ladakh came from the account of Alexander Cunningham (1854), author of *Ladak: Physical, Statistical and Historical*. Cunningham was an engineer and government official who led a government commission to establish the Ladakh-Tibet border in the mid-nineteenth century, undertaking two tours of Ladakh in 1846 and 1847. In this text, he speaks of three significant floods in 1826, 1833 and 1841, of which the latter was the 'greatest': *'Suddenly down rushed the wave of the inundation, thirty feet in height, and the whole camp took to flight: most of the men were saved, but the baggage, camp equipage, and guns, were swept away… The devastating effects of this terrible flood were still quite fresh in 1847'* (Cunningham, 1854: 100-104). Ninety-two people lost their lives and 351 houses were destroyed (Cunningham, 1854: 105). For explanations as to the cause of this inundation, Cunningham turned to local knowledge of previous flood patterns and pinpointed it to the bursting of a glacier in the Shyok valley, which caused the 1833 flood (Weil 2006: 11).

The second largest of that period, as per the colonial record and written after Cunningham's account, appears to be the Indus flood of 1858, which "swamped" Attock and washed away a significant portion of the town of Tarbella (Weil 2006: 8). This 1858 disaster was at the centre of the analysis of both Captain Henderson's (1859) 'Memorandum on the Nature and Effects of the Flooding of the Indus on 10th August 1858', and Major Becher's (1859) article on the flood in the same issue of the Journal of the Asiatic Society of Bengal. Both authors disputed Cunningham's explanation for the 1841 flood, with Henderson dismissing Cunningham's reliance on local sources and instead using scientific theories originating from Europe to explain the flood's origin from the same source as previous inundations (Weil 2006: 12). Becher, however, disagreed entirely with the explanation, instead using his own local sources to locate the flood some 400 miles from the site indicated by Cunningham and Henderson, identifying its cause as a dam blockage (Weil 2006: 12).

In many of these official records, disasters are constructed through the frame of exceptionalism, characterised by "unprecedentedness" (Espada 2016; Fiori et al, 2016: 57), a theoretical approach first critiqued by Hewitt (1983). Colonial administration reports of

J&K note a ‘hurricane’ in April 1898 that, lasting 36 hours, ‘devastated many huts, wrecked many boats and uprooted many trees. Within living memory such a hurricane has never visited Kashmir’ (Jammu & Kashmir State, 1900: 151-152). A few years later in 1904, J&K Administration records note an ‘unprecedented flood which swept over the valley on the third week of July, the intensity of which was not surpassed by any within living recollection’ (Jammu & Kashmir State, 1908:512). In both cases, the damages were not inventoried, rather the descriptions seem to stress the hazards as a break from the norm. This emphasis served both as a colonial expression of the region’s tropical vulnerability and otherness – i.e. as distinct from the temperate clime of Europe (Bankoff 2001: 21; 2003: 17) – and to justify expansions of colonial influence and control over nature. Where disasters were occurring, scientific expertise would need to follow to prevent future loss of life and damage to infrastructure. This extension of control, argues Weil, was to make both the land and the people ‘productive’ for Empire (Weil 2006: 5), as well as being part of the high colonial mission of rational and objective documentation (Bankoff 2001: 27). Weil argues of this period that:

> *[E]nvironmental managers of the British Empire in India increasingly created a bureaucratic and segmented mental landscape that profoundly affected the physical landscape. This occurred progressively, if almost imperceptibly, as specialists trained in narrow reductionist science replaced an older generation of generalists, whose knowledge was more qualitative and based in local relationships and experience; and engineering became the dominant mode for managing the environment of colonial South Asia.* (Weil 2006: 4-5)

The flood of 1858 served as a key gear-shift in colonial environmental management in Ladakh, as the ‘local knowledge’ used to inform the work of Cunningham and Becher, was vociferously disregarded and superseded by a ‘universal scientific’ knowledge, championed by Henderson and his successors. In the works of the latter, the testimonies of the local populations were dismissed as false or mistaken. This was to reinforce their exclusion from the official record. Moreover, conclusions as to flood causality were presumed to be concomitant with those emerging from European science relating to European floods (Weil 2006: 12). That is not to say that the earlier accounts of Cunningham and Becher of floods in

the region were authentic and correct.[6] Indeed, the broad absence of direct accounts from local Ladakhi observers of hazards makes the colonial record inadequate. Nonetheless, what such records of disagreement do show is that there was an administrative move from 'the local' to 'the universal' in terms of hazard and disaster knowledge, and a displacement of local experiences to 'objective', often technocratic, explanations of causality. This was part of the colonial state's attempt to 'spatialise[ ]its power', as territoriality and the control of natural resources had become 'a matter of statehood' (Haines, 2017:37-38; see also: Rajan, 2006). And this was a top-down eco-governance trend which was to accelerate under the independent Indian republic but, following several border wars in the early years of independence, it would take on a militarised hue – particularly in the border regions.

4. ***The evolution of disaster governance in independent India***

4.1. Management from the centre, post-Independence

While Kapur (2009: 69-70) notes that scientific knowledge-production around disasters stagnated in the decades following independence (exampled by minimal research outputs and limited investment in research centres), the management of disaster responses from the centre accelerated and took a distinct civil-military course.

In the mid-1950s the Government of India (GoI) commissioned the creation of an Emergency Relief Organisation, to be situated within the Ministry of Home Affairs (MoHA). Those responsible for its creation were charged with drawing up 'a coordinated plan for each part of the country taking into account all these agencies [who previously responded to disasters on an ad hoc basis], and assign specific roles to them so that, whenever an emergency occurs in a particular area, the Organisation will be able to start its relief operations according to plan, in an effective manner within the shortest period' (MoHA, 1956a: 1). There was to be a connected Committee in each state, and emergencies that were to fall under the Organisation's purview ranged from famine and floods to 'serious fire outbreaks' and 'large-scale accidents (railways, docks, mines, collapse of buildings)' (MoHA 1956a: 7). 'Each of these', the policy report continued, 'will require a particular type of relief and set of operations. Even so, practically, all of them will have certain operations which are

common to them, such as medical relief, communications, transport and welfare (i.e. provision of food, clothing, shelter and information)' (MoHA 1956a:7). Recruits were sought from the ranks of the civil service and civil defence, with preferences frequently expressed for individuals with an engineering background and some form of 'officer/rescue experience' (MoHA 1955).

