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Disaster diplomacy in Jammu and Kashmir

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ABSTRACT

Disaster diplomacy investigates how and why disaster-related activities do and do not influence conflict and cooperation. Studies into the topic so far have tended to develop the theory, analyse a specific case study in space and time, or connect both. Explorations of disaster diplomacy case studies over the long-term are so far absent from the literature. This paper explores Jammu and Kashmir in the Himalaya as a long-term case study for disaster diplomacy. Jammu and Kashmir has a long history of conflicts, multiple environmental hazards, and significant vulnerabilities yielding major disasters, with each topic generally addressed separately in the literature. This paper explores the intersection of vulnerabilities to environmental hazards and violent conflict for Jammu and Kashmir throughout its history. The analysis validates and refines previous disaster diplomacy conclusions. First, violent conflicts in Jammu and Kashmir cannot be shown to be either created or ended by environmental hazard incidences. Second, when vulnerabilities create disasters from environmental hazards, then short-term influences on violent conflict are sometimes seen, but these influences are not witnessed over a long time period.

1. Disaster diplomacy

Disaster diplomacy investigates how and why disaster-related activities do and do not influence conflict and cooperation ([30,31]; http://www.disasterdiplomacy.org). The key phrase is 'disaster-related activities' covering (i) pre-disaster efforts including research, prevention, preparedness, planning, vulnerability reduction, and damage mitigation, and (ii) post-disaster actions including response, reconstruction, and recovery. Disaster diplomacy case studies are not just about what happens when a volcano erupts in a war zone [34] or when enemies consider sending and accepting humanitarian aid [6]. Examples also examine the situation before a disaster manifests, such as how a flood warning system could potentially bring together communities [2] or how vaccination campaigns might generate lasting ceasefires [25].

Based on the empirical evidence of case studies connected with theoretical explorations, the overall conclusion from disaster diplomacy is that disaster-related activities have not yet been shown to create new initiatives in achieving peace or reducing conflict, but diplomatic processes with pre-existing conditions have been shown to be catalysed or supported by a variety of disaster-related activities [30,31]. When such catalysis occurs, disaster-related activities have so far been shown to influence diplomacy in the short-term, but not yet in the long-term.

In the short-term, over weeks and months, all forms of disaster-related activities have the potential to affect diplomacy, such as by spurring it on or by providing an opportunity in which peace efforts could be pursued if parties wish this to happen. For disaster-related activities to do so, a pre-existing basis must exist for the reconciliation. This could be ongoing negotiations or formal or informal culture, sports, or trade connections. Even over the short-term, disaster diplomacy is not necessarily successful, since disaster-related activities can sometimes foment conflict and reduce diplomatic opportunities—or have no impact at all on peace and conflict. Irrespective of what happens over the short-term, over longer time periods, non-disaster factors have a more significant impact on diplomacy than disaster-related activities. Examples of non-disaster factors are leadership changes, mutual distrust, feelings of superiority, belief that an historical grievance should supersede humanitarian considerations, or a desire for conflict due to political or economic advantages gained from it.

These conclusions have been corroborated through case studies covering inter-state conflict, intra-state conflict, disaster risk reduction, disaster response, bilateral relations, and multilateral relations. The

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analysis and conclusions have been extended to sub-national case studies, including para-diplomacy (international relations conducted by non-sovereign jurisdictions) and non-governmental relations and conflicts. Thus far, the evidence shows that disaster diplomacy has the potential (not inevitability) for improving inter-state and other relations only in the short-term and only if a non-disaster-related pre-existing basis is available.

This disaster diplomacy literature, though, displays major limitations. In particular, explorations of disaster diplomacy case studies over the long-term have so far been comparatively absent. Case studies instead tend to be delineated within comparatively narrow temporal limits rather than considering the full influence of long-term historical processes on observations and outcomes. This paper aims to explore a geographically delineated case study throughout its long history to determine prospects for understanding potential disaster diplomacy over the long-term, in line with García-Acosta's [21] directions for greater perspectives on 'Historical Disaster Research'.

For the case study, Jammu and Kashmir in the Himalaya is selected due to its long history of conflicts, multiple environmental hazards, and significant vulnerabilities yielding major disasters. Yet for Jammu and Kashmir, each of these three topics tends to be addressed separately in the literature, apart from prior disaster diplomacy work which typically highlights one disaster, the 2005 earthquake (e.g. [51]). Thus, this paper offers an overview through time of disaster diplomacy for Jammu and Kashmir to examine how combining knowledge sources might build up a picture of disaster diplomacy understanding for a specific location over the 'longue durée' [21]. The next section describes Jammu and Kashmir and the knowledge sources used for this paper. Section 3 describes the results of the investigation by providing information on environmental hazards and conflict for Jammu and Kashmir. Discussion of disaster diplomacy and the longue durée is provided in Section 4 followed by conclusions providing wider contexts and summarising this paper's contribution.

2. Researching in Jammu and Kashmir

The greater Kashmir region is an area at the Western side of the Hindu Kush Himalayan mountain region, expanding into what is now modern-day Pakistan, India, China, and Afghanistan. Since the sixteenth century, the region fell under Mughal, Afghan, and Sikh rule before the Dogra invasion saw its transition to the autonomous Princely State of Jammu and Kashmir in 1846. The Princely State maintained broadly cooperative relations with the British Empire, with rulers seeking to maximise trade possibilities in the wider region. The retreat of the British Raj and the Partition of South Asia in 1947 meant that Jammu and Kashmir was effectively forced to accede to one of the two main emerging states: India or Pakistan. Maharaja Hari Singh preferred independence but then signed the Instrument of Accession to India. The area remains disputed, and parts of what was the wider Kashmir region under the Dogras are now administered by China, India, and Pakistan. The border between India and Pakistan in this region is known as the Line of Control, or "LOC", while the border between India and China in Jammu and Kashmir is known as the Line of Actual Control, or "LAC".

