

The politics of disaster vulnerability: Flooding, post-disaster interventions and water governance in Baltistan, Pakistan

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Abstract

This paper uses governance of water infrastructure in two settlements of Baltistan as an entry point to examine the co-production of power and vulnerability. Access to water and irrigated land is a critical factor in determining how the effects of disasters, such as flooding, are socially distributed within a community. At the same time, the governance of water is intimately linked to the longer-term politics of disaster vulnerability. We examine three different forms of disputes over water infrastructure where struggles over authority and social ordering materialise: (i) between and within settlements over access to a water resource; (ii) within settlements over post-disaster water infrastructure development and (iii) between a settlement and the district government over land, water rights and flood protection. The findings illustrate that the governance of water infrastructure involves continuous negotiations, contestations and disputes over access rights. Access to water resources as an expression of rights plays a key role in the recognition of authority relations. In particular, influential individuals seek to legitimise their leadership role in a settlement by representing the rights and interests of groups in the negotiation of these disputes. However, environmental variability and change, including disasters and post-disaster development interventions, alter perceptions of what constitute legitimate rights, and provide spaces for popular contestation of authority relations through silent non-compliance with decisions. The close interlinkages between material and non-material effects of a disaster are a key feature of the co-production of power and vulnerability. By adding authority relations to studies of village-level practices around disasters, we enrich our understanding of the co-production of power and vulnerability and how these dynamics unfold over time. It is only by investigating this co-production that a deeper understanding can be developed of the mechanisms through which vulnerability is either exacerbated or reduced for particular groups.

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Authority, co-production, disaster, Pakistan, vulnerability

Introduction

In this paper, we investigate how disaster vulnerability intersects with the practice of power, interpreted here as the reproduction and contestation of social relations through daily decisions and practices. Over the past few decades, disaster research has increasingly highlighted the role of socio-political factors in contributing to disasters, which are interpreted not just as ‘natural’ events, but also as an outcome of societal processes and power relations (Huang, 2018; Wisner et al., 2003). There are increasing calls for a more sophisticated political understanding of the dynamics through which the practice of power produces vulnerability, and of how disasters in turn produce particular socio-political relations (Eriksen et al., 2015; Taylor, 2015; Williamson, 2018), a call echoed in a recent special issue of this journal (Collard et al., 2018).

Power and the micro-politics of how social actors negotiate, contest or accept decisions and practices are often seen as critical in shaping vulnerability (Eriksen et al., 2015; Taylor, 2013; Tschakert et al., 2016) and in understanding disasters (Nygren, 2016; Watts and Bohle, 1993; Wisner et al., 2003). Despite these emerging conceptual and empirical studies, the way that power dynamics constitute vulnerability is still not well understood. Disaster vulnerability has been seen as ‘the characteristics of a person or group and their situation that influence their capacity to anticipate, cope with, resist and recover from the impact of a natural hazard’ (Wisner et al., 2003: 11). In climate change literature, it is increasingly argued that it is important to go beyond identifying characteristics of vulnerable populations to understanding the broader vulnerability context, including socio-environmental processes and structures that generate social vulnerability (O’Brien et al., 2007). Shifting analysis from *describing socio-economic inequality* to *investigating political inequality* as a determinant of vulnerability means, for example, going beyond identifying insecure land tenure as a cause of vulnerability, to identifying the causes of insecure land tenure (Mikulewicz, 2018). Such examinations of power can help move conceptualisations of vulnerability into more analytical domains, explaining the dynamics that lead to particular vulnerability characteristics.

The political dimensions of vulnerability have recently been investigated in terms of relational vulnerability, or the hierarchical social relations that result in prosperity and security of some groups through the marginalisation and vulnerability of others (Atteridge and Remling, 2018; Taylor, 2013). Livelihood practices, as well as policy interventions, are negotiated through such unequal socio-political relations, leading to very uneven outcomes (Eriksen et al., 2015; Nagoda, 2015; Pelling, 2011; Taylor, 2015). Drawing on socio-nature interpretations of society and nature as inseparable (Jasanoff, 2004; Swyngedouw, 1996, 2009), we take as a starting point the understanding that not only is vulnerability relational and imbued with politics, but power and vulnerability must also be understood as being co-produced. A disaster itself and responses to disaster alter the practices that (re)constitute political and social relations. What are the implications of such an understanding for how disaster vulnerability can be investigated?

We address this question by investigating the practice of power in water management practices in two settlements prone to floods and droughts in the Baltistan region of Pakistan. We interpret socio-political relations and disaster vulnerability as continuously co-producing

each other through daily decisions and practices, arguing that it is only by investigating this co-production that we can develop a deeper understanding of the mechanisms through which vulnerability is either exacerbated or reduced for particular groups. Access to resources and recognition of authority are critical components of disaster vulnerability. They define the socially differentiated effects of a disaster such as drought or flooding in the short term, since access to water and irrigated land is central to agricultural production and to livelihoods as well as to who benefits from disaster recovery measures. Furthermore, the governance of water infrastructure is central to the longer-term politics of disaster vulnerability, representing a key arena where struggles over authority relations and social ordering take place (Zwarteveen et al., 2017), and hence social vulnerability to future disasters. We therefore explore disputes over water infrastructure and post-disaster assistance as moments where the relationship between authority relations and disaster vulnerability comes into view.

By analysing key informant interviews, group discussions and secondary data sources, we show how continuous renegotiation of access and management arrangements is crucial to understanding how different actors adapt to changing circumstances. We argue that disasters play a key role in defining how historical hierarchies and long-term patterns of authority are reproduced, and how changes occur within them. For example, disasters provide space for consolidating authority through the need for a recognised leader to ensure assistance in a time of crisis as well as renegotiation of water rights. Yet, conversely, failure to meet villagers' expectations can also trigger popular contestations and resistance. Our study therefore adds authority relations to the study of village-level practices around disasters and water access, in order to better understand the political dimensions of vulnerability.