The amalgamation of environmental hazards and industrial disasters in this framework, and the focus on relief activities with medical aid and basic welfare, highlighted the reactive approach the GoI was taking with disasters – hazard-centred and reactive rather than preventive and focused on risk reduction and mitigation. Moreover, the emphasis on the need for technical knowledge and/or civil defence experience underscored the perceived similarity of the threat of disaster with that of a military attack. To quote Joint Secretary to the Government, N. S. Mani, in a letter in December 1956:

> *Most of the arrangements usually designed for civil defence can usefully and adequately be provided under a scheme designed to deal with natural calamities only… The contrasting needs of civil defence and such natural calamities as floods and famine… are not therefore very material in the present context. Some of the hazards to be faced in the event of an actual air attack, viz. the destruction of buildings, outbreaks of fire, disruption of communications, death and disease may rise as a result of natural calamities also.* (MoHA, 1956b).

Subsequently, in 1957, a National Civil Defence College was founded at Nagpur as the Central Emergency Relief Training Institute (CERTI) and its main role was to serve as a training function for the Emergency Relief Organisation (MoHA 2005: 124-125).

This linking of disasters and security was augmented in the 1960s when the country faced war with China in 1962 and Pakistan in 1965. According to GoI reports, these two emergencies 'compelled the Government of India to reorient its emergency training activities from natural disasters to those concerning protection of life and property against enemy actions. This college [CERTI] was renamed as National Civil Defence College with the passing of Civil Defence Act, 1968 by the Parliament' (MoHA 2005: 125). While the

organisation now is present across the country, branches exist mainly in areas vulnerable to 'enemy' attack. Currently these number 225 towns across 35 states/union territories, many of which are in Jammu and Kashmir (MoHA 2005: 124). Srinagar, Jammu and Leh are all Civil Defence Towns and offer training sessions on Disaster Management and conflict response (Jammu & Kashmir State, 2017).

Closely linked to the Civil Defence Forces, and also present in Ladakh, is a State Disaster Response Force (SDRF), which falls under the purview of the National Disaster Management Authority, created in the National Disaster Management Act 2005. This erstwhile auxiliary police battalion of the state government shares four aims with the Civil Defence Forces:

> *1. to save life;*
> *2. to minimize the damage to the property[;]*
> *3. continuity of production; and*
> *4. to keep up the high morale of public.* (J&K Police, n.d.)

An additional layer of disaster response in Ladakh comes from the Indo-Tibetan Border Police (ITBP), created in the wake of India's war with China in 1962 and regularised by the Indo-Tibetan Border Police Force Act of 1992. At a current strength of 86,432 officers, the ITBP have been designated the 'First Responder in the Himalayan Region' to disasters (MoHA 2017:183).

The presence and disaster management authority of these four forces in Ladakh – the Indian army, Civil Defence Forces, SDRF, and ITBP – has fostered a reactive, militarised disaster response culture in the region. Moreover, their connections to GoI at the centre through both policy governance (i.e. the norm-setting of the NDMA) and state security (with the deployment of the military and border forces as a bulwark against less-than-friendly neighbouring countries), underscore disaster management as a *national* governance priority, directed by state policy and security interests, rather than a state-driven endeavour influenced by hazard realities on the ground (Ray-Bennett, 2007). As Shivananda and Gautum (2012:107) explain, the NDMA, 'acknowledges the role of the armed forces in disaster management[,] and states that [in theory] the armed forces are called only when the coping capability of the civil administration is exhausted. It, however, admits that in

practice (as has been in the past) the armed forces are deployed immediately and they have responded promptly' (see also: Garge et al, 2015).

This centrality of the army in disaster response is further reinforced by the everyday linkages the military has, particularly with the villages in Ladakh: most of the smaller villages on the peripheries of the district are cut off from the main supply routes for six months of the year due to heavy snow fall, and so the army provides all emergency care to the population. This includes emergency medical care and vehicle rescue. The military also run some of the primary and secondary schools in the remotest parts of the region. Although many of these public service responsibilities should fall to the State government, rather than the national government, the State are – largely for financial, bureaucratic and logistical reasons – often are unable to meet local need, whereas the army are well-equipped for such climates.[7]

This historic dominance of the military, and their locally embedded role as service providers and rescue agents, is fundamentally (re)shaping the state's understanding of disaster risk. The final section of this paper will return to the 2010 cloud burst in Ladakh and will explore how the dominant disaster governance regime in the region is shaping the possibility of various actors to address disaster vulnerability, risk reduction and capacity. To analyse this point, it is useful to springboard from Dorothea Hilhorst's Social Domains theory and apply it beyond disaster response in order to tease out how an increasingly securitised form of disaster governance is impacting the possibilities of longer-term preparedness and DRR.