The National Archives of India in Delhi provide material on disaster responses in Jammu and Kashmir state since 1947. They contain government records from the Ministry of Home Affairs on disaster management and humanitarian responses launched from the capital. Jammu and Kashmir has state archives providing further information in council meeting minutes on local disasters and weather patterns, including levels of rainfall and villages affected. There are no dedicated collections for disaster risk reduction or disaster response. Due to the highly sensitive nature of governance in Jammu and Kashmir, in these archives it is difficult to find maps of the region or government records detailing engagement with neighbouring states post-independence. Further information comes from co-authors of this paper and colleagues who have been involved in numerous disaster- and peace-related initiatives in Jammu and Kashmir for many years, as well as informal interviews with local residents much more recently.

Research in conflict zones is never easy, being rife with political challenges beyond day-to-day safety [55] and not always lending itself easily to rigid methodologies such as random sampling or clearly defined case studies with unambiguous units of analysis. Much information is picked up locally in informal settings, so is not necessarily straightforward to triangulate or to verify. Even defining the zone of conflict might not be unequivocal. Although all three countries administering parts of the region consider it to be a sensitive area, in contemporary times, many locations within the region rarely see violence and many locals would not refer to their location, such as the city of Leh, as being in a conflict zone. Consequently, the material given in the next section should be taken as illustrative rather than as comprehensive, providing a baseline from which to examine disaster diplomacy in Jammu and Kashmir.

3. Environmental hazards and conflict for Jammu and Kashmir

Appendix A compiles examples of major environmental hazards which were found in the literature for Jammu and Kashmir. Appendix B compiles a brief history of violence for Jammu and Kashmir. Non-localised environmental hazards, environmental hazard drivers, conflicts, and conflict drivers—i.e. those affecting everywhere on the planet—are not considered, even though they would affect Jammu and Kashmir. Examples of these environmental hazards and environmental hazard drivers are earthquakes, climate change, the El Niño Southern Oscillation cycle, other climate cycles, and astronomical hazards such as meteorite strikes and space weather. Examples of conflicts and conflict drivers which were relevant to Jammu and Kashmir, but which are not localised and so are not listed in Appendix B, are World War I, World War II, and the Cold War.

Additionally, many highly localised environmental hazards should be included in Appendix A, but rarely receive attention. If they are reported or recorded, then it is typically with few details. These hazards are a commonplace part of everyday life, but which are rarely deemed worthy of analysis precisely because they are part of everyday life. A principal example is avalanches which are a persistent concern, frequently causing fatalities, but reports were found mainly for the contemporary era via media (e.g. http://www.hindustantimes.com/india-news/five-soldiers-trapped-in-avalanches-in-ladakh-s-batalik-sector-two-rescued/story-IuVe3hEtQXw0NOxVQZfMRJ.html). Similarly, infectious disease has long been chronic and accepted as such in Jammu and Kashmir, with studies including Hepatitis E [36], Brucellosis [57], diarrhoea [4], and intestinal parasitosis [56]. In fact, many epidemics, temperature extremes, storms, and slides must have occurred throughout the region's history, but they do not have much, if any, documentation and so could not be listed in Appendix A. Volcanic ash might have affected the area at various times, but no written record has been found while the geological record reports pre-Holocene deposits (e.g. [11]).

National Highway NH-1 connects Kashmir with the rest of India and passes through Jammu. The road is often closed in winter due to landslides and avalanches, with these hazards causing numerous deaths along the highway every year, but with no systematic compilation of incidents or casualties. Media reports also provide indications of other fatalities related to environmental hazards. For example, on 25 June

2017, it was reported (http://www.bbc.co.uk/news/world-asia-india-40398890) that in Gulmarg, high winds toppled a tree onto a cable car wire which broke, sending the car plummeting down and killing at least seven people.

Whilst many of the areas in Jammu and Kashmir mentioned in these reports and papers on environmental hazards are not considered to be part of the conflict zones in contemporary times, they were within the regions of wars historically when hazards were similar to those experienced today and so likely led to numerous and continuous fatalities (see also Field and Kelman [20]). In contemporary times, vehicle crashes and damage to infrastructure, which could include industrial facilities, seem to be frequent according to media reports and local knowledge, so it is possible to extrapolate that infrastructure damage and casualties occurred from environmental hazards over previous centuries and millennia. The increase in population, population mobility, and infrastructure over past decades around Jammu and Kashmir would have been expected to increase environmental hazard impacts, irrespective of any trends in environmental hazards, though it is difficult to find data on and verify the number of people swept away by landslides or avalanches, or killed by falling rocks or toppling trees, over past centuries. Local knowledge suggests that such information was not typically recorded, partly due to oral (rather than written) traditions and partly since many of the hazards, notably avalanches and rockfalls, were part of everyday life, so not amenable to special mention in records. Lacking adequate warning systems and instant communication forms, travellers on foot or horseback might have been as or more vulnerable than those in vehicles today.