Practices, authority and disaster vulnerability: Theoretical focus

In order to understand the co-production of power and vulnerability, we investigate the practices through which authority is legitimised in contexts of disaster vulnerability. Authority is fundamental to the types of decisions and practices in which an individual or community can engage to manage flooding or drought events, for example. Drawing on Nightingale (2017), we see authority as a relational dynamic through which the legitimacy to make decisions is claimed and acknowledged. Hence, the exertion of authority captures the way power is exercised and how social actors compete for influence. Authority has several key features. First, the constitution of authority is associated with how rights are defined and enforced. For example, the enforcement of the right to access various resources and the right to be part of a community are two critical aspects that define authority. In other words, being able to enforce or ensure rights on behalf of oneself or a group means having one's authority legitimised (Lund, 2016). Second, authority plays an important role in the social ordering and hierarchies of a society. Inequities occur in everyday interactions that involve claiming, recognising or contesting authority (Nightingale, 2017). Third, authority is not constant; rather, it is a relation that is always in a continuous process of legitimisation or contestation (Nightingale and Ojha, 2013). In particular, resource governance as well as interventions and programmes targeting such governance become arenas where social and political actors from the national to the local level compete for recognition and authority. Furthermore, ordinary people's desires to be part of such programmes also form part of the struggle for social position and recognition of their rights and needs by the government and aid agencies (Nightingale, 2017).

The case of practices of water infrastructure in flood- and drought-prone river valleys in Baltistan illustrates how authority is legitimised through struggles over access to water, and

how these dynamics (re)produce social hierarchies. Lack of access to water infrastructure is critical to disaster vulnerability (Lynch, 2012). In line with our conceptual understanding of vulnerability as contextual, we interpret disaster vulnerability as an inherently social process operating over extended periods, rather than driven by a ‘natural disaster’ event in the short term. Investigating the governance of water infrastructure in an area prone to both droughts and floods is a useful entry point for understanding how vulnerability and power are co-produced over time.

Recent work illustrates that the relationship between infrastructure and authority relations is dynamic and complex, with overlapping formal and informal claims to authority (Linton and Budds, 2014; Mosse, 2008; Obertreis et al., 2016). Understanding of the complexity of these relations has deepened over the past few decades through a burgeoning literature investigating the politics surrounding water access and rights (Anand, 2017; Bakker, 2012; Boelens et al., 2016; Hellum et al., 2015; Meehan, 2014; Mehta et al., 2012; Movik, 2014; Ribot and Peluso, 2003; Swyngedouw, 2009). Similarly, there is an increasing focus on how management approaches interact with the politics of development and poverty (Mehta et al., 2017). We build on this literature to study how struggles for authority are manifested in daily practices and disputes associated with water infrastructure, and how this dynamic contributes to ordering society in a way that make some more vulnerable than others. In particular, we include environmental variability into the understanding of power relations, in terms of how floods and droughts premise struggles over authority. We therefore see disasters not only as an outcome of politics but also as ‘prime events for understanding politics’ as they reveal hidden and underlying processes and structures (Guggenheim, 2014: 7).

Disasters have been regarded as ‘transformative political space’ or ‘tipping points’ for their role in ‘contestation or concentration of political power and the underlying distributions of rights between citizens and citizens and the state’ (Pelling and Dill, 2010: 34). Yet, not every disaster results in the emergence of a new political order. Rajesh and Yasir (2017: 427) describe how the desperate need for help and assistance in the aftermath of a disaster offers ‘politically pregnant possibilities’ for various political actors to gain legitimacy and to contest existing power relations. However, the ways in which disasters instigate contestation and potentially transform authority and power relations – or entrench social hierarchies and vulnerability – are not well understood (Siddiqi, 2018). Fundamentally, then, we understand disasters as something more than physical damage to infrastructure or the outcome of socially differentiated vulnerability; we see them as central to the co-productive relationship between power and vulnerability. By investigating their role in how authority is claimed or contested and the consequent production of social hierarchies, we aim to explain the practices through which entrenchment and rupture of authority relations take place.

The main research question that this paper addresses is: How does the co-productive relationship between power and disaster vulnerability unfold in daily practice? In particular, how does the claiming of authority – and recognition or contestation of that authority – emerge in disputes and negotiations over governance of water infrastructure and post-disaster interventions? Studying such micro-political dynamics can shed light on how to address the processes and relations *producing* long-term vulnerability, and to help in moving beyond measures aimed at reactively alleviating the *outcomes* of such processes for vulnerable groups (Eriksen et al., 2017). In particular, it enhances our understanding of the role that disruption and environmental variability play in opening up or closing down spaces for transforming socio-political relations.

Co-production of power and vulnerability: Background and methods

Our investigation was carried out through a case study of water governance in a flood- and drought-prone river valley in Baltistan in northern Pakistan (Figure 1). In the next section, we explain the historical context that has shaped contemporary governance of water infrastructure, and the methods we used to examine how authority relations and power struggles inherent in water governance co-produce longer-term disaster vulnerability.

The history of authority relations and water infrastructure in Baltistan

Baltistan is a particularly mountainous region located in the northern part of Pakistan. As an arid region, Baltistan experiences very little rainfall. Various rivers including the Shigar, Braldu and Shyok flow through the region and merge into the Indus, a major river which supports irrigation-based agriculture in central parts of the country. However, people in the river valleys in Baltistan are unable to access these rivers for irrigation owing to elevation differences and their inability to install large water pumps to lift the water from the rivers up to their terraces. Instead, the rivers pose a flooding hazard, which generates risks including loss of land. People rely mainly on spring, glacial and snowmelt water feeding into the rivers, and have developed a gravity-fed network of channels and reservoirs to utilise this water for irrigation and drinking purposes.

Historically, political power has been intimately linked with the development of water infrastructure and social hierarchies in this area. In particular, the construction of dams and irrigation canals required not only extensive labour but also political mechanisms to control