5. **The Social Domains of Disaster Response in Ladakh**

5.1. Social Domains as a lens

Hilhorst's (2003:40) Social Domains framework is designed to 'accommodat[e] complexity while taking into account diversity' in disaster responses. It builds on the 'mutuality' idea that disaster vulnerability has a number of causes and these can originate, or be exacerbated, by language and practices emanating from human responses to hazards. She explains (2003: 40-41) that:

> *Social domains can be defined as areas of social life that are organized by reference to a series of interlocking practices and values … Although domains imply a shared repertoire of practices and languages … conflict and negotiation take place within the domain as much as in interactions with other domains. Differential interpretations are often concealed because people use the same language.*

As outlined in the introduction, the three main social domains of disaster response are the domain of international science and disaster management; the domain of disaster governance; and the domain of local knowledge and coping practices. The first privileges scientific discourse and is dominated by hazard-centred approaches to understanding disasters – echoes of which can be seen in the earlier account of colonial disaster records. Moreover, Hilhorst argues, this international science is 'coupled with modern forms of governing disaster through disaster plans and emergency responses according to military style organisation' (Hilhorst 2003: 42). The second is the domain 'where disaster knowledge and management is mediated and altered through political and bureaucratic governance practices and institutions' (Hilhorst 2003: 44). This disaster knowledge is certainly derived – both in terms of content and legitimacy – from international science and disaster management, but articulation is filtered through political and bureaucratic exigencies, including (as we argue) national security concerns. The third domain centres on local knowledge development around disasters. Actors working on/in the third domain are often critical of modernist and technocratic approaches to disaster response and seek to emphasise a need to look at 'the various ways in which the repercussions of social systems can render people more vulnerable to the effects of disasters' (Ray-Bennett, 2007: 420; Mercer et al, 2008; Mercer et al, 2010). However, it does not sit in isolation from the other domains – indeed, all the domains overlap, such as local, indigenous, and vernacular knowledges and external knowledge combining to link the second and third domains. Not least because some people may weave in and out of several domains depending on their position(s) within a society (Hilhorst 2003:49).

The second domain of disaster governance is of particular relevance to this part of the analysis as it is by using this frame that we see a manifestation of the security values and priorities emerging in institutional understandings of hazard risk and vulnerability in Ladakh.

5.2. The implications of a securitised disaster governance in Ladakh

As outlined above, across India, and particularly in its border regions, national or military security are key priorities when imagining the possibilities of disaster preparedness and response. This is certainly not a unique phenomenon, as India's wider civil-military complex has seen the army take a lead in disaster responses, social development activities (Aggarwal and Bhan, 2009), and environmental sustainability elsewhere in the country (D'Souza, n.d.). Many argue this is positive, as the military is often ready to mobilise as soon as an emergency hits, is trained in search and rescue, and is fully equipped for a crisis scenario, bringing with them their own life support equipment (Gupta et al, 2012; Thompson, 2010). Moreover, their 'strategic force projection capabilities' and logistical expertise mean they can operate efficiently in humanitarian emergencies and on difficult terrain, giving them an advantage over more modestly-equipped civilian organisations (Thompson, 2010:3). These positive assessments were certainly echoed by the majority of our respondents, as we expand on below. Nonetheless, these perspectives in military deployment in a disaster form one part of a multi-layered set of experiences and viewpoints.

Aggarwal and Bhan (2009: 528) note that the effect of the military's involvement has often been the creation of parallel and competing civilian and military structures. In a sudden onset hazard scenario, in a securitised and remote region such as Ladakh, this presence and authority means that security forces must not only take the lead in an emergency – thereby automatically instigating a chain-of-command structure in the response – but this priority can also result in a limitation (or prohibition) of support or intervention from other actors, such as the community institutions and NGOs. Such an approach has a particularly detrimental effect on the development of civil society organisations in hazard-prone areas. Yet, these organisations are often (theoretically, at least) the key grassroots actors that drive everyday risk reduction, rather than reactive relief, and a more locally-contextualised approach to DRR and disaster response. Moreover, it can reinforce a marginalisation of state government authorities in local governance (Aggarwal and Bhan, 2009: 528). That is not to say that a military response should be replaced by a network of community-based actors, or a state institution. Rather, to quote Garge et al (2015), '[d]isaster risk

management is a complex and multifaceted task which cannot be addressed by any single sector, any single group or individual'. Yet Ladakh appears to lack much of that civic infrastructure and interconnected humanitarian and development working.

For instance, 'alternative' humanitarian actors permanently based within the district who are engaging in DRR and are readily mobilised in the event of a hazard are limited in number.[8] According to interview discussions with the district commission and civil society leaders, the main non-governmental organisation (NGO) working on DRR in Ladakh throughout the year is the Leh Nutrition Partnership (LNP), who moved into disaster response in 1978 following the destructive floods that hit vast swathes of Northern India (MoHA 1978; Interviews, June 2017; Reach Ladakh, 2016). LNP was funded by Save the Children India to respond to the floods and since then have expanded their programme to focus on education, women's empowerment and disaster risk reduction for schools (Interview, 7 June 2017). Other NGOs, that have sprung up in the region primarily since the 1980s and 1990s, also have mixed mandates and provide relief in the event of an emergency but have primarily focused on developmental and ecological issues, rather than specific hazard or disaster-focused activities (Reach Ladakh, 2016).

The paucity of aid organisations working concertedly on disaster risk reduction and emergency relief in the region has been affected by the broader difficulty NGOs face working in J&K. As a securitised zone, many of the villages near the LAC are classed as 'protected areas' and require an Inner Line Permit for access. Aggarwal and Bhan (2009: 521) describe these areas as largely restricted to outsiders – including international and domestic tourists, researchers and scientists – for 'security reasons' and that they are 'characterised by a visible military presence' (see also: Deng, 2010). Several key informants working for national aid organisations in Delhi noted that it can be difficult for humanitarian actors to gain government permission to undertake long term, and even emergency, work in many of those areas.