These everyday hazards, intersecting with chronic, everyday vulnerability to produce small-scale disasters which might affect only a handful of people and so are rarely recorded, have been shown to have a higher impact cumulatively than the typically much larger and typically better documented disasters [37,40,41]. The prevalence and consequences of small-scale disasters pose a problem for analysing disaster diplomacy in that the small-scale disasters' long-term, continual effects are hard to link directly to any political change, precisely because both are continuous, potentially interlinked, and might see gradual shifts interlacing multiple factors, rather than obvious, step changes. Separating out specific processes and sequences of events, while determining cause-and-effect lines, might not be possible. This challenge is particularly acute for Jammu and Kashmir due to the number of small, comparatively isolated settlements with their local hazards and local politics which are not always well-studied. Considering that disaster diplomacy ideas, to some degree, can be traced back to community-level studies [49], rich dimensions of disaster diplomacy for Jammu and Kashmir are being missed by not having a local-level understanding of environmental hazards and conflict.

In fact, just as ever-present small-scale disasters likely influence people, politics, and society more than large-scale disasters, ever-present small-scale violence could be more pertinent to peoples' lives than the conflicts which are recorded, such as those in Appendix B. Examples are domestic abuse, sexual assault, extortion, bullying, and robbery. Perpetuating "everyday violence" such as assault and murder is an accusation levelled at the authorities [17]—even using laws to propagate this form of power [24]—while extortion is reported for funding terrorism [26]. Hartmann and Boyce [22] and Watts [62] theorise how the most nocuous form of violence on communities, which they term "quiet violence" and "silent violence" respectively, is inequity, injustice, power abuse, resource allocation, and other baseline social ills which create poverty and vulnerability to disasters. Nixon [46] uses "slow violence" to describe the deleterious impacts on people of pollution, environmental destruction, and humanity's slow degradation of the natural environment. Both air pollution [23] and water pollution [48] have been concerning for Jammu and Kashmir, demonstrating the possibility of slow violence, although conflict-pollution links are not described prominently.

Consequently, environmental hazards and conflict as well as different forms of violence and hazards intersect for Jammu and Kashmir, but the most evidence so far is outside of a disaster diplomacy framing. It is not clear that disaster diplomacy would or could have more influence on Jammu and Kashmir than the other forms of intersection. Yet, for Jammu and Kashmir, research and analysis cohorts covering environmental hazards and conflicts have usually remained separate and disconnected. From Appendices A and B, environmental hazards and conflict have been occurring simultaneously for centuries. From the histories of Jammu and Kashmir (e.g. [1,14,16,47,53]), small-scale disasters, quiet violence, silent violence, and (in recent decades, at least) slow violence have been extensive across the region, although only rarely framed in these terms (e.g. [10]). Through these processes, vulnerabilities of populations and communities have been created, augmented, and perpetuated, leading to the modern-day potential for diplomacy and cross-border connections given the partitioning of the region.

The time period of 1959–1965 provides an illustrative example. From Appendices A and B, a major flood swept over the Kashmir Valley in 1959, the Sino-Indian war occurred in 1962, an earthquake struck the Badgam district in 1963, and the second Indo-Pakistan War occurred in 1965. No literature connects causes of or impacts from these various situations, nor is any effort made to investigate possible joint implications. Ahmad et al. [3] similarly discusses nineteenth century conflicts and seismicity in Jammu and Kashmir, but do not suggest close connections or consequences.

As such, Jammu and Kashmir is a suitable case study for examining possibilities for disaster diplomacy over the long-term and over multiple scales. The political situation in Jammu and Kashmir and its changes over time provide a useful dimension. The region was ruled by outsiders, became autonomous, and then became part of three sovereign states with two disputed borders. Political status is a variable in disaster diplomacy analyses, although care is needed because the status of a government or governing body (e.g. elected, hereditary, appointed, or otherwise) does not always reflect governance at other scales. Many settlements around Jammu and Kashmir are isolated, with the degree of isolation changing over centuries, meaning that governance of the region, either from the region or from governing states, might not immediately filter down to the local level or necessarily have significant impact on community peace and conflict or on everyday violence. Considering further the discussion above about localisation, it is also important to note that few region-wide hazards are recorded during periods of overt violent conflict encompassing the region, such as a formal state of war. The known instances are discussed in Section 4 as part of the analysis of examples of disaster diplomacy in Jammu and Kashmir.

4. Examples of disaster diplomacy in Jammu and Kashmir

4.1. Environmental hazards and disaster diplomacy

One of the most prominent disaster diplomacy case studies in Jammu and Kashmir occurred following the 8 October 2005 earthquake in which more than 78,000 people were killed in Pakistan which includes Pakistan-administered Kashmir, more than 1300 people died in India-administered Kashmir, and many were killed in Afghanistan. The emergency response and humanitarian relief included aid offered to Pakistan by India.

Overall, India sent 25 t of relief supplies to Pakistan including food, blankets, and medicine across the land routes. Big Indian companies such as Infosys offered aid up to US$226,000. An Indian Air Force Ilyushin-76 cargo plane ferried seven truckloads of army medicines, 15,000 blankets, and 50 tents. India also dispatched a second consignment of relief material to Pakistan by train through the Wagah Border, as an agreement could not be reached to allow another cargo flight. This consignment included 5000 blankets, 370 tents, 5 t of plastic sheets, and 12 t of medicine. A third consignment of medicine and supplies was sent by train and India pledged another US$25 million of aid to Pakistan. President Musharraf publicly expressed his thanks to India for the relief.