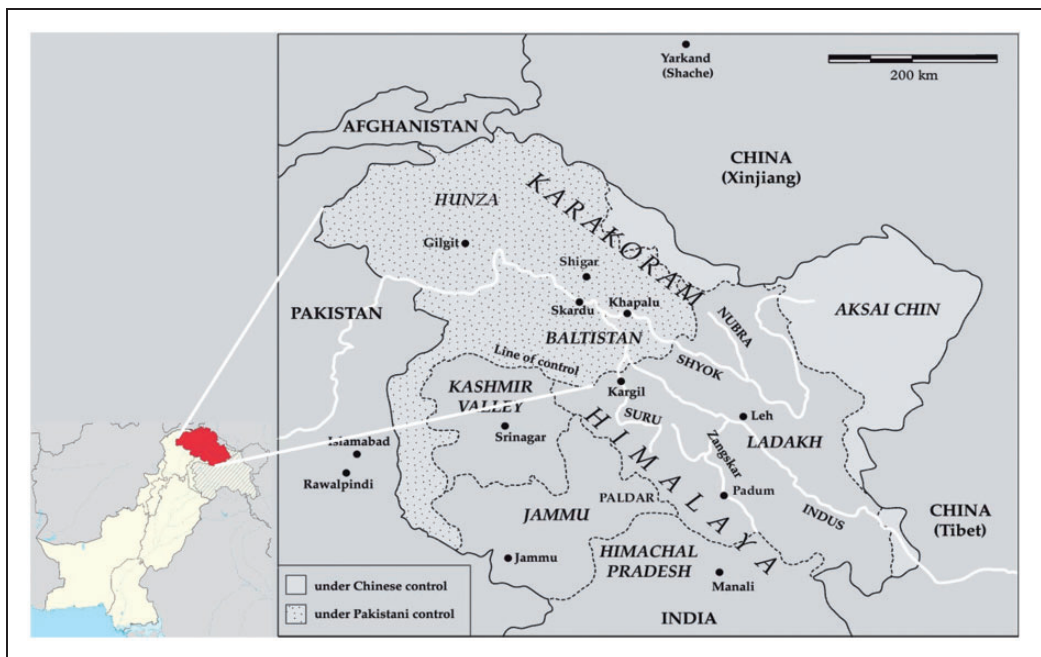


Figure 1. Regional map of northern Pakistan showing Baltistan. Map credit and permission from Martijn van Beek, Aarhus University and Moesgaard Museum, Graphics Department.

the labour. For this reason, water infrastructure was often governed through centralised rule exerting authority over a labour class. Because settlements were traditionally located far from water sources (glaciers, springs and snow on mountain peaks), people under ruling chiefs collaborated to build an extensive network of irrigation channels.

State formation and the emergence of central rule in Baltistan have been associated with the development of extensive irrigation systems. Emerson (1983) argues that settlement patterns and social organisation in the region developed over several centuries of creating oases in barren valleys. A historical practice which has persisted until today, is that of a village leader identifying a water source which could feasibly be channelled to available barren land near a village, using the village labour force. The land is then divided into plots for the cultivation of crops under private management, and settlers construct dwellings and start living there. Over time, extensive and sophisticated hydraulic systems have developed through this practice.

Controversy exists regarding whether a centralised state emerged from outside powers 'preying' on the 'stateless people' of Baltistan because of their water systems, for instance the military rulers from Turkistan taking control over the region in the eighth century (Emerson, 1983: 437), or whether state formation had already begun prior to the development of these water systems at least from the time of the Kushanas in the first to third centuries (Dani, 1991). According to Dani (1991), the building of water infrastructure began under Tibetan rule early in the 8th century until end of the 9th or beginning of the 10th century. Nevertheless, both explanations highlight the close relationship between water infrastructure, authority relations and state formation in Baltistan.

After the demise of Tibetan rule, Baltistan came under the rule of despotic dynasties who established feudal societies in different valleys, ruling for more than seven centuries. The feudal society was entrenched through control over land and water resources. The resources were thus, as observed for neighbouring Nepal, 'embedded within (and significantly productive of) a hierarchical and highly feudalistic society' (Nightingale and Ojha, 2013: 37).

With feudalism long gone, contemporary access to resources and consequent socio-political relations can only be understood in light of the social structure that developed under the dynastic rulers. These structures comprised highly inequitable social hierarchies that led to marginalisation of ordinary people (MacDonald, 1994). Every dynasty had three major classes: a ruling class, intermediaries working for the ruling class and ordinary people. The ruling class was headed by a *Cho* (ruler) and his male family members including brothers, paternal uncles and cousins. The family members were overseeing vast *jagir* (feudal land) owned by the ruler. The feudal land was managed through sharecropping by tenants who had to pay approximately half of all the agricultural produce to the ruler. The ruler also collected revenue from agricultural land owned by individuals as well as by village communal and pastoral lands. Village headmen worked as intermediaries of the ruler and were responsible for collection of revenue. Village headman was a lineage-based designation, held by the elite among ordinary people. In addition to collection of revenue, he was also responsible for resolving disputes within his village (Emerson, 1983). Feudal rulers developed and maintained irrigation infrastructure on their lands by using their tenants as labourers; in addition, households had to construct and maintain irrigation in the village on the order of the dynastic ruler.

The region remained under the control of local dynasties with intermittent control by outsiders until 1846, when the Dogra lineage of Kashmir took control over Baltistan under the patronage of the British. The British mainly controlled the region indirectly through the Dogra ruler. However, after 1885, they strengthened their influence to protect trade routes from the great powers including Russia and China. The British influence formalised private

land settlement by granting permanent and non-alienable hereditary rights to those villagers who agreed to have their land assessed for tax revenue. At the same time, feudal practices including forced labour and collection of revenue continued under Dogra rule, which lasted until 1947 when local people revolted against the ruler during the partition of India. The uprising and revolt led to the declaration of independence and request for accession to the newly formed country, Pakistan. Although the region came under the administrative control of the government of Pakistan, this co-existed with the continued rule of local dynasties along with exploitative practices of forced labour and collection of revenue (Sökefeld, 2014). In 1972, the national government announced the abolishment of feudal system in the region. Nevertheless, feudal landowners could still collect revenue, but would only keep 30% if revenue was collected in kind, or 40% of the share, if the revenue was collected in cash, while the state kept the rest (Hassan et al., 2004).

Remnants of the feudal past still exist in present-day Baltistan. For example, there is still a disproportionate ownership of land among the elite, the relatively well-off (who belonged to the ruling families) and the village heads. On the other hand, there are many who do not own land and instead rent from these large landowners. Most of the existing leaders of villages or settlements belong to families of past rulers, or to the lineage of intermediaries who served the feudal rulers. They still wield influence and authority over others through the management of water resources, forestland and pastures. Decision-making over such community water and land resources is supposed to take place through local participation; nevertheless, the governance of these resources is embedded in authority relations and social hierarchies, involving disputes both within and between settlements and with external actors. In addition, water infrastructure and related land areas are increasingly central to disaster and post-disaster development interventions by government, non-governmental and aid organisations. While courts are now the formal institutions for the settlements of the disputes, in certain cases such as land- or marriage-related issues, people also consult religious leaders to obtain religious guidelines as a basis for moral standing. While religious leaders have immense influence and respect, they are not directly involved in day-to-day political struggles. However, they do participate in negotiations if all sides involved in a dispute agree to consult them.

