

THE SOCIOPOLITICAL IMPACT OF A NATURAL DISASTER: THE SNOW DISASTER OF THE EARTH-RAT YEAR (1828) IN NORTHWESTERN TIBET

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ABSTRACT: Drawing on primary historical sources and secondary paleoclimatic data, this paper examines the significant ‘snow disaster’ (*gangs skyon*) that occurred in the Nagchu region of Northwestern Tibet in 1828. It places this event within the context of the ‘Little Ice Age’, a globally cold period. By analysing reports of natural disasters exchanged between the Ganden Podrang Government and local administrators, the paper argues that the snow disaster led to an ‘unprecedented’ ecological and economic crisis. This crisis resulted in the deaths of tens of thousands of livestock and triggered various social and economic catastrophes. It also highlights that the Tibetan government responded by providing relief measures, including the suspension of yearly taxes. Notably, the Qing court extended substantial aid, facilitating the acquisition and replacement of livestock. This study underscores how a single climatic event can contribute to triggering various socio-political challenges in societies that are more exposed to vulnerabilities.

KEYWORDS: Tibetan plateau, heavy snowfall; banditry, migration

Introduction

This paper endeavours to contextualise the significant ‘snow disaster’ (*gangs skyon*) that occurred in the greater Nagchu region of Tibet in 1828 within the framework of the ‘Little Ice Age’ global climatic conditions of the early modern period. In doing so, leveraging palaeoclimatological research, this paper delves into the climate regimes and weather patterns shaping the Tibetan Plateau’s (TP) climate, particularly focusing on central and western regions, aiming to construct a broader understanding of climatic conditions on the plateau during the early nineteenth century. Subsequently, it scrutinises natural disaster reports and correspondence detailing the 1828 event exchanged between the Ganden Podrang Government in Lhasa and regional leaders of Nagchu. It posits that this snow disaster, characterised by heavy snowfall, precipitated an ‘unprecedented’ crisis resulting in the deaths of tens of thousands of livestock and hundreds of people. Through analysis of these reports, the paper illustrates how a singular climatic event had far-reaching socio-political ramifications, including increased banditry, famine and mass migration. Notably, immediate relief aid was dispatched by the Tibetan government in Lhasa, coupled with the

suspension of annual taxes for affected communities. Additionally, the Qing court, operating via the Amban office in Lhasa, provided substantial relief aid aimed at purchasing and replacing livestock. The paper contends that the disaster relief programmes not only highlight the Tibetan State's effective response capabilities but also that of the Qing court, thereby revealing the intricate political geography of the region. It notes that Qing imperial intervention during this state of emergency brings to the fore a unique legacy of Qing imperial expansion and frontier strategy under the Yongzheng Emperor (1678–1735), shedding light on the complex political landscape it engendered in the greater Nagchu region.

Several climate and environmental historians and scholars have explored the societal impacts of the Little Ice Age (LIA) and how different societies responded to its global cooling, examining imperial regimes like the Ottoman or Ming (Brook 2013; White 2011; Parker 2013; Di Cosmo 2014; Degroot 2018), while others have focused on specific climatic events such as the coldest years following large tropical eruptions like the Tambora eruption of 1815 (Brönnimann et al. 2019; Oppenheimer 2003). This article employs an interdisciplinary approach, bridging research findings from both natural and human archives to examine a particular climatic event on the Tibetan Plateau. Beginning with a discussion of general climatic conditions on the plateau, with a focus on the western and central regions, it contextualises the 'Earth-Rat-Year Snow Disaster' of 1828 that occurred in the greater Nagchu region of northern central Tibet. Positioning this event within the broader context of the Little Ice Age (early fourteenth to mid-nineteenth century), it draws upon secondary palaeoclimatological studies of temperature and precipitation reconstructions, primarily from sites such as Namtso lake and the Nyenchen Tanglha mountains. The article then provides a brief historical background of greater Nagchu and its relationship with the Tibetan government and the Qing court, aiding in understanding the socio-political conflicts and chaos that followed the disaster. Finally, drawing upon unexplored archival materials pertaining to natural disaster reports, the paper examines and discusses the ecological and socioeconomic repercussions of the snow disaster in detail. It sheds light on its significant contribution to famine, migration, and the surge in banditry in Nagchu and the surrounding regions, offering insight into the profound and multifaceted impacts of such calamities on vulnerable and largely pastoralist communities.