India and Pakistan further worked together in order to support relief and response across the Line of Control. Eleven days after the earthquake, telephone links across the Line of Control were permitted to be established. In November 2005, civilians were allowed across the Line of Control to search for family members missing in the earthquake. These decisions were labelled 'earthquake diplomacy' by media, people from around India and Pakistan, politicians, and other commentators (e.g. [33]).

In these discussions, a longer timeframe was rarely considered. Although the world had feared a nuclear war between the two countries in 2001–2002, India and Pakistan had retreated from the brink and had been slowly reconciling and drawing closer up until the time of the 2005 earthquake. These efforts included many initiatives to ease Line of Control restrictions. In April 2005, a bus route across the Line of Control had started, despite multiple violent threats against it. On 4 October 2005, India and Pakistan had committed to reaching an agreement to remove troops from the Siachen Glacier in the mountains around the area where China, India, and Pakistan meet. The 2005 earthquake disaster supported and accelerated ongoing India-Pakistan bilateral initiatives regarding Jammu and Kashmir, but neither created the efforts nor necessarily led to much more happening across the Line of Control than had been otherwise moving forward and expected. No major impact of the earthquake was seen regarding the Line of Actual Control.

The lack of influence of disaster diplomacy on Jammu and Kashmir is further illustrated by continuing post-earthquake violence across the region [58]. As the earthquake became more distant in time, links to disaster diplomacy based on the earthquake became more tenuous. Despite expressions of hope that the earthquake disaster and response to it might support a long-term peaceful resolution for Jammu and Kashmir, as well as for India-Pakistan more widely, few initiatives remain with respect to peace and violence around the region which could be attributed to the 8 October 2005 disaster.

As another exemplar of the lack of disaster diplomacy for Jammu and Kashmir, the Siachen Glacier presents harsh conditions of altitude, mostly above 3500 m, and weather. It is a frequent tagline that environmental hazards kill more soldiers on the Siachen Glacier than battle [28], as documented by Ahmed and Sahni [5] and Ali [8] who report that about 15,000 Indian casualties have been seen on the Siachen Glacier since the start of the violent conflict there, with 97% resulting from elevation, weather, and terrain, alongside a similar situation for Pakistani casualties. Despite the non-battle deaths and the ever-present danger of cold temperatures, storms, icefalls, crevasses, and avalanches, the loss of soldiers to environmental hazards has not influenced the peace or conflict. When the parties involved feel that they have reasons to move towards peace over Siachen, as occurred when India and Pakistan reached an accord regarding troop withdrawals four days before the 2005 earthquake, they do so. Otherwise, the violence continues and soldiers must deal with the environmental hazards, often at the cost of their lives. Although murmurings of withdrawal are sometimes raised by some parties following environment-related casualties, few diplomatic results are witnessed.

Rather than expecting environmental hazards, vulnerabilities, or disasters to bring peace to Jammu and Kashmir or to the Siachen, other proposals exist. Ali [8] posits a peace park as a mechanism to end the hostilities while Joshi [28] argues that the importance of having sovereignty over the glacier is formulated more from colonial thinking than from military strategy. Tackling this mindset might help to reach peace, especially since the peace park proposal has still not led to any steps forward.

Away from the high elevations of the Siachen Glacier, Venugopal and Yasir [61] analyse the 2014 floods in the Kashmir Valley, interviewing people from around Jammu and Kashmir. They conclude that the disaster brought people together quickly, but temporarily without long-term impacts, exactly as is observed for numerous other disaster diplomacy case studies. Another analysis by Espada [19] indicates that these floods worsened the unrest in the region because the Government of India sent in the military and the media to showcase themselves as the responding "heroes", even though the response was broadly perceived as being slow and inadequate. After the immediate relief period, the Government of India departed without having helped much in the area. Instead, the disaster-affected people turned against the government. Local knowledge further suggests that political unrest since 2014 has been exacerbated by poorly implemented humanitarian work from the Government of India.

The media sometimes report events relevant for disaster diplomacy. On 19 October 2016, the New Delhi based *Hindustan Times* (http://www.hindustantimes.com/india-news/india-china-hold-joint-army-exercise-on-disaster-relief-in-eastern-ladakh/story-yB64eo1fgMHhebPmlgJTjP.html) reported on India-China cooperation for disaster response around Jammu and Kashmir. They held a one-day exercise simulating cooperation for humanitarian aid and disaster relief after an Indian border settlement is hit by an earthquake. The article describes cooperation for rescue, evacuation, and medical response while also referring to a previous joint exercise on 6 February 2016. Many other media articles cover the 'Hand in Hand' India-China cooperation (e.g. http://economictimes.indiatimes.com/news/defence/india-china-joint-military-exercise-hand-in-hand-begins-in-pune/articleshow/55465031.cms) in Pune in November 2016, demonstrating that efforts to support cross-border disaster-related collaboration are not confined to Jammu and Kashmir, yet do not seem to lead towards a peace pathway for the region.

All of the discussion thus far tends to be for contemporary situations. Little analysis has been completed for more historical case studies.

4.2. Disaster diplomacy from the grassroots

Extensive efforts to stop violent conflict and to achieve peace in Jammu and Kashmir are witnessed, but they are initiated and pursued no matter what hazards, vulnerabilities, or disasters appear. As one example amongst many, Jinpa [27] describes, without reference to environmental hazards, the complicated politics leading to and ending the 1679–1684 Mongol War involving Ladakh. In the modern era in Jammu and Kashmir, many diplomacy initiatives are based in research and education initiatives through universities, so emanating from the bottom-up rather than from the top-down.