Against this background, we argue that historical interactions between water infrastructure management, political power and social hierarchies have shaped current access to water infrastructure, authority relations and disaster vulnerability. Our investigation focuses on the ways through which different social actors – villagers, formal and informal leaders, courts, and governmental, non-governmental and aid actors – claim and recognise authority, particularly in the context of flooding and consequent land loss. We pay particular attention to disputes as moments where these authority relations (including claims and contestations) and the way that they reproduce or challenge long-term social hierarchies come into view.

Data collection

Two Baltistan settlements, Pokora and Gons, were selected for this study owing to their dependence on water infrastructure as well as being exposed to environmental variability (floods and related land loss). Both settlements are part of Hoto village and are located about 500 metres apart (see Figure 2). The settlements have similar social and economic features, but differ in water availability as well as disaster impact. During data collection, respondents referred to water disputes with a third village, Chunda. Therefore, data collection was expanded to include a key informant interview and a focus group

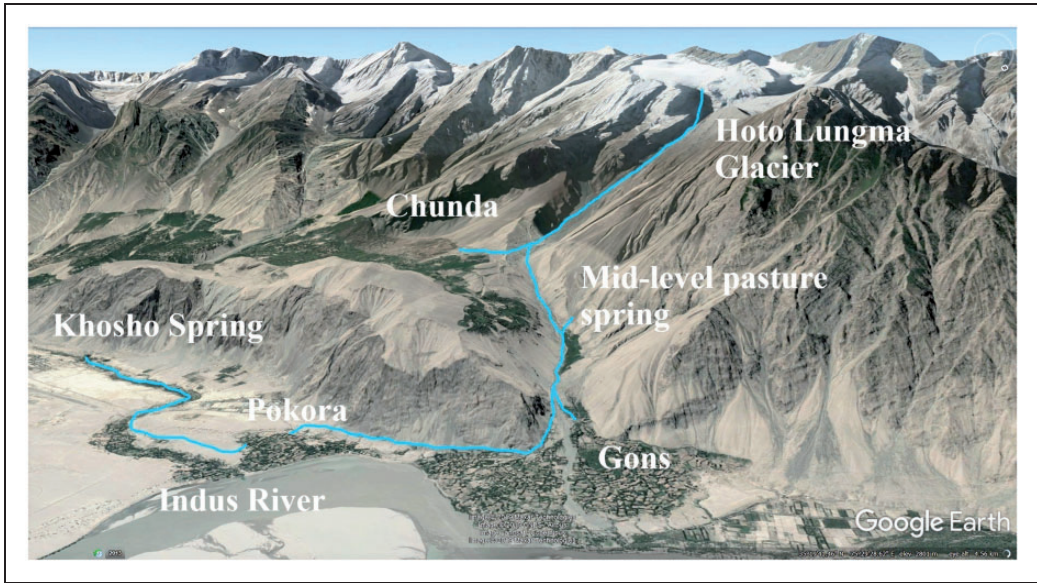


Figure 2. The settlements, water sources and irrigation channels (represented with blue lines). Source: Google Earth.

discussion with representatives of a village-based organisation in Chunda in order to gain a fuller picture of the contestations inherent in the dispute.

The population totals of Pokora and Gons settlements, and of Chunda village (see Figure 2) are approximately 580, 300 and 4000, respectively.¹ The main livelihoods are agriculture and animal husbandry. However, over the years, there has been a shift towards additional income generation sources, so the majority of men are working as daily wage earners or skilled workers such as masons. A few are employees in various government departments. Informants in all the settlements complain of insufficient water availability, though Pokora is considered more water-secure than the rest. Both Pokora and Gons experienced a major disaster in 2013, when flooding in the Indus River resulted in a massive loss of the settlements' land and consequent loss of houses, agricultural fields and communal forest. The impacts of the 2013 floods were particularly severe because the Indus had shifted its course towards the settlements during a previous flood in 2010. Loss of forestland and agricultural fields has severely affected the households who owned small landholdings and were mainly relying on them for crops, fruits, animal fodder and fuel wood.

Data were collected in two rounds of research visits in 2015 (February–April) and 2016 (May–July), totalling about six months. The first author conducted open-ended in-depth interviews and focus group discussions with settlement leaders, men and women belonging to various classes, and members of the local support organisation.² Qualitative data analysis methods were used to investigate settlement level authority relations and disputes. The respondents were identified through purposive sampling with the help of key informants, in order to ensure representation of different social actors staking claims in decision-making over water infrastructure and disaster response. Although we strove to achieve a gender balance among respondents, the number of women respondents was lower than that of male respondents owing to various cultural constraints related to gender norms and roles in the study settlements. As outsiders, it was not possible for the authors of this study to enter

Table 1. Data collection.³

Settlements	Key informant (settlement leader) interviews	Semi-structured household interviews		Focus group discussions	Visits to water infrastructure systems
		Male	Female		
Pokora	3	20	5	1	4
Gons	3	13	4	2	3

a house and talk to women individually. On receiving permission from the settlement leaders (negotiated through the field assistant who was an elderly, well-respected local man), it was possible to interview a few elderly women, some of whom were widows, in an open public space. In our analysis, we have striven to consider the gendered nature of the information and its effects on social hierarchies. In addition to conducting interviews and focus group discussions, the first author also visited and observed the working and management of water infrastructure including springs, irrigation channels and reservoirs. Moreover, court rulings and newspaper articles relevant to the disputes under investigation were examined. Data collection is summarised in Table 1.

Here we define a dispute as a non-violent disagreement between different social actors over the access to or management of water resources. Key disputes relating to water infrastructure, flooding and post-disaster interventions were identified. These disputes included negotiations between different actors as well as different strategies to influence management decisions, in some cases involving coercion and the threat of violence. Such disputes exist in and between settlements over access to shared water sources and management of post-disaster water infrastructure development. Disputes also exist between settlements and the district government concerning state land, water rights as well as flood protection. Far from being a situation of well-established and undisputed rights, the local decision-making process in Pakistan concerning natural resource governance is, in fact, a matter of ongoing dispute, negotiation and renegotiation.

Negotiations and strategies to claim and contest authority

In this section, we analyse interview data from various social actors – settlement leaders, different people within settlements and government officials – concerning how they devise strategies to legitimise their authority to make decisions over water infrastructure and post-disaster development and claim water rights, as well as contest the authority and rights of others.