The Little Ice Age on the Tibetan Plateau

Utilising climatic reconstructions derived from pollen records across diverse locations has emerged as a crucial approach for comprehending paleoclimatic conditions on the Tibetan Plateau. These reconstructions have illuminated the previously unexplored realm of regional variability across the plateau. While most of these studies have focused on the margins of the Tibetan Plateau, there are a few studies of fossil pollen from Namtso (Ch. *na mu cuo*), Serling Tso (Ch. *se lin cuo*) and Tsige Dartso (Ch. *zi ge tang cuo*) in Central TP (Li et al. 2011; Sun et al., 1993; Herzsuh et al. 2006). The analyses of vegetation history based on the pollen records indicate a gradual reduction in typical steppe vegetation dominated by *Artemisia* and an increase in *Cyperaceae* and *Saussurea*-type vegetation in the late Holocene. Climatologists infer this transition from a temperate steppe to an alpine steppe to have been caused by a gradual shift from a warm and wet climate during the early and mid-Holocene to a cold and dry climate in the late Holocene. It illustrates the hypothesis of the Southwest Monsoon's southeastward retreat (in line with modern precipitation gradient) during the late Holocene. This transition in monsoon precipitation and moisture condition occurred at around 6.5–6.2 kyr BP in western TP, 6–4.4 kyr BP in the central and southern plateau (Li et al. 2011). Studies of pollen records from the lake Tsige Dartso in Nagchu also bear witness to this transition from a temperate steppe to an alpine steppe during the second half of the Holocene (Herzsuh et al. 2006). This agrees with other paleoclimatic data from the TP, and with the vegetation history of the central TP based on pollen records from Serling Lake. The hypothesis of the retreat of the Southwest Monsoon from western and central TP is also supported by the correlation of late-Holocene climate between the central and western TP and the North Atlantic, which implies that influences from climatic events in high northern latitudes also reached the Tibetan Plateau via the westerlies after the weakening of Southwest Monsoon (Li et al. 2011: 948). As a recent study of the lacustrine core sediments from Namtso suggests, the climate of central TP was influenced not just by the south Asian monsoon but also by the westerlies, while southern Tibet was solely controlled by the southwest monsoon (Zhu et al. 2008).

Most importantly, although it was not a universally cold event all over the northern hemisphere, as indicated by the growth reduction and changes in the isotopic composition of juniper trees, the period from 1430 until the late nineteenth century saw a series of cold intervals in Tibet (Bao et al. 2003). According to a multi-proxy reconstruction of LIA fluctuations on the Tibetan Plateau, the period between AD 1400 and 1850 reflects the 'Little Ice Age' while the period between AD 800 and 1100 indicates a relatively warm period

(Bao et al. 2003). Three cold episodes during the Little Ice Age, lasting about fifty years each, occurred in AD 1500, 1700, and 1800. The balance between several circulation patterns or weather systems like the westerlies and southwest and southeast summer monsoon might have been responsible for regional temperature differences. For instance, we can see regional variability within the Tibetan Plateau when different regions are compared with one another. We can infer from this study that western and northeastern TP experienced a period of low temperature in the early nineteenth century which did not occur in southern TP (Bao et al. 2003: 2339, Fig. 5). As we shall see below, this period of low temperature in the early nineteenth century coincides with the climatic event with which this article is concerned.

A high-resolution study of Himalayan ice cores from Dasuopo (Nyalam county, Shigatse) reveals that low precipitation due to monsoon failures brought devastating droughts in India and the central Himalayas, especially in the late eighteenth century. It also suggests an intensification of summer monsoon throughout the nineteenth century. This change in precipitation is illustrated in a decadal average snow accumulation variation since the mid-fifteenth century. It shows that the early nineteenth century saw a huge increase in snowfall in the central Himalayas which also contributed to glacier expansion (Thompson et al. 2000: 1919, Figure 5). The correlation of glacier fluctuations with proxy climate records suggests that not only temperature but also South Asian Summer Monsoon (SASM) is a controlling factor in glacier fluctuations in the Himalayas. For instance, the nineteenth century witnessed significant glacier expansion, aligning with an intensified phase of the summer monsoon (Bao et al. 2008). This period coincided with the third fifty-year cold episode of the LIA in the first half of the century. Additionally, ice core records from Dasuopo cap (28°N, 85°E) also showed that the nineteenth century was a period of maximum snow accumulation of the last 600 years in the Himalayas (Thompson et al. 2000, Duan et al. 2004). Interestingly, as discussed below, we could also infer from historical records and archival materials that the nineteenth century was a century of numerous snow-related natural disasters. Although the snow disaster of 1828 was the most prominent and presumably the most disastrous one as demonstrated by the fourteen reports concerning the single event, there were snow disasters of varying magnitudes in western and central Tibet in the years 1824, 1927, 1830, 1848, and a few undated reports of similar cases in the second half of the nineteenth century. These events of extreme climate variability are connected to a combination of heavy snowfall and low temperature.