In 2006, a ten-member delegation from the University of Jammu in India-administered Kashmir travelled to Pakistan. The team visited various universities including Government College University Lahore, Lahore Leads University, and Lahore University of Management Sciences. Modalities were examined for signing memoranda of

understanding with various universities in Pakistan and Pakistan-administered Kashmir for student and faculty exchange programmes, as well as the opening of study centres in Lahore and Pakistan-administered Kashmir. The University of Jammu delegation discussed the need for greater and effective roles of universities in the peace process and areas of mutual research interest such as earthquake early warning systems, disaster management, trade between the two countries, and cooperation for improving quality of teaching, research, and practice in higher education institutions. Attendees included the President of Pakistan General Pervez Musharraf, the Foreign Minister of Pakistan, the Prime Minister of Pakistan-administered Kashmir, and prominent members of Pakistan's civil society. Building on the relationships established during this peace, conflict, and disaster focused exchange, in 2007, the University of Jammu organised a week-long cultural extravaganza in which for the first time, top Pakistani artists—including the famous ghazal singer Farida Khanum and the Ajoka Theatre group Madeeha Gohar—came to the university and performed before a packed audience. While not explicitly disaster-related, it was hosted on the back of connections built through the 2006 exchange programmes which involved some disaster-related activities. It also forms a layer of dialogue and relationship-building that often provides the foundation for further cross-border cooperation—noting how, as with other disaster diplomacy case studies, much is achieved regarding cooperation without relying on disaster-related activities.

In 2008, the Geology Department and the Institute of Energy Research and Training of the University of Jammu in cooperation with University College London and the Geological Society of London in the UK jointly organised the '2-day International Conference: Geology and Hydrocarbon Potential of Neoproterozoic-Cambrian Basins in India, Pakistan and Middle East' which several geologists from Pakistan attended. This was the first India-Pakistan scientific interaction in Jammu and Kashmir since 1947 and the Pakistani guests were welcomed for a golf game in the military cantonment area.

Yet similarly to the 2007 cultural exchange, these efforts did not spillover into wider diplomacy, instead just remaining at the level of scientific cooperation as is typically seen for science diplomacy, even science diplomacy for disaster-related research [32]. Conversely, grassroots science in Jammu and Kashmir has been used for political purposes. Rai [50] explains how archaeological studies in the early twentieth century were used to both claim and deny Kashmiri sovereignty interests.

Beyond higher education and the arts, the media have been involved in disaster-related diplomacy for Jammu and Kashmir. In 2017, a weekly newspaper called *Greater Ladakh* started covering news from the region, specifically Kargil in India and Gilgit and Baltistan in Pakistan. It is not permitted to publish the newspaper in Pakistan-administered Kashmir, so people from the region submit their stories via email or social media. The newspaper aims to play a role in bringing people together, especially through discussing environmental topics, representing a grassroots effort to focus on diplomacy and, given its environmental emphasis, potentially cross-border hazards, vulnerabilities, and disasters.

These examples demonstrate grassroots initiatives for diplomacy involving disaster-related activities. Their impact beyond their strict remit has thus far been negligible. While the individuals involved forge connections amongst themselves and progress regarding disaster-related activities and cooperation at the grassroots level, as with other disaster diplomacy case studies, evidence has yet to be found to demonstrate wider, longer-term impact. It is possible that people partaking in or influenced by these activities might eventually end up with much more power, regionally or nationally, and use their experiences to forge peace. Conversely, they might have been predisposed towards cooperation anyway. Any successes could be because they seek success, and hence became involved at the grassroots level and then wider politics, rather than it having been generated anew by the grassroots initiatives.

4.3. Potential ways forward

The Chushul region of Ladakh was where Chinese and Indian armies fought a war in 1962. Once or twice a year, a formal flag meeting is held between the Indian and Chinese army commanders and their staff as a confidence building exercise aimed at resolving problems at a local level. Both China and India have their own buildings, designated for flag meetings, which are several kilometres away from military posts and far from where any current military activity occurs. During these planned meetings, army officers dress casually, dine together, watch cultural shows, and exchange gifts. In this cordial environment, local problems are resolved, even though the exchanges have not yet scaled up to solving the conflict or border dispute. As time continues without further problems manifesting, these connections could yet demonstrate wider achievements. These meetings and progress in them occur irrespective of environmental hazards, vulnerabilities, disasters, or disaster-related activities, indicating again the lack of influence of disaster diplomacy. Instead, peaceful measures proceed in the presence or absence of disaster-related activities.

Flag meetings also occur between India and Pakistan. The discussions typically occur across a table set up near the Line of the Control. Again, the exchanges tend to be confined to local issues with little scope to scale up or to have wider influence—although this might yet come with time. Flag meetings are sometimes held after incursions or firing across the Line of Control, helping to ensure that tension is reduced and that local issues are raised and potentially resolved.

In these contexts, local disaster-related activities could be part of the discussions, although they have not been seen to be prominent. Consequently, disaster diplomacy is not happening in these situations even though local disaster-related activities would be a possible topic for discussion during flag meetings.