These restrictions and the dominance of the Indian army in areas where it views it has operational responsibility have a long history within broader Indian civil-military relations, and a particular embeddedness in Ladakh. Srinath Raghavan (2009) writes that they can be traced back to India's losses in the 1962 Sino-Indian War, where post-conflict assessments of mistakes ascribe (wrongly, in Raghavan's view) India's biggest failing to 'civilian interference' by the government in the military operations of the war. This became

the accepted view and caused a sea-change in civil-military relations (Cohen 1990) – it led to 'the idea that civilians should focus on the political level and should abstain from involvement in operational issues – a notion that continues to shape civil–military relations in India' (Raghavan, 2009: 150). The consequences of these operational shifts across India have been the demarcation of separate spheres of influence for civilian and military power structures, and the precedence of the military in matters considered to fall within their remit and geography. This in turn has 'exacerbated the lack of coordination between the services [and] resulted in extemporised and poorly coordinated responses' to crisis situations (Raghavan, 2009: 151). While Raghavan is primarily talking here about coordination in conflict scenarios, the occurrence of hazards and disasters within their operational sphere seems to follow the same logic as military command structures take over in these circumstances, and civilian organisations have limited access to villages that fall within the India Army's purview. Additionally, emergency-preparedness activities that the Indian Army carry out within the villages have a distinctive military hue.

In 2003 the Indian Army started Operation Sadbhavana in Ladakh. This Operation was initiated as a civic action and 'since then', they note, 'our commitment to welfare, well being and empowerment of the locals has only grown from strength to strength – thus enabling us to "win the hearts and minds"… The "Winning of Hearts" involves establishing an emotional connect and gaining the trust of locals by an ever ready helping hand, whenever times are difficult and conditions hard. "Winning of Minds" involves empowering the locals with knowledge and skills and thereby promoting / generating employment avenues in the remotest of areas' (Hall of Fame, n.d.). Their specific programmes include infrastructural development, training children to prepare for Military school entry, and providing specialist equipment, camps and medical aid in the event of an emergency (Hall of Fame, n.d.). The emergency-focused elements of this programme focus overwhelmingly on reactive response and rescue rather than risk reduction, and the motivations are presented as "winning hearts and minds", a military counter-insurgence strategy that grew in prominence during decolonisation conflicts of the mid twentieth century (Fitzsimmons, 2008: 340-341). This hints at the primacy of military strategy in their local relations – namely, to gain the trust and cooperation of the local population and legitimise their continued presence. While not surprising nor problematic from a strategic military standpoint, such authority also impacts disaster governance approaches.

On the one hand, the dominance of the army and absence of NGOs as emergency responders in an area with such extensive and embedded military infrastructure is not seen by many as a setback. Key informants in Leh almost unanimously praised the efforts of the army in the relief operations: 'the military in Ladakh is cooperative, friendly and welcome', explained one NGO worker. The main adjective used to describe their efforts by officials and ordinary citizens alike was 'helpful', and this reflection was frequently accompanied by a broader note of appreciation for their everyday role as 'protectors' of the Ladakhi population against Chinese and Pakistan military incursions into the state (Interviews, 2017). On the other hand, the army's perceived efficiency in disaster response and wider service provision has been argued as contributing to the civil government's 'over-reliance' on their services, which has in turn 'stunted the[ir own] initiative, responsibility and accountability' in DRR and disaster response (Gautum, 2013; Garge et al, 2015). Whatever the case, and it is almost certainly a mix of these factors, the dominance of the military and the interrelated securitisation of Ladakh is not without implications for disaster-related knowledge, policy and practice.

5.3. Shared language, different meanings

There exists a long-standing critique of the role of the military in humanitarian action (Anderson, 1968), and much of this centres on the tension between the purpose and agenda of a military actor in a given area, and the humanitarian principles adopted by some groups of impartiality, neutrality and independence (Lischer, 2007). Pugh (1998: 341), for instance, notes that one of the main arguments against a militarisation of humanitarianism is that, 'military humanitarianism is a contradiction in terms. Military acts are inherently political and usually connote imposition, whereas humanitarian relief is morally autonomous and, in theory at least, neither politically conditioned nor imposed'. While the point of non-governmental humanitarian neutrality is certainly contested (Terry, 2013; Rieff, 2003), it remains true in the Ladakh context that the military has a primary political purpose: border protection and the entrenchment of its power base to maintain security and stability (Aggarwal and Bhan, 2009). Thus, their governance of risk, and their related understandings of the relations between hazards, vulnerability and disaster, are mediated by these concerns (Hilhorst, 2003: 44). That is not to say the relief activities they undertake

are problematic acts in and of themselves, or that their humanitarian intentions in the heat of an emergency should be questioned, but that their agenda may have certain effects on the possibilities of effective DRR and disaster response for the affected communities. For instance, as well as limiting access for researchers and NGOs, in a tightly controlled security zone the military is not obliged – and may view it as strategically risky (Deng, 2010: 32) – to share the full extent of data it has on climate conditions, resources it has mobilised for various responses, access routes in and out of certain areas, and so on. This information can be vital for disaster scientists and civil society organisations to work together to prepare effectively for hazards over the longer term (Curtis, 2015; Kapucu, 2008) – especially if they have limited direct access to an area and the ability to gather their own data. Additionally, the dominance of the military in a given context means that, if and when local understandings of disaster governance differ from the military, the community have little recourse (Aggarwal and Bhan, 2009: 530).

While the above concerns are more relevant for hazard-related knowledge production and DRR in the remoter villages of Ladakh, the dominance of the military as humanitarian actors has implications for the more accessible urban centres, too. For instance, in the event of an emergency, the army's command and control structure relegates civil society organisations, and even to a certain extent the state government, to the role of relief agents and service providers (Espada 2016:135). This was evident in conversations with the major faith-based organisations in Leh, who were among the first responders to the 2010 cloudburst but felt limited in what they were able to achieve for those affected. While their centres operated as bases for sharing information and distributing goods, this was an ad hoc*,* reactive arrangement and ran in parallel to several other "pop up" distribution stations. 'There was no preparation, no disaster management… People [were] using their own vehicles for aid', recalled one informant. The tone throughout these interviews was that the government had failed in preparing the people and mounting a sufficient response. An official from the LAHDC remarked that, though the post-2010 establishment of mock drills and the creation of an Emergency Command Centre for disaster coordination are important, 'technical expertise is limited. We need a disaster management unit here'. Another key informant, a local with experience working on disaster management planning, asked rhetorically: 'How to reduce vulnerability at the Panchayat

[village] level? … We need to go to the villages and do [preparedness] exercises. Printing reports at different levels does not work'.