Thus, the Tibetan Plateau experienced a phase of frigid climatic conditions during the early nineteenth century, a conclusion substantiated by a range of paleoclimatic reconstructions rooted in analyses of tree rings, pollen records,

and glacial histories. More specifically, the last cold episode of the Little Ice Age on the Tibetan Plateau in the early nineteenth century coincided with a period of extensive snow accumulation in the central Himalayas. Each of these reconstructions provides us with the climatic backdrop and weather conditions during which the 1828 snow disaster of Nagchu took place. The archival materials pertaining to this event offer a rich historical case study, enabling an in-depth examination of the social and economic ramifications of climate variability.

A Brief Historical Background

Nagchu (*nag chu*; Ch. *naqu*) is in what is called the Central Tibetan Plateau alpine steppe. It lies between the Dangla Mountains in the north and the Nyenchen Tanglha Mountains in the south. Much of Nagchu is over 5,000 metres in altitude and therefore the region is cold and dry with only twenty per cent steppe and meadow vegetation. It has relatively warm, humid summers and long, dry and cold winters. Nagchu has been a predominantly pastoralist region for many centuries. Tibetan historical literature refers to the people of Nagchu as ‘the northerners’ (*byang rigs*) or ‘northern nomads’ (*byang gi ‘brog pa*). Qing official documents from the eighteenth century typically retain either the transliteration or the translation of the Mongolian name for the region ‘Hala Wusu’ or ‘Heihe’, both of which mean ‘Black River’ in Mongolian and Chinese.

The region came under the control of a certain descendant of Mongol royalty from the Kokonor region (*mtsho sngon*) during the Sakya-Yuan period (1271–1368). Consequently, it was ruled by a line of Mongol rulers for thirteen successive reigns. They came to be called the ‘thirty-nine Mongol communities’ or Hor Sogu. According to local historical narratives, some of these Hor communities like Driru (‘bri ru) were conquered by Gushri Khan (1582–1654) in the early seventeenth century and offered to the Fifth Dalai Lama (Nag chu’i lo rgyus rig gnas dpyad gzhi’i rgyu cha bdams bsgrigs (hereafter NLRGD): 210). During Lhazang Khan’s rule of Tibet, Pholhané Sonam Tobgyal (1689–1747), the future king of Tibet, was sent to resolve conflicts and restore the loyalty of Nagchu leaders to Ganden Podrang in fear of defection to the Khans of Kokonor. The ruler of Hor Sogu, Uching Taiji (u cing thu ji), surrendered to Pholhané who raided and looted dozens of horses (NLRGD: 210). It is not very clear but parts of Hor Sogu came under the administration of a newly established (circa 1723) Qing garrison in Tengchen (Chamdo) that was under the High Commissioner of Xining in 1725. Citing Dungkar Lobzang Trinle, Shakya states that it was only in 1851 that the administration of the Hor Sogu

was transferred to the Amban in Lhasa (Shakya 2015: 364). Notwithstanding, a local historical and cultural source compiled in 2010 presents new information regarding its transition. It claims that following the arrival of Sengge (1727–1733), the first Qing imperial commissioner (Man. Amban) in Lhasa in 1728, Hor Sogu came under the control of the Qing court. This shift is also reflected in the change of the name from Hor Sogu to Gyadé Sogu, meaning ‘thirty-nine Chinese communities’.