One point which emerged from local discussions is that the word 'diplomacy' might sound toxic in flag meetings, since 'diplomacy' is a word usually connected to politics. Vocabulary is important and can support or scuttle meetings and progress during them. Considering carefully how 'disaster diplomacy' is presented, especially the terminology used, could indicate the opportunities for garnering a more constructive response in terms of the army commanders considering measures for disaster-related cooperation during the flag meetings. Alternatives could be 'disaster-related cooperation', 'collaborative efforts to deal with disasters', or simply 'disaster risk reduction' in order to leave out any presumed political connotations, instead focusing on the specific disaster-related activities desired.

Even describing the region under consideration in this paper is fraught with difficulty. The names and spellings of specific locations can have political connotations, as can describing archaeology [50]. Using phrases such as 'territory was ceded' or that specific countries 'control', 'occupy', or 'administer' parts of the region would not be acceptable to some authorities, thereby making further work and data collection difficult. Using certain combinations of wordings or providing maps and information to delineate the areas and locations being studied (such as for academic papers) could cause trouble for colleagues and co-authors who live in certain countries or who might wish to work there again. Moreover, the delineation difficulties are not just a result of the political contention over border vocabulary. Part of the problem of observing and analysing instances of disaster diplomacy comes from a bias towards a nation state-dominated imagination of borders. This

limits understanding of the possibilities for disaster-related activities across unofficial borderlines, such as different groups within communities or communities collaborating more across official borders than with others in their own country, exacerbating the paucity of data on—and the challenges of collecting it for—disaster diplomacy.

Similarly, many people in the region, especially army officials, are reluctant to share any cross-border experiences, good or bad. In Jammu and Kashmir, post-1947 civil defence and disaster response has typically been led by the military who are viewed as being the most prepared and efficient for such activities. Possibilities for disaster diplomacy are likely to be affected since China, India, and Pakistan would be reluctant to permit military personnel to enter their areas of administration or their countries, even to deal with humanitarian relief. After the 2005 earthquake, media reports (e.g. http://news.bbc.co.uk/1/hi/world/south_asia/4350194.stm) indicated that Pakistan accepted that Indian military aircraft could deliver aid as long as Indian pilots and crew were not on board, while India responded that Indian aircraft must use Indian personnel. Therefore, even in the context of a humanitarian crisis with close scrutiny from the world, ways forward for disaster diplomacy are not necessarily found, supporting the lessons from Jammu and Kashmir's history and other disaster diplomacy case studies that disaster diplomacy does not present evidence of new, long-lasting diplomacy based on disaster-related activities.

Nor is there any particular reason why disaster diplomacy should happen, especially in this region. Diplomacy involving Jammu and Kashmir has been studied across the centuries [54] as have environmental hazards in Jammu and Kashmir [13]. Through all the various political statuses of Jammu and Kashmir, and as its territory and power waxed and waned, authors have not made connections between environmental hazards and conflict—or deeper aspects of disasters such as vulnerabilities and risks. Evidence could yet be found, because it is conceivable that the published research did not examine or did not notice disaster diplomacy back through the ages. It is clear that disaster diplomacy was not a predominant driving force, suggesting that the current political status, including two lines of control, would not immediately make any difference to disaster diplomacy compared to being autonomous, independent, a protectorate, or other forms. While many contemporary works have suggested achieving peace in Jammu and Kashmir for contemporary environment-related reasons including hazards (e.g. [8,33]), examining Jammu and Kashmir over the longue durée provides little hope or baseline that today's world should be any different from the past with respect to disaster diplomacy—and vice versa if trying to project contemporary understandings of disaster and diplomacy onto history.

5. Conclusions

Throughout disaster diplomacy studies, both theoretical and empirical, a frequent and often implicit assumption is that case studies can be clearly delineated in space and time. While jurisdictions have political borders which mark out the geographic scope of disaster-related and diplomatic-related activities in practice, events and situations from long ago can have significant influence today, even though borders have changed. Jammu and Kashmir is an example, with a variety of historical hazard, vulnerability, conflict, and peace situations affecting what can and cannot be achieved in the region today, including across the Line of Control and the Line of Actual Control. Yet disaster diplomacy case studies covering a long time period have thus far been absent from the literature.

The overview analysis here of disaster diplomacy in Jammu and Kashmir over the longue durée—with a bias towards recent history given that this time period has the most information available—validates and refines previous disaster diplomacy conclusions while expanding the temporal repertoire of disaster diplomacy case studies. Paramount amongst the conclusions is that no evidence was found that disaster-related activities cause or create new, lasting diplomacy, but disaster-related activities sometimes influence ongoing diplomacy on a short-term basis. Consequently, violent conflicts in Jammu and Kashmir cannot be shown to be created or ended by environmental hazard incidences, but when vulnerabilities create disasters from environmental hazards, then short-term influences on violent conflict are sometimes seen based on non-disaster-related reasons.

Caution is needed in considering Jammu and Kashmir as a case study without placing it within wider contexts. The violent conflicts within and related to Jammu and Kashmir are not merely between India and Pakistan [14,44,59], not even the Siachen Glacier battlefield [28]. A variety of interests emerge, including increased sovereignty, independence, more religious control, cultural identity, resource control, governance, and closer or worse ties to the countries in the region alongside other interests such as money from drug trafficking which is then used by other parties to support the violent conflict [63]. Much of the violence originates from non-state parties, with different degrees of direct backing or tacit support from state-related parties, and the violence is not always about territorially-motivated ambitions. Instead, many of those seeking and supporting violence cite religious and cultural values or identity as the rationale for their actions and might not even be based in, or have concerns specifically about, Jammu and Kashmir.