Several commonly recognised principles govern water access and the development of infrastructure in the settlements of Hoto village. The interpretation of these principles is, as explained in the three cases below, nevertheless contested, particularly in the context of socio-environmental change. The study settlements are located in the same watershed, locally termed *nallah*. The local irrigation infrastructure developed over centuries comprises long irrigation channels bringing water from different water sources in the *nallah* to reservoirs near the different settlements, from where an extensive network of sub-irrigation channels transports the water to individual landholdings. Glacial melt water of Hoto Lungma and streams from snow melt water in the *nallah* are shared by Chunda, Gons and Pokora, while water from a mid-level pasture spring is shared by only Gons and Pokora. In addition to these, households in Pokora have access to Khosho spring and they

also have water wells (see Figure 2). According to local tradition, only the settlements located in the *nallah* have rights to access its glacial, snowmelt or spring water, the shares of which are determined, in part, based on the population of different settlements.

Disputes over management and access rights, disaster loss compensations and post-disaster development vary in nature, intensity and scale. The ways in which influential individuals assume a central role in negotiations are key to how authority relations are reaffirmed or challenged. A settlement is dependent on such individuals/leaders to represent them in negotiations involving other settlements and actors such as government officials or development organisations. In the event of court cases, these individuals represent people of the settlement and are responsible for all arrangements, including the hiring of lawyers. Settlement leaders are neither formally elected nor appointed; they claim this role through their position in the social hierarchy, such as through land ownership or family lineage dating back to feudal rule. For example, the *raja* of Skardu (existing head of the ex-ruling family) was considered a critical figure in negotiating disputes over water access within Chunda owing to the historical status of his family, and because he owned the major irrigation channel that received the first and largest share of water. Similarly, a settlement leader in Pokora who played a central role in negotiations with the government over land and water rights explained, 'My position as settlement elder is because of my [material] possessions and my knowledge'. At the same time, however, settlement leaders need to reaffirm their authority and position in the social hierarchy through success in negotiating resource rights for the larger settlement population. Authority is hence claimed both through historical social position in the village, and through recognition by villagers and external actors of their role in negotiating disputes or water access for their settlements. However, people also have ways of resisting such claims to authority.

Importantly, claiming and contesting leadership roles are part of the way in which different groups in a settlement negotiate water access and their position in Baltistan's social hierarchy. Baltistan has some government administration presence locally, but no political representation at the national level, owing to its status as a disputed territory between Pakistan and India. The claiming of leadership roles involves authority relations in and between settlement populations, as well as with external actors such as government and religious courts, government departments and aid organisations. The following three cases of disputes of water infrastructure management illustrate the nature and dynamics of these relations.

1) Disputes between and within settlements over access to a water resource

Negotiation and renegotiations of disputes over resource governance continuously occur between Pokora and Gons, and between Gons and Chunda. The dispute between Pokora and Gons settlements evolved over shared water sources, highlighting how the leadership of the respective settlements seeks support from outside actors (in this case, government organisations) in order to sway decisions in favour of their settlement. Key informant interviews and focus group discussions in Pokora and Gons settlements revealed that both settlements share the glacial melt water of Hoto Lungma (glacier), as well as snowmelt and mid-level pasture spring water. Pokora had water taps installed for households in the late 1980s, sourcing water from a mid-level pasture spring located in the *nallah*. A dispute ensued between the settlements over the use of this mid-level pasture spring water, during which people of Gons restricted the access of people of Pokora to water and pasture in a violent fight. The leaders of Pokora took the matter to the regional court where the case continued for more than 10 years, not uncommon in judicial procedures in Pakistan. In the end, the court

verdict gave the people of Pokora access to pasture as well as water. A settlement leader of Pokora explained: ‘The court decision clearly states that people of Pokora have the right to access the water either from glacier melt, snowmelt or from the spring every night’. In effect, this decision constituted legitimisation of the settlement leader’s authority both by government actors (through court processes that support their position as legal representatives of the people) and by the people of Pokora (who recognised the leader’s ability to deliver a favourable outcome of the dispute). In contrast, several informants in Gons complained about unavailability of water for both irrigation and drinking purposes, attributing poverty in their settlement to this water shortage. Hence, the water rights resulting from the court decision contributed to differential disaster vulnerability between the two settlements, by affecting the ability to secure livelihoods during the dry season and drought.

Several strategies are used for the recognition of rights, however. In addition to referring to external actors such as courts, rights are contested by referring to historical documents as well as socio-environmental change. In the case of a dispute between Gons and Chunda over distribution of water from Hoto Lungma, respondents from Gons argued that according to the historical *bandobast* record, they have the right to access this water source after people of Chunda have used their water share. The *bandobast* is a written record that is about 100 years old and is based on customary rights. It granted user-rights to specific settlements based on mutual agreement at the time that it was written. People often refer to these documents to legitimise their claims over water or any other communal resources such as pasture or forestland. In this ongoing dispute, respondents in Gons alleged that people of Chunda were not giving them their water share and that they had even constructed a barrier to stop the flow of water to Gons. People in Chunda contested this claim; a key informant argued that the people of Gons have no right to access the Hoto Lungma water source. He suggested that their ancestors might have allowed Gons to access water on a temporary basis, when water from the source was plentiful. However, as water availability had reduced over the years, their claim to have a permanent right was not justified, he argued, unless recommended by religious scholars or conferred by courts.

This dispute shows that perceptions of rights are never static; in particular, respondents frequently refer to socio-environmental changes as well as effects of disasters as a basis for making claims to water rights. A focus group discussion in Chunda revealed a perception that water availability in the village has been decreasing for the past few years owing to unpredictable rainfall, declining snowfall and increasing demand from their growing population. In Gons, respondents described how landslides and flooding in the past had destroyed small springs in the proximity of their settlements, affecting water availability. Because of the depth of the debris, they were unable to recover the springs. They were therefore increasingly reliant on the glacial melt water of Hoto Lungma and were voicing stronger claims on the right to access it. Several respondents argued that since Pokora had lost agricultural land after the disaster, they should share their surplus water with Gons. However, respondents in Pokora complained that their wells had dried owing to the lowering of the water table after the disaster, and that they too were struggling to meet their water needs. Hence, perceived rights and authority relations, as recognised through the ability to secure those rights (Lund, 2016), evolved with social conditions (poverty and population numbers) and environmental conditions (water availability, landslides and flooding).