As well as highlighting the general sense of a lack of government and military expertise on disaster management and their lack of ongoing work in risk reduction, this discourse is also interesting for its reinforcement of the broader sense among Ladakhis of the government's responsibility for preparedness and the community's sense of powerlessness, inexperience or apathy in initiating their own programmes. Though, rightly, in these discourses the civil government is seen as having a key responsibility in leading effective DRR and disaster responses (Garge et al, 2015: 57), there remains limited recognition that the dominance and the role of the army (and the related securitisation of the border region) may be inhibitive – as part of a range of other factors – to that civic development of a more comprehensive and inclusive disaster governance structure.

A further consequence of this top-down, relief-orientated response is the treatment of those affected by the disaster as disempowered victims (Espada 2016:135). The militarised relief and rescue operations separate crisis-affected communities from their wider history and from the processes that have contributed to their vulnerability, in order to 'save' and return society to the assumed state of pre-disaster 'normalcy' (Bankoff 2004). And the governance authority held by these military and bureaucratic forces create a feedback loop whereby focus remains on hazard or disaster events, effectiveness is measured against lives saved and this sets the benchmark for good practice captured in subsequent disaster management policy formation. As noted by Virginie Le Masson, (2015: 105) 'the [Ladakh] District Disaster Management Plan, enacted in 2011 [after the cloud burst], is hazard oriented, with little attention to the root causes of disasters. For instance, although the hazards assessment is quite detailed, the plan does not include any analysis of vulnerability or capacity'. This approach largely reproduces the top-down, hazard-centred approaches to disaster management that has roots in colonial environmental management and has long been criticised in DRR literature (Hewitt 1983; Wisner et al 2004).

The difficulty of discerning dominant frames and their implications in disaster governance comes as a result of what Hilhorst (2003: 40) describes as the internal contradictions within and between domains, which can be hidden because of 'a shared repertoire of practices and languages'. For instance, in our research 'preparedness' for

disasters, and its equivalent terms, was spoken of by a diversity of actors in the three domains as variously requiring: sufficient historic climate data; the utilisation of indigenous knowledge; village level capacity-building exercises (Interview with local disaster management consultant, June 2017); the involvement of retired army officers for risk management (statement by a senior District state official, 2017); better planning regulation and the construction of disaster-resilient buildings (Interview with local NGO manager, June 2017), and so on. While they all may be important and have a role to play, the influence of these ideas on policy and practice depends on the political and bureaucratic exigencies through which they are filtered, and the governance authority of the actor articulating them. For Ladakh, disaster governance is framed by colonial and modern environmental science, and dominated by post-independence (particularly post-1962 Sino-Indian) security priorities.

6. Conclusion

Since at least the mid-nineteenth century, power structures in the Ladakh region have determined a form of disaster governance that has been simultaneously: driven by political and administrative concerns of the central government; shaped by the hazard-centred paradigm of 'universal' disaster science; and filtered through border security priorities. The argument of this paper has not been to unreservedly criticise those developments, but to contextualise their history and explore their implications. What is evident in the first instance is that hazard-related research on Ladakh, and documentation of disasters, is very limited. Initial scoping of the historical record and contemporary policy has uncovered patchy information on several main themes: larger hazards and the scale of their impact (with smaller events not making the record); the implications of an event for local and state governance (driven by security concerns); or the geophysical composition of hazard (emerging in more recent disaster science). What has been lost in this top-down, hazard-centred knowledge formation and disaster governance approach is the everyday hazard experiences of Ladakhis, and 'alternative' examples of risk reduction (or even lessons learned to the contrary). We have sought to theorise one of the contributing factors to that gap in knowledge and have argued the security-governance complex as being particularly

dominant in current imaginings of the priorities and possibilities of DRR and disaster response.

Given Ladakh's strategic importance to India as a border region, its difficult terrain, and extreme weather patterns, it is not surprising that the army are one of the key actors responding to hazards. Moreover, if the concern here was over disaster *management*, then the reactive, temporary relief and rescue operations undertaken by the military could arguably be appropriate for its role as a humanitarian logistical complement to local, government and civil society operations (Garge et al, 2015). However, as the military is taking a more significant role in wider disaster *governance* of Ladakh (i.e. a more normative role shaping the knowledge and possibilities of disaster responses and DRR activities) their authority becomes more problematic (Freks, 2013; de Graaf, 2013).

Using Hilhorst's Social Domains theory, we explored the implications of this securitised governance of society and the environment in Ladakh during rapid-onset hazards and we argued it is possible to see several ways that that human activity is exacerbating the unpreparedness of vulnerable communities. First, through the state and military frames of disaster in terms of an 'unexpected' emergency. This hazard-centred, reactive approach to disasters that assumes them to be a 'break from the norm' has its roots in colonial discourses of environmental science (see also Deloughrey et al., 2015). So, too, does the assumed need to maintain stability – whether environmental or social – and "return to normalcy" in this politically-sensitive border region.

Second, through the securitised "access limitation" of diverse disaster-related actors by the government from hazard-exposed areas – whether that be NGOs, scientists or researchers – before and after a disaster. This both limits the possibilities of data collection (and therefore disaster-related knowledge production) from a diversity of actors, and the communication and coordination of ideas and practice. It also reinforces a hierarchy of response, with the army at the top. The national security concerns of the border region, particularly after the 1962 war with China, have normalised this structure among all sections of society, including those that declare they support a fundamental overhaul of disaster governance – resulting in an almost unanimous praise of their presence (though this is possibly also emerging from trepidation about openly criticising the military). One of the consequences of this positive feedback loop on the army as 'protectors' is an oversight of

the limiting effects of securitisation on the possibilities of developing an alternative disaster governance model.