Consequently, the issues in and around Jammu and Kashmir are about much more than reconciliation amongst Islamabad, New Delhi, and Beijing (and potentially Kabul) while typically extending farther afield than the region's own jurisdictional boundaries. Nonetheless, discussion surrounding ‘earthquake diplomacy’ based on the 8 October 2005 disaster tended to highlight India-Pakistan relations. Meanwhile, many initiatives focus on only Jammu and Kashmir without considering, or being able to consider, influences beyond the local area. And, throughout history, little is known about disaster risk reduction efforts in or pertaining to Jammu and Kashmir, because most documentation is about environmental hazard incidences or drivers, most frequently in the context of observed disasters.

Consequently, it could be possible that presumptions regarding the important components of disaster-related and diplomacy-related activities in and related to Jammu and Kashmir explain why disaster diplomacy does not seem to work in Jammu and Kashmir: because the issues to be tackled go far beyond the local area, far beyond Indian and Pakistani politics, and far beyond instances of violent conflict, environmental hazards, and everyday and century-scale vulnerabilities. Based on the lessons from Jammu and Kashmir, disaster diplomacy work could be improved by being less confined in space and time in order to better consider wider, longer, and deeper scopes and contexts, all of which feed into disaster-related activities, environmental hazards, peace, conflict, and their interactions.

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Appendix A. Examples of environmental hazards in Jammu and Kashmir

See Appendix Table A1.

Table A1
Examples of environmental hazards in Jammu and Kashmir.

Date	Hazard	Location	Notes
approximately 1250 BCE	Earthquake	Wular Lake	Bilham and Bali [13] who provide further sources.
879	Flood and landslides	Khadanyar mountains below Baramulla, blocking the Jhelum River.	Lawrence [38]
883 or just before.	Earthquake-induced landslide and flood.	Kashmir Valley	Bilham and Bali [13] who provide further sources.
1123	Earthquake	Kashmir	Bilham and Bali [13] who provide further sources.
24 Sept 1501	Earthquake	Kashmir	Bilham and Bali [13] who provide further sources.
September 1555	Several earthquakes leading to landslides and liquefaction	Kashmir	Bilham and Bali [13] who provide further sources. Joshi and Thakur [29] note that several hundred people were killed.
1560 or 1561 and others from 1569 to 1577	Earthquake	Kashmir	Bilham and Bali [13] who provide further sources.
23 June 1669	Earthquake	Kashmir	Bilham and Bali [13] who provide further sources.
Around 1678–1679	Earthquake	Kashmir	Bilham and Bali [13] who provide further sources.
1683	Earthquake	Kashmir	Bilham and Bali [13] who provide further sources.
1735–1736	Several earthquakes	Kashmir	Bilham and Bali [13] who provide further sources.
1779	Several earthquakes	Kashmir	Bilham and Bali [13] who provide further sources.
1784–1785	Earthquake	Kashmir	Bilham and Bali [13] who provide further sources.
1803	Earthquake	Kashmir	Bilham and Bali [13] who provide further sources.
26 June 1828	Earthquake	Jammu and Kashmir	Bilham and Bali [13] who provide further sources.
1831	Famine induced by early snow	Kashmir	Mehran [43].
1833	Flood, seemingly from a glacial outburst.	Shayok Valley	Cunningham [16].
1841	Flood	Kashmir Valley	Cunningham ([16], pp.105–106) provides a table of life and property losses suggesting 92 people killed in villages and 500 troops swept away (which might have affected conflict, but no statement is made to this effect 0. Lawrence [38].
1845, 1857–1858, 1867, 1870–1876, 1888, 1892	Cholera	Kashmir	Akhtar [7].
1858	Flood caused by the Shyok glaciers or the Ghammesar landslide.	Ladakh	Mason [42].
1863 or 1864	Earthquake	Kashmir	Bilham and Bali [13] who provide further sources.
1877–1879	Famine induced by heavy rainfall.	Kashmir	Mehran [43].
30 May 1885	Earthquake	Jammu and Kashmir, especially Baramula and Pattan	Bilham and Bali [13] who provide further sources.
1893	Famine induced by floods from rainfall starting 18 July.	Srinagar and area	Mehran [43].
1901	Famine induced by taxing food.	Kashmir	Mehran [43].
23 July 1903	Flood	Kashmir Valley and Srinagar	Saleh et al. [52].
4 April 1905	Earthquake	Jammu and Kashmir, Kangra Valley and Himachal Pradesh	Joshi and Thakur [29]
1929	Flood	Shyok River, Ladakh	Mason [42].
1929	Famine induced by flooding	Srinagar	Mehran [43].
22 June 1945	Earthquake	Himachal Pradesh	NIDM [45].
1948	Flood	Kashmir Valley, especially Jhelum River	Bhatt et al. [12].
September 1950	Flood	Kashmir	http://www.hindustantimes.com/india/remembering-the-1950-kashmir-floods/story-q2gre096SIIFXq7xaxNiOO.html Over 100 people were killed.
August–September 1957	Flood	Kashmir Valley	http://www.microfinancemonitor.com/timeline-of-kashmir-floods-879-ad-to-2014-nature-wreaks-havoc-on-valley-every-50-years/17699
1959	Flood	Kashmir Valley	Jammu and Kashmir state archives, Council Records, Ref 15842
2 September 1963	Earthquake	Badgam district	Krishna [35]. Over 100 people were killed.
20 February 1967	Earthquake	Eastern Kashmir	Correia et al. [15].
3 September 1972	Earthquake	North West Kashmir	Anees and Bhatt [9].
1992	Floods and landslides from rainfall	Jammu and Kashmir	http://www.livemint.com/Politics/5Pq6ov9rVifupnpxQJUo1O/Jammu-and-Kashmir-has-had-a-long-history-of-flooding.html 200 killed in Indian-administered Kashmir and over 2000 killed in Pakistan-administered Kashmir.
8 October 2005	Earthquake	Pakistan-administered Kashmir	USGS [60]. Over 86,000 total.