Then, in 1731, in the ninth year of the reign of Emperor Yongzheng (1678–1735), a major reconfiguration of administrative geographies for the loosely held confederation of nomads in the Nagchu region was carried out. It was part of a broader Qing imperial strategy for governing its Inner Asian frontiers, implemented through the combined efforts of Qing imperial commissioners based in Lhasa, Xining and Chengdu (NLRGD: 211). While Petech’s comprehensive study of Sino-Tibetan relations in the eighteenth century does not specifically mention this administrative reform, he does highlight Qing’s reinforcement of its garrison in Dam (*‘dam*) in response to threats from Dzungars in 1730 (Petech 1950: 144). Evidently, it was not an expansionist agenda but rather a pragmatic defensive strategy aimed at maintaining stability in this geopolitically significant region through the establishment of this new administrative system. In any event, from the early eighteenth century until the fall of the Qing Empire in the early twentieth century, all Hor communities of Nagchu and some of the surrounding regions were nominally under one king (*rgyal po*) whose palace was located at Akar monastery, a Bon monastery. There was a total of 79 Hor communities (*tsho ba*) including Hor Sogu, and Qing’s reterritorialisation of the region placed forty communities under the administration of the Qing imperial commissioner of Xining. On the ground, the communities were administered by two ‘Thousand Households Leaders’ (*stong dpon*; Ch. *qianhu*), thirteen ‘Hundred Households Leaders’ (*brgya dpon*; Ch. *baihu*), and forty ‘Leaders of Less than Hundred Households’ (*be cang*; Ch. *bai chang*) (NLRGD: 214). Although Mongol nobles retained their status as local leaders under this new administrative structure, they effectively became subjects of the Qing empire, which meant that they had to pay their annual tax either to Qing officials in Xining or the Amban office in Lhasa (NLRGD: 211–13). This marked the end of the ‘Mongol Period’ and the beginning of the ‘Chinese Period’, or more appropriately the ‘Qing Period’, in Nagchu local history. Therefore, a large part of the region affected by the 1828 snow disaster was not under the direct control of the Tibetan Government in Lhasa but rather under the authority of the Qing imperial commissioners based in Xining and Lhasa. Thus, ‘Gyadé Sogu’ began to pay their annual tax to the Amban office in Lhasa who in return awarded pieces of turquoise to all the subjects. This was called ‘turquoise salary’ (*phogs g.yu*) (NLRGD: 212). As related in the following,

this explains the level of Qing intervention in the disaster relief effort for the Nagchu nomads in 1828. The areas that were under the Tibetan government include western areas of Nagchu such as Namtso and parts of Amdo in the north. This is reflected in the natural disaster reports.

The Earth-Rat Year Snow Disaster of Nagchu

In the early winter of 1828, the earth-rat year of the Tibetan calendar, there was a massive ‘snow disaster’ (*gangs skyon*) due to heavy snowfall in the central Tibetan plateau that severely affected the nomads of Nagchu and neighbouring communities including Namtso and Namru.



Figure 1. A rough estimate of the affected area. Original map source: Keithonearth, Wikimedia Commons.

The reports from local leaders appealing to the Tibetan government for emergency relief refer to the climatic crisis as ‘unprecedented’ (*snga na ma grags pa*), indicating the enormity of the event at least on the scale of a human lifetime. Relying heavily on livestock and lacking substantial reserves, highland pastoralists found themselves profoundly vulnerable to the impacts of this natural disaster. As they struggled against famine, they also grappled with heightened social disruptions, including escalating banditry and large-scale

migration, underscoring the immense challenges posed by such unforeseen calamities.

The Cabinet (Kashag) of the Tibetan Government in Lhasa received a letter from the leader of Nagchu (mi dpon spyi lcags pa can) on 9 September of the earth-rat year (1828) requesting relief aid as the people of Nagchu were facing the danger of famine (*mu ge*). It urged the government for the immediate supply of tsampa (roasted barley) and suggested routes and means of transportation to different pastoral communities of the affected region (Rang byung gnod 'tshé gangs skyon skor (hereafter RNGK): 12–23). The regent, Tsemonling Ngawang Jampel Tsultrim Gyatso (1792–1862/1864), issued a travel permit in two days for the transportation of relief aid that promised 915 loads of barley grain with specific instructions for distribution (RNGK: 14). Kashag issued another statement concerning the complete decimation of livestock of Otok monastery, and as one of few Geluk monasteries in the north, it was granted 400 loads of grain from the government treasury and another 400 loads from the personal treasury of the Dalai Lama (RNGK: 15–16). Interestingly, Otok monastery seems to have been the only religious institution that received this special attention and assistance. It is noteworthy that Nagchu is historically dominated by Bon and the Kagyud tradition and, in such a religious landscape, clearly, the survival of Otok monastery was very important to the Ganden Podrang State. As Tsering Shakya notes, Nagchu never had strong penetration by the Geluk tradition (Shakya 2015: 364).