Finally, these top-down disaster governance norms, and linear transfers of data, are perpetuating the marginalisation of local knowledge of historic disaster experiences (Rautela, 2015), as well as taking the initiative and the incentive to act away from local populations. That is not to romanticise local knowledge as if it offers complete solutions to hazard risk, or as if it is something homogeneously held by the community. It can be just as erroneous and hierarchical a knowledge form as the other domains of disaster management (Hilhorst 2003: 47). Rather, this is to recognise that local values and areas of knowledge 'shape the way that people define a disaster, the way they look for solutions, and what they even consider to be a disaster and a solution in the first place' (Field, 2017). It is in the mutual dialogue between domains – and the related contestation and negotiation of ideas, theories and approaches – that disaster governance evolves (Hilhorst, 2003), if not in always in response effectiveness and relevance, then at least in participation and ownership.

Acknowledgements

Funding for this work was provided by the UK's Natural Environment Research Council through the Global Challenges Research Fund for project NERC Reference NE/P016138/1 'Increasing Resilience to Environmental Hazards in Border Conflict Zone'.

References:

Bankoff, G. (2001) 'Rendering the World Unsafe: 'Vulnerability' as Western Discourse'. Disasters, 25 (1), pp. 19-35.

Bankoff, G. (2004) 'Time is of the Essence: Disasters, Vulnerability and History'. *International Journal of Mass Emergencies and Disasters*, 22, 3, pp. 23-42.

Becher, Major J. (1859) 'Letter Addressed to R.H. Davis, Esquires, Secretary to the Government of the Punjab and its Dependences'. *Journal of the Asiatic Society of Bengal,* 28, 3.

Bray, J. (2011) 'Locating Ladakhi History'. In John Bray (ed.) *Ladakhi Histories: Local and Regional Perspectives,* pp.1-30. Koninklijke Brill: Netherlands. Reprinted by the Library of Tibetan Works and Archives: Dharamsala.

Cohen, S. (1990) *The Indian Army: Its Contribution to the Development of a Nation*. New Delhi: OUP.

Cunningham, A. (1854) *Ladak: Physcial, Statistical and Historical.* Wm H. Allen & Co.: London.

Curtis, C. A. (2015) 'Understanding communication and coordination among government and service organisations after a disaster'. *Disasters*, 39, pp. 611–625.

Deloughrey, E., J. Didur, and A. Carrigan (eds.) (2015) *Global Ecologies and the Environmental Humanities: Postcolonial Approaches*. Routledge: Abingdon.

Deng, J. M. (2010) 'Frontier: The Making of the Northern and Eastern Border in Ladakh From 1834 to the Present'. Independent Study Project (ISP) Collection. Paper 920. Online: http://digitalcollections.sit.edu/isp_collection/920 [Accessed 12 October 2017].

de Graaf, J. (2013) 'Shaky grounds: civil-military response to the Pakistani earthquake'. In S.J.H. Rietjens and M.T.I.B. Bollen (eds). *Managing Civil-Military Cooperation: A 24/7 Joint Effort for Stability.* Routledge: London.

D'Souza, E. (n.d.), 'The Potential of the Military in Environmental Protection: India', FAO. Online: http://www.fao.org/docrep/v7850e/V7850e12.htm [Accessed 27 June 2018].

Espada, F. (2016) 'On Authority and Trust: A Reflection on the Effectiveness of Disaster Management in Bangladesh, India and Nepal'. In F. Espada (ed). *Essays on Effectiveness,* pp. 121-156. Save the Children UK & HCRI: London.

Field, J. (2017) 'What is appropriate and relevant assistance after a disaster? Accounting for culture(s) in the response to Typhoon Haiyan/Yolanda'. *International Journal of Disaster Risk Reduction,* 22, pp. 335-344.

Fiori, J., F. Espada, J. Field and S. Dicker. (2016) *The Echo Chamber: Results, Management and the Humanitarian Effectiveness Agenda,* Save the Children UK & HCRI: London.

Fitzsimmons, M. (2008) 'Hard Hearts and Open Minds? Governance, Identity and the Intellectual Foundations of Counterinsurgency Strategy', *Journal of Strategic Studies*, 31, 3, pp. 337-365

Garge, R. N., H. Ha, S. Khoo, (2014) 'Disaster Risk Management and the Role of the Armed Forced: Critical Analysis of Reactive Disaster Management in India'. In H. Ha, R.L.S. Fernando, and A. Mahmood (eds). pp.49-68. *Strategic Disaster Risk Management in Asia,* Springer: New Delhi. [e-book].

Gautum, P. K. (2013) 'The role of the Indian Military in Disasters'. Institute for Defence Studies and Analysis. Online: https://idsa.in/idsacomments/RoleoftheIndianMilitaryinDisasters_pkgautam_050713 [Accessed 30 December 2017].

Gupta, P., A. Khanna, and S. Majumdar. (2012) 'Disaster Management in Flash Floods in Leh (Ladakh): A case study', *Indian Journal of Community Medicine,* 37, 3, pp. 185-90.

Haines, D. (2017), *Indus Divided: India, Pakistan and the River Basin Dispute.* Penguin: Delhi.

Hall of Fame Museum, no date. Operation Sadbhavana [Informational Display], Ladakh. Visited 6 June 2017.

HelpAge India. (2011) 'Leh Flash Floods', Online: http://www.helpageindiaprogramme.org/DISASTER/Floods/Leh_Flash_Flood/index.html [Accessed 26 June 2018].

Henderson, W. (1859) 'Memorandum on the Nature and Effects of the Flooding of the Indus on 10th August 1858, as Ascertained at Attock and its Neighbourhood'. *Journal of the Asiatic Society of Bengal.* 28, 3.