(*continued on next page*)

Table A1 (*continued*)

Date	Hazard	Location	Notes
4 January 2010	Landslide	The Karakoram Highway connecting Pakistan and China blocking the Hunza River.	Ekström and Stark [18].
6 August 2010	Cloudburst leading to floods	Leh	Le Masson [39]. 204 people killed.
2012	Avalanche	Siachen Glacier	Joshi [28]. Nearly 100 Pakistani soldiers killed.
6 September 2014	Floods	Kashmir Valley and Jammu Province	Venugopal and Yasir [61].
May 2015	An artificial lake burst	At Phugthal in Zanskar	http://www.thehindu.com/news/national/other-states/artificial-lake-burst-triggers-floods-in-ladakh/article7182786.ece Damage but no reported casualties.
August 2015	Cloud burst and flash floods	Ladakh	http://www.thehindu.com/news/national/other-states/army-rescues-400-stranded-tourists-from-floodravaged-ladakh/article7519486.ece Damage, but no reported fatalities.
February 2016	Avalanche	Siachen Glacier	Joshi [28]. 10 Indian soldiers killed.
February 2017	Drought	Jammu and Kashmir	https://www.theguardian.com/global-development/2017/feb/03/kashmir-farmers-border-crossfire-hit-hard-drought

Appendix B. Examples of violence in Jammu and Kashmir

Before 1846, Jammu and Kashmir as part of wider Kashmir was governed by various rulers. From 1846 to 1947, it was governed by a prince or king as part of a financial deal with the British Indian Empire in which the UK appointed a political agent in Kashmir, but never ruled directly. Then, India and Pakistan achieved independence in 1947 from which time Jammu and Kashmir's administration has been split amongst India, Pakistan, and China (e.g. [1,14,16,47,53]).

Key violent conflicts in Kashmir until 1947 include:

- 326 BCE, Kashmir's king fights and loses to Alexander the Great.
- Sixth century, Hepthalites and Mihirakula take over Kashmir.
- Ninth century, Lalitaditya Muktapida and Shankaravarman expand Kashmir's rule.
- Tenth century, Chakravarman takes over Kashmir.
- Eleventh century, Mahmud of Ghazni tries and fails to take over Kashmir.
- Early fourteenth century, dynasty ruling Kashmir collapses.
- Around 1540, Mirza Muhammad Haidar Dughlat invades Kashmir.
- 1679–1684, the Mongol War [27].
- 1738, Nadir Shah invades India.
- 1753, Abdul Khan Isk Aquasi takes over Kashmir.
- 1819, Ranjit Singh takes over Kashmir.
- 1845–1846, First Anglo-Sikh War.
- 1848–1849, Second Anglo-Sikh War.
- 1857, India's First War of Independence (Kashmir sided with the UK).
- 1931, attempt to overthrow Kashmir's leader.
- 1946–1947, sporadic violence as Kashmir's leader decides between joining India, joining Pakistan, or declaring independence.

Bose [14] and Schofield [53] provide background on the wars that India and Pakistan have fought since 1947, in addition to the roles and interests of China with respect to Jammu and Kashmir. An approximate timeline of some major peace and conflict developments during this time period is:

- 1947 August, India and Pakistan created as countries when the British withdrew.
- 1947 October–1 January 1949, first India-Pakistan war, focused on Kashmir.
- 1949 April, India-Pakistan establish a ceasefire line (Karachi Agreement).
- 1962 October, China-India war affecting wider Jammu and Kashmir.
- 1965 April–September, second India-Pakistan war, focused on Kashmir.
- 1966, India and Pakistan sign a peace deal in Tashkent.
- 1971 December, third India-Pakistan war, focused on East Pakistan (soon becoming Bangladesh) and including Kashmir.
- 1972 July, India-Pakistan ceasefire establishing the Line of Control (Simla Agreement).
- 1987–1990, Kashmir Insurgency.
- 1988, India and Pakistan sign an agreement on sharing nuclear facility information.
- 1989–1992, clashes between Buddhist and Muslim youths, and the boycotting of Muslim-owned shops by Ladakhi Buddhists.
- 1999 February, India and Pakistan sign the Lahore Declaration.
- 1999 May–June, fourth India-Pakistan war, the Kargil War.
- 2000 November, India declares a ceasefire in Kashmir.
- 2001 October, Srinagar assembly attacked.
- 2003, India and Pakistan restore diplomatic relations leading to agreements and meetings.
- 2004–2006, India-Pakistan peace talks.
- 2008 October, Official trade begins across the Line of Control.

- 2014–2015, Indian and Pakistani Prime Ministers visit each other.
- 2016 April, India-Pakistan peace talks suspended.
- 2016–2017, spike in violence in the Kashmir Valley between civilians, militants and the Indian Army.

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