2) Disputes within settlements over post-disaster water infrastructure development

While success in securing a group’s interests and rights serves to legitimise a leader’s authority (Lund, 2016), such success simultaneously constitutes recognition of people’s

rights and their position as villagers. Authority relations inherent in leadership claims are as much about relations between villagers as about the position of the leader. The case of post-disaster water infrastructure development in Pokora illustrates how people contest authority relations, for instance, by questioning the legitimacy of a leader who is unable to secure their perceived citizen rights. A dispute within the settlement over a development project shows how the desperate need for assistance in the aftermath of the disaster, and perceptions of how the disaster was handled by leaders, can alter authority relations. Environmental variability in the form of a flooding disaster can open up space for legitimising as well as contesting leadership claims. Thus, the material and non-material aspects of environmental change are closely connected through the way that authority relations are legitimised. Below, we show how development projects and compensation for losses incurred by the disaster came to signify much more than material gain in Pokora.

After the 2013 flood and related land loss in Pokora, the settlement leaders played a key role in provision of assistance from government and non-government aid organisations. In collaboration with these organisations, these leaders decided who should receive assistance and how much. They were also the main contact for the government's revenue department when assessing losses in the settlement. People expected settlement leaders to arrange compensation for their losses and to effectively represent their right to be protected from disasters. Key informant interviews revealed that many blamed the settlement leaders for not securing sufficient compensation for the most vulnerable and serving their own interests instead. A respondent who had most of his land washed away after the flood said:

Settlement leaders are those who represent us in a crisis. They are there to help us when we suffer losses or represent us in court cases. However, they do not care for us. They serve their own interest. [Despite all this,] It is not possible to change them as others support them.

The criteria developed by the leaders and the aid organisations were to direct most assistance to those who had suffered the highest physical losses. Consequently, vulnerable people who owned less and lost most of it, were not prioritised for assistance in comparison to well-off people who owned more and hence lost more in absolute terms, even if they had only lost part of their land. This led to the perception as expressed by several respondents that leaders privileged themselves and their well-off allies and family members.

Vulnerable people who suffered many losses subsequently contested the legitimacy of their leaders by refusing to participate in a development project implemented under the supervision of one of the village leaders. In 2015, a regional development organisation with funding from USAID started a development project to cement the irrigation channel of Pokora. The objective of this project was to improve the efficiency of water distribution and to reduce water losses. The project was managed by various settlement-based committees aiming to ensure participation of the villagers. Settlement leaders normally lead these committees and have a stake in ensuring the successful completion of projects in order to bring material or livelihood benefits to the settlement. Such committee leadership is also a way for settlement leaders to reaffirm their authority and position in the social hierarchy as well as status with the development organisations as someone who is effective in implementing and gaining local participation for a project.

Before the project started, the regional development organisation held several meetings with people in the settlement and negotiated labour contribution as one of the conditions for receiving support from the project. However, when the settlement leader later asked people to contribute as labourers, many refused. Disappointed with a perceived lack of support after the disaster, the people were unwilling to work for free, arguing that they could not afford to take time off from their paid work. Instead, they wanted compensation

for their labour participation. When interviewed, a settlement leader deeply involved in the project expressed great frustration at this resistance, attributing the behaviour to laziness, greed and hypocrisy, thus placing part of the blame on the vulnerable groups. He said, 'Despite refusing to contribute, people still criticise the work. They mention the defects. People are willing to criticise but not contribute. People are so hypocritical and greedy. They do not work'. At the same time, however, the settlement leader was clearly aware of the reason for this resistance. He said that the vulnerable groups opposed him, thinking that he had not done enough for them after the floods. He believed that these groups were deliberately creating hurdles and disputes in the settlement as a result of their dissatisfaction.

The resistance to contributing to the project appeared to be closely linked to vulnerability and to tension across social hierarchies. This tension often manifested as power struggles between different settlement leaders, between individuals seeking to claim prominent roles in the social hierarchy and between the groups in the settlement that these individuals were seeking to represent. The leader involved in the project explained:

There are one or two [people in the village] who are honest. The community has never contributed their share. There are certain people who want to contribute, but other people [referring to another settlement leader here] do not let them do that.

Success or failure of the project helps strengthen the position of one leader over the other. Drawing on the success of a project, a leader can exhibit his influence against those who contest his authority in other arenas, for example in decisions regarding the location of water infrastructure. An indication of the importance of ensuring success is the fact that the leader resorted to spending his own money to ensure the completion of the project. In order to overcome the resistance and complete the construction, the settlement leader asked school children to do the work in exchange for pocket money. These disputes highlight how disaster losses and expectations of compensation are embroiled in claims for social position and contestations, hence illustrating how disasters intervene in the reproduction of authority as well as social hierarchies through daily practice and decision-making. The role of a disaster event in opening up space for contestation is an important aspect of the co-production of power and vulnerability.

3) Disputes between settlements and the district government over land, water rights and flood protection

The way in which rights and development interventions are negotiated between settlements and the district government demonstrates how the micro-politics of vulnerability are nested in politics across scales. Settlement leaders seek to legitimise their authority by negotiating state-citizen relations vis-à-vis the regional and national government on behalf of settlement populations. However, outcomes are not equal within a settlement, as negotiations contribute to social ordering and differential vulnerability.

A dispute between people in Pokora and the district government showed how state-citizen relations are never constant but evolve with the (re)production of authority relations through the practice of negotiating water and land rights. Pokora has relatively better water availability than other settlements, in part due to its access to a spring water source (Khosho spring). Interviews with key informants revealed that their settlement had received the right to access spring water in exchange for allotment of their communal pasture to the district agricultural department around 50 years ago. As per the negotiations between the district government official and settlement leaders, the agricultural department was to

acquire the land and use it for research activities. Informants described how the government official mobilised people from the surrounding villages to construct the irrigation channel from Khosho spring source to their settlement. In addition, research by the agricultural department was to benefit people in Pokora by giving them tree saplings for their forestland. However, the agricultural department did not utilise the land for research purposes and since the people of Pokora had received very few of the originally agreed benefits, they took the matter to the regional court to reclaim the land from the department. After 16 years of judicial procedures, the court decided to return two-thirds of the land to the settlement.⁴

Contestations over rights to the land persisted nonetheless, reflecting how rights are continuously renegotiated in state–citizen relations. A settlement leader explained that the government later demarcated the land that they received after the court decision, to construct a cadet college (with a focus on training students interested in joining the military). However, the land was insufficient for this purpose, so the government requested more land from the settlement. People in Pokora resisted giving up their land for the college; therefore, settlement leaders filed another court case to stop the construction of the college. Regional politicians and government officials argued that people should allow the construction of the college since it represented a ‘good development’ for the region and could be considered in the national interest of Pakistan. After some negotiations, settlement leaders allowed the construction; meanwhile, the court case continued in order to establish who legally owned the land.