Hewitt, K. (1983) 'The idea of calamity in a technocratic age'. In K. Hewitt (ed.), Interpretations of Calamity from the Viewpoint of Human Ecology. London: Allen & Unwin, pp. 3-32.

Hilhorst, D. (2003) 'Responding to Disasters: Diversity of Bureaucrats, Technocrats and Local People'. *International Journal of Mass Emergencies and Disasters*, 21, 1, pp. 37–55.

Hindustan Times. (16 March 2016) 'Army stops construction of road along Ladakh LAC after China Protests', Online: http://www.hindustantimes.com/india/army-stops-construction-of-road-along-ladakh-lac-after-china-protests/story-VrLjmW8pZtwGufYuK2BCDK.html [Accessed 3 October 2017].

Hofman, CA. and Hudson, L. (2009) 'Military responses to natural disasters: last resort or inevitable trend?' *Humanitarian Exchange Magazine,* Humanitarian Policy Group, 44, pp. 29-31.

Howard, N. (2011) 'The Development of the Boundary between the State of Jammu and Kashmir and British India, and its Representation on Maps of the Lingti Plain'. In J. Bray (ed.) *Ladakhi Histories: Local and Regional Perspectives,* pp.217-234. Koninklijke Brill: Netherlands. Reprinted by the Library of Tibetan Works and Archives: Dharamsala.

Jammu & Kashmir Police. (no date). 'J&K Defence, Homeguard and SDRF'. Online: http://www.jkpolice.gov.in/about-jammu-kashmir-police/jammu-kashmir-homeguards-auxiliary-police-civil-defence.htm [Accessed 4 October 2017].

Jammu & Kashmir State. (1900) Report on the Administration of the Jammu & Kashmir State for The Hindi Year 1954 (1897-98). Ranbir Prakash Press: Jammu. *Jammu and Kashmir archives, Ref 15842.*

Jammu & Kashmir State. (1908) Triennial Administration Report of the Jammu and Kashmir State for The Hindi Years 1953-60 (From the middle of April 1901 to the middle of April 1904). The Civil and Military Gazette Press: Lahore. *Jammu and Kashmir archives, Ref 15844.*

Jammu & Kashmir State. (2017) Online: www.jkcivildefence.org/index.htm [Accessed 3 October 2017].

Kala, C.P. (2014), 'Deluge, disaster and development in Uttarakhand Himalayan region of India: Challenges and lessons for disaster management', *International Journal of Disaster Risk Reduction,* 8, pp. 143-152.

Kapucu, N. (2008) 'Collaborative emergency management: better community organising, better public preparedness and response'. Disasters, 32, 239–262.

Kapur, A. (2009) *On Disasters in India*. Cambridge University Press India: Delhi.

Kelman, I. and Dodds, R, (2009) 'Developing a Code of Ethics for Disaster Tourism'. *International Journal of Mass Emergencies and Disasters,* 27, 3, pp. 272-296.

LAHDC. (2011) District Disaster Management Plan: Leh District. Deputy Commissioner Office, Leh.

Le Masson, V. (2013) 'Exploring Disaster Risk Reduction and Climate Change Adaptation from a Gender Perspective: Insights from Ladakh, India'. PhD Thesis, Brunel University.

Le Masson, V. 'Considering Vulnerability in Disaster Risk Reduction Plans: From Policy to Practice in Ladakh'. *Mountain Research and Development,* 35, 2, pp. 105-115.

Lischer, S. K. (2007) 'Military Intervention and the Humanitarian "Force Multiplier"'. *Global Governance: A Review of Multilateralism and International Organizations*: January-March, 13, 1, pp. 99-118.

Madiwale, A. and Virk, K. (2011) 'Civil–military relations in natural disasters: a case study of the 2010 Pakistan floods', *International Review of the Red Cross,* 93, 884, pp.10085-1105.

Maikhuri, R. K. et al. (2017) 'Socio-ecological vulnerability: Assessment and coping strategy to environmental disaster in Kedarnath valley, Uttarakhand, Indian Himalayan Region', *International Journal of Disaster Risk Reduction,* 25, pp. 111-124.

Mercer, J., I. Kelman, K. Lloyd, and S. Suchet-Pearson. (2008) 'Reflections on use of participatory research for disaster risk reduction'. *Area*, 40, pp. 172–183.

Mercer, J., I. Kelman, L. Taranis, and S. Suchet-Pearson. (2010) 'Framework for integrating indigenous and scientific knowledge for disaster risk reduction'. *Disasters*, 34, pp. 214–239.

Michaud, J. (1996) 'An Historical Account of Modern Social Change in Ladakh (Indian Kashmir) with Special Attention Paid to Tourism'. *International Journal of Comparative Sociology*, 37, 3, pp. 286-300.

MoHA [Ministry of Home Affairs, Government of India]. (1978) Letter from Prime Minister Moraji Desai to Sheikh Mohdmabdullah [Chief Minister of J&K]. 12 September 1978. Prime Minister's Office South Block 1947-80. P.9. S No.192. Ref: 7/460/1978.

MoHA. (1955) Emergency Relief Organisation Training Institute. Appointment of Instructors. Ministry of Home Affairs 1952-63. P.96. S.No. 1. Ref: 4/4/55-E.R.I. National Archives of India.

MoHA. (1956a) No title. *Policy Note.* Ministry of Home Affairs 1952-63. P.96. S.No. 5. Ref: 4/4/56-E.R.I. National Archives of India.

MoHA. (1956b). Letter from N. S. Mani to Pulla Reddi. 30 December 1956. Ministry of Home Affairs 1952-63. P.96. S.No. 4. Ref: 1/9/56-E.R.I. National Archives of India.

MoHA. (2005) Annual Report 2004-2005. Department of Internal Security, Jammu and Kashmir Affairs, Border Management, States and Home New Delhi. Accessed 3 October 2017: http://mha.nic.in/sites/upload_files/mha/files/pdf/ar0405-Eng.pdf

MoHA. (2017) Annual Report 2016-17. Ministry of Home Affairs. Online: http://mha.nic.in/sites/upload_files/mha/files/EnglAnnualReport2016-17_17042017.pdf [Accessed 4 October 2017].

Norberg-Hodge, H. (1981) Ladakh: Development without destruction. In J.S. Lall, (ed). *The Himalaya: Aspects of Change*, Delhi: Oxford University Press, pp. 278-284.

Norberg-Hodge, H. (1991) *Ancient Futures.* Oxford India Paperbacks: Delhi.

Pugh, M. (1998) 'Military Intervention and Humanitarian Action: Trends and Issues' *Disasters*, 22, pp. 339–351.

Raghavan, S. (2009) 'Civil–Military Relations in India: The China Crisis and After', *Journal of Strategic Studies*, 32, 1, pp. 149-175.

Rajan, R. (2006) *Modernising Nature: Forestry and Imperial Eco-Development 1800-1950.* Orient Longman: New Delhi.

Rautela, P. (2016), 'Lack of scientific recordkeeping of disaster incidences: A big hurdle in disaster risk reduction in India', , *International Journal of Disaster Risk Reduction,* 15, pp.73-79.

Rautela, P. (2015), 'Traditional practices of the people of Uttarakhand Himalaya India and relevance of these in disaster risk reduction in present times', *International Journal of Disaster Risk Reduction,* 13, pp. 215-290.

Ray-Bennett, N.S. (2007) 'Environmental Disasters and Disastrous Policies: A View from India', *Social Policy and Administration,* 41, 4, pp. 419-424.

Reach Ladakh. (2016). Online: http://www.reachladakh.com/Non_Governmental_Organisations.htm [Accessed 2 January 2018].

Rieff, D. (2003) *A bed for the night: Humanitarianism in crisis*. Simon and Schuster.

Rizvi, J. (1999) *Ladakh: Crossroads of High Asia*. Oxford University Press: Oxford.

Rubin, A.P. (1960) 'The Sino-Indian Border Disputes'. *The International and Comparative Law Quarterly* 9, 1, pp. 96-125.

Shivananda H,. and P.K. Gautam. (2012) 'Reassessing India's Disaster Management Preparedness and the Role of the Indian Armed Forces'. *Journal of Defence Studies,* 6, 1, pp. 102-113.

Terry, F. (2013) *Condemned to repeat?: The paradox of humanitarian action*. Cornell University Press.

Thapa, M. (2016), 'Out of Barracks: Civil-Military Relations in Disaster Management', *United Nations, University for Peace,* 1.

Thompson, W.C. (2010) 'Success in Kashmir: A positive trend in civil-military integration during humanitarian assistance operations'. *Disasters,* 34, 1, pp.1-15.

Tierney, K. (2012) 'Disaster Governance: Social, Political and Economic Dimensions'. *Annual Review of Environment and Resources,* 37, pp. 341-363.

Weil, B. (2006) 'The Rivers Come: Colonial Flood Control and Knowledge Systems in the Indus Basin, 1840s-1930s'. *Environment and History,* 12, 1, pp. 3-29.

Wisner, B., P. Blaikie, T. Cannon, and I. Davis. (2004) *At Risk: Natural Hazards, People's Vulnerability, and Disasters.* 2nd edition. Routledge: London.

Ziegler, A. D. et al. (2014) 'Pilgrims, progress, and the political economy of preparedness – the example of the 2013 Uttarakhand flood and Kedarnath disaster', *Hydrological Processes,* Wiley Online Library. DOI: 10.1002/hyp.10349.

---

[1] No exact numbers were calculated, but a HelpAge India (2011) account suggests that international tourists were 'second only to the Indian army' in terms of visibility.

[2] "Disaster-silent" is a term we coin here to capture situations in which hazards are not included in accounts of a period, despite their occurrence and their likely impact on the given topic, whether that be local economic development, urbanisation, poverty and so on. These accounts may be on topics not directly *about* hazards and their impacts, but they could arguably be deemed insufficient if they do not account for disasters in their analysis.

[3] It must be noted that this analysis is based on ongoing research (and therefore incomplete data) as there has been no systematic recording of disaster events to date, and what the authors have recorded is undoubtedly incomplete. As such, it should be viewed as the beginning of a record rather than a comprehensive account.

[4] "Disaster governance" is here defined here as an inclusive term that looks at the responsibility and management of disaster risk reduction, disaster response and the normative knowledge production around these areas of action by a diverse range of actors (Tierney, 2012). Disaster governance can be considered at different scales (urban/rural, local, national, regional, and so on). This paper is concerned with disaster governance at an urban level in Leh, Ladakh, and situates it within the wider Ladakh district and Jammu & Kashmir state contexts.

[5] Anecdotal reports suggest that the border with Ladakh and China opens for one month every year in winter for Indian traders to purchase Chinese-made goods for sale in the Indian market.

[6] Indeed, Cunningham and Becher were not interested in anthropologically engaging with local experiences, but had their own development-focused administrative responsibilities (Weil 2006: 13),

[7] Special thanks to Dr. Thusu Bindra for these observations. Anecdotal evidence from interviews suggests that while the J&K State certainly has a limited pot of money to deal with hazards and disasters (as with any government), the problem of response is viewed to be less of a money issue and more a mix of bureaucratic problems and inertia. The former is reported as a result of high turn-over of bureaucrats in top-level positions, which loses governmental institutional memory and momentum, and the inertia is attributed to the fact that the army is there and will do the job anyway. These anecdotal reflections require further investigation.

[8] 'Alternative' actors are outlined by Ray-Bennett (2007) as those which explore nature-society-state relations and examine the ways in which social systems can render people more vulnerable to a hazard.