In the final judgement, the court ordered the district government to pay compensation to the people whose land was taken for the construction of the college. Later, the district government also bought more land from the people of Pokora.⁵ However, these people were not satisfied with the amount of compensation money they were paid. To fulfil people’s expectations of benefits in return for giving up their land, the settlement leaders demanded a quota of employment positions to be reserved in the cadet college for the people of Pokora. This reflected a local sentiment that people from other settlements and villages held more employment positions than those from Pokora.

This dispute reveals how the negotiation of state–citizen relations over land and water rights leads to uneven outcomes. The negotiation of land and water rights is important in determining the position of the settlement in relation to the regional and national government. The production of state–citizen relations simultaneously legitimises village leaders (through recognition of their actions in representing citizens in relation to the state) and consequently (re)produces social hierarchies as well as socially differentiated vulnerability. For example, in the case of reclaiming land from the government, leaders were able to bring some relief for the people – including themselves – through the court case. A settlement leader explained that ‘no one in the settlement is having a good time. I managed to be relatively better [financially] than the rest, as the government paid me compensation for acquiring my land’. By representing the settlement in the court case, not only was this leader able to arrange some compensation for the settlement, but he also ensured that his own claim was followed up. Similarly, when people of the settlement divided the land allotted to them by the court among themselves, not everyone could benefit from the land equally. The land was barren and without access to water; making it suitable for agriculture required considerable investment in inputs, labour and infrastructure, which was only possible for relatively well-off households. Three households, having lost all their land to the flooding, moved to the land newly reclaimed from the agriculture department; however, they were unable to farm since they lacked the resources to rehabilitate this land.

The nature of co-production of local authority relations and vulnerability also shifts with larger-scale political changes, as illustrated by a dispute over the construction of a flood wall in Hoto. The leaders in Pokora requested the government to construct a flood wall. People in a small settlement on the opposite side of the river, however, contacted various local political leaders and district government officials, demanding that the location of the wall be changed, fearing that it would divert the floodwater towards their settlement. Although the wall was finally constructed at the originally chosen site, negotiations over the dispute formed an inroad for local politicians to claim recognition of their authority by other social actors.

The formal role of local politicians in decision-making was introduced very recently, with the regional assembly holding its first elections in 2009 and the second in 2015. Politicians are struggling to find their place in local authority relations, which so far are dominated by settlement leaders who have existed since the time of dynastic rulers, and the district government which has existed since independence.

Discussion

Water resources act as a lifeline for the people in the arid mountainous region of Baltistan. Developed over centuries, the governance of water resource and infrastructure has undergone various transitions. Water infrastructure has been associated with the historical emergence of the Baltistan state and later constituted a key aspect influencing production relations during the dynastic rule. Although contemporary formal and informal political systems have replaced the dynastic rule, the governance of water resources still plays a key role in the co-production of authority and disaster vulnerability because many claims for legitimisation or contestation of authority relations take place around water access and related infrastructure development, particularly in a post-disaster context.

The case of Baltistan illustrates how the politics of disaster vulnerability contribute to entrenchment of historical social hierarchies and authority relations; at the same time, some new patterns emerge within these continuities. Moving away from a feudal system to an individualised land tenure governance system is slowly replacing the old lineage-based elite. However, village leaders associated with the old feudal system also turn to new sources of legitimacy that are increasing in importance, such as being well versed with the techno-bureaucratic codes of formal organisations like courts, government departments or non-governmental development organisations. They use these skills to represent the interests of settlements, or particular social groups within settlements, in negotiations over water governance and post-disaster development.

Our analysis of the practice of power around water infrastructure reveals three key aspects that can help understand the continuities and changes inherent in the politics of disaster vulnerability: access to water as an expression of rights, responding to environmental variability as a key feature of socio-material relations around which claiming and contesting of authority takes place, and post-disaster relief interventions representing an arena for legitimisation and contestation of authority. These three key features help unpack how longer-term changes in water availability, the 2013 floods, and related loss of land and wells had socially differentiated effects, but were also in turn the basis for making and contesting authority claims shaping (reinforcing and reconfiguring) social hierarchies and future vulnerability.

First, access to water resources as an expression of rights plays a key role in the legitimisation and recognition of authority. All the different disputes examined here represent mutual struggles for recognition and authority that revolve around these rights. Management of water infrastructure takes place through continuous negotiations,

contestations and disputes over rights. In this process, social actors seek, retain or achieve a position in the social hierarchy by claiming a leadership role and successfully representing a group of people in negotiating rights within and between settlements as well as with government entities. Prominent in the continuity and changes in authority relations is how, at the settlement level, legitimacy for leadership is in part claimed on historical trajectories of property and social relations – land ownership, status – while at the same time success in negotiations is critical to reaffirming these authority relations. Villagers actively contested authority relations where a leader was perceived to fail in representing their rights. Our findings suggest that the relationship between rights and authority is mutual and fluctuating in nature. In addition to the *enforcing* of rights as defining authority (Lund, 2016), contestation of authority based on a *failure* to secure rights is an important element in defining authority relations.

While there were definite shifts in sources of authority, the shifts in social hierarchies themselves were less clear. To some extent, inequities were reproduced as the recognition of a leader also constituted the privileging and reproduction of elite social groups within the settlements. In addition, those who are most vulnerable often have less of a voice in the negotiation of rights, or in the access to leaders, politicians or government officers, than those higher in the social hierarchy. Another indication of entrenchment is the observation that settlement leaders were exclusively men; inequitable gender relations were yet to be effectively contested. Hence, both land ownership and gender remain important differentiating relations in social ordering. An interesting question is whether political change, such as the newly established regional assembly, and any future representation by women or the non-land owner class in the regional assembly, may shift local subjecting processes and perceptions of who can legitimately claim leadership.

Importantly, negotiated water access, inclusion in flood management schemes and post-flood interventions by governmental or non-governmental development organisations defined people's rights and position in the social hierarchy, but also as citizens in relation to the state. Therefore, rights and authority relations are not only about social hierarchies within a settlement, but are also fundamentally about the position and rights of a community within the Pakistani state. These authority relations operate across scales including settlement, regional and national level.

Second, while daily practice tends to reproduce historical power relations, environmental variability in the form of disasters, as well as socio-environmental change, are key features around which authority relations and hierarchies are contested. Disasters such as flooding and consequent loss of land were windows of opportunity for social actors to make leadership claims through representing a group's interests, as well as for others to contest these claims. In particular, the ability to secure livelihoods under varying conditions, including decreasing water availability, increasing water demand and disasters, played a major role in how perceived rights changed over time, and in the need to renegotiate such rights in relation to others. The 2013 flooding led to loss of farmland, infrastructure and water sources, impacting on access to productive land and water and consequently the ability to secure livelihoods under dry conditions. In addition to allowing some individuals to strengthen their legitimacy as leaders, disaster relief and post-disaster development provided an opportunity to leaders to use their influence to gain material benefits for themselves, relatives and allies, for example by enlisting themselves among the vulnerable as eligible to receive assistance. Vulnerability was an important basis for claiming rights to water and development interventions, making disasters the sites of struggle over positions in the social hierarchy. The negotiation processes as well as their outcomes form part of social ordering and vulnerability to future flood or drought conditions through differential access

to resources and authority to make decisions critical to managing a disaster. The findings reveal the fundamental material and non-material aspects of a disaster as a key feature of the co-production of power and vulnerability.

Third, post-disaster development interventions become important arenas for contesting authority relations, but the case of Baltistan suggests that although disasters can form a 'transformative political space' in the words of Pelling and Dill (2010: 34), 'contestation and concentration of political power' can occur simultaneously. We observed that tensions across social hierarchies and contestations of leaders' authority, for example through silent non-compliance and resistance to development projects, co-existed with the exclusion of vulnerable groups from post-disaster infrastructural projects. Even if negotiations on behalf of a settlement in relation to a government or aid organisation are generally seen as successful in securing access to a development scheme, the outcome is not evenly distributed within a community and may reproduce inequities. The way these inequities grow following a disaster may lead to a widening of social hierarchies and contestation of authority. These findings are of particular significance for policy-making in a context of climate change and decreasing water availability and increasing effort by government and non-governmental organisations to reduce disaster risk and support climate change adaptation (Wester et al., 2019). External organisations play an increasingly important role in social ordering within communities, as they use perceived leaders as entry points for implementing local projects, and help elites seeking to retain their status (previously largely defined through land ownership and lineage) by claiming to represent a population in relation to these external actors. Such claims are dependent on being perceived by a population as successfully representing their interests, as well as depending on success in facilitating the development project by securing compliance by the local population. A lack of understanding by development organisations of this dynamic creates a risk of increasing vulnerability, as observed by an increasing body of literature (Artur and Hilhorst, 2012). Improved understanding among aid organisations of the co-production of power and disaster vulnerability, in particular the claims to authority, and resistance to such claims inherent in local interventions, is key to opening up spaces for contesting local inequities, rather than entrenching them. For example, providing assistance after a disaster according to simplistic criteria, such as the extent of material losses, favours the well-off people at the expense of the vulnerable. A focus on 'hard' measures like infrastructure may be attractive to development organisations as well as to local leaders because these are visible signs of action as well as opportunities for claiming authority. At the same time, the material and non-material relations around such ostensibly benign measures may explain why their implementation is almost always disputed and never as simple as expected, and why they may also reinforce vulnerability rather than reducing it (Atteridge and Remling, 2018; Nagoda and Nightingale, 2017).

By including authority relations in studies of village-level practices around disasters, we have gleaned a deeper and more nuanced understanding of the co-production of power and vulnerability and how they unfold. In doing so, we have focused on conflicts over access to water resources in general, and on authority relations *after* the disaster in particular. Both of these aspects allude to the underlying socio-relational dynamics that contribute to disaster vulnerability. The richness of rules and institutions governing access to collective resources such as water is well documented (Ostrom, 1990; Rasmussen and Orlove, 2015). The case of Baltistan illustrates how such rules and rights are continuously renegotiated, and how these renegotiations simultaneously constitute authority relations and vulnerability. Our analysis support previous suggestions (Nightingale, 2017) that recognition of authority can be as important a goal in the struggle to enforce rights as gaining access to a resource per se.

We extend previous work on authority and rights by exploring the role of environmental variability – more specifically disruption through disasters – as an important dimension through which the co-production of power and vulnerability plays out. Even though present authority relations and social hierarchies are rooted in relations that may have involved more centralised political organisation in the past, the co-production of power and vulnerability includes negotiation, reaffirmation and contestation; in short, there are continuous fluctuations and changes in relations both across scales and within social hierarchies. The disruption provided by a flood, for example, as well as longer-term changes in water availability play a central role in continuous negotiation of rights and claims to authority around water infrastructure. Hence, we see environmental variability and change as integral, rather than external contextual factors, to authority relations. Through bridging power and vulnerability perspectives in this way, we contribute to redressing a tendency in past studies to privilege either environmental change or inequitable power relations as a key driver of vulnerability, with the other featuring as a backdrop. Being able to understand the environmental and the political as fundamentally interlinked is particularly important in a context of climate change where increasing demand and decreasing water availability will create new arenas for disputes over access and management – and claims for contestation of authority relations.

Highlights

- The politics of disaster vulnerability exhibit both the entrenchment of social hierarchies and the emergence of new patterns of authority.
- Rights governing the use of water resources are continuously renegotiated, resulting in the simultaneous constitution of authority relations and vulnerability.
- The co-production of power and vulnerability involves a continuous process of claiming and contesting authority relations between diverse social actors.
- Environmental variability and change are integral – rather than external or contextual – to the co-production of power and vulnerability.

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Notes

1. Estimated from total population figures (as per census conducted by the Local Support Organisation in 2014) of 2183 for Hoto village and 4047 for Chunda village and household numbers of 60 and 32 for Pokora and Gons respectively.
2. The local support organisation is a multiple village-based organisation, supported by a regional development organisation. It is comprised of members of village organisations from respective constituent villages.
3. To gain a fuller picture of one of the disputes, a key informant interview and a focus group discussion were also conducted in Chunda.
4. Court Order by The Supreme Appellate Court Gilgit Baltistan, Skardu passed on 3 October 2011.
5. Press Release issued by the leaders of the Pokora settlement in 2013.

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