Sometime in early 1830, over a year after the disaster, the Kashag wrote to the local leaders of Nagchu informing them that, in consultation with the Amban office, a report about the 'unprecedented' snow disaster in Nagchu had been sent to Emperor Daoguang (r. 1820–1850) requesting relief assistance. The Tibetan Cabinet petitioned the Qing court for relief aid to Nagchu and the pastoralists of Saga and Naktsang (RNGK: 17–18). Later in the same year, during the transitional period between the Ambans Huixian and Xingke, the Ambans wrote to regent Tsemonling asking the Kashag to provide relief to the communities of Dam ('dam) and 39 Gyadé (rgya sde so gu; Gyadé Sogu) communities. The letter relayed emperor Daoguang's decree which ordered the Kashag to not only provide aid but also investigate the current livelihood situation of the affected communities. It noted that 500 silver taels for Dam and 3,000 silver taels for Gyadé Sogu were granted from the imperial treasury (RNGK: 19–21). It seems to suggest that the Tibetan Government did not provide relief aid to all affected communities except those under its direct administration. As indicated above in the brief history of Nagchu, this special treatment from the Qing imperial court toward Gyadé Sogu is not surprising for they were direct subjects of the empire. However, after receiving relief aid from the Qing court, Tsemonling appoints a 'hundred-households leader' (*rgya*

shog spyi khyab; Ch. *baihu*) named Ta Tsering Paljor as the person in charge of buying and replacing the livestock of Naktsang and Gyadé Sogu. With the 3,000-silver tales from the imperial treasury, Ta Tsering Paljor and other local leaders were ordered to buy 2,000 sheep and 3,700 goats. This uneven distribution of relief aid reflects the murky political geography of Nagchu and the surrounding areas.

Regarding the ecological impact of the snow disaster, according to the reports, many pastoralist communities were ‘entirely annihilated’ (*rtsa stong*) while others had over fifty per cent of their livestock destroyed due to hunger and hypothermia. A letter sent to the regent Tsemonling on 5 February 1832, stated:

The snow disaster of the earth-rat year wiped out five of the eight Tashok communities; three of the seven Amdo communities; one of the five Lower Amdo communities; five of the thirteen Gerchoe communities ... [and] one of the seven Samshok communities. As a result, out of 370 ‘*dmag rkang*’ families (land unit tax in soldiers), only 50 are left and 350 of them had people and/or livestock annihilated. Additionally, before the disaster, a big community (*shog kha*) had about 200 households, a medium community about 100 households, and a small community around forty households. And each household owned decent numbers of livestock including yak and sheep. Following the snow disaster, a big community has about thirty households, a medium community fifteen households, and a small community one household (RNGK: 30–31).

The letter continued to detail the decimation of livestock the snow disaster caused and explained why the communities have difficulty paying their annual ‘*dmag rkang*’ or land tax in military service. This was a form of tax to the Tibetan government. Each land unit had to send annually two soldiers who mostly provided transportation services including supply of ammunition, food or clothing. The above excerpt provides a sense of the severity of the event as it decimated whole communities along with their livestock. However, the letter also noted an incident of people migrating to Gyazhung (*rgya gzhung*) and Satré (*sa bkras*) due to the disaster and requested the government to investigate and order them return to Nagchu (RNGK: 32). Thus, it is hard to determine whether to what extent the number of households drastically reduced or the communities ‘wiped out’ could be attributed to mass migration. The reports lack a clear timeline of migration, leaving the chronological sequence of migration events unclear. We shall discuss the social disruptions that followed the snow disaster in the next section.

Furthermore, in 1829 and 1830, several general surveys were conducted to assess the impact of the snow disaster. While some reports provided detailed information about livestock mortality in specific areas and communities,

including numbers and percentages, others merely offered rough estimates of livestock loss or simply indicated that livestock had been ‘entirely wiped out’. For instance, the survey reports on Northern Namru and Southern Namru claimed 56 per cent and 53 per cent livestock mortality respectively:

Table 1. Survey results of livestock loss due to the snow disaster of 1828.

Location	Livestock*	Total before	Total after	Percentage
N Namru	5614	9932	5614	56.52%
S Namru	2044	3824	2044	53.45%

It is noteworthy that, unlike pastoral regions in other parts of Tibet, Tibetan pastoralists in western and central Tibetan Plateau primarily raised sheep and goats, as these animals are better adapted to the alpine steppe ecology and the high altitude of the region. The numbers provided above do not capture this level of detail, but the reports utilise a standardised scale that highlights the diversity of pastoral animals and the varying susceptibility of different species to natural disasters. The scale used in the table is as follows: *one yak is equivalent to ten sheep, one yak is equivalent to thirteen goats, and one horse is equivalent to four yaks. This scale appears to be based on the prevailing exchange rates of these animals in the region. A similar study on the exchange values of animals in Changthang, located to the northwest of Nagchu, suggested that the exchange rate between a horse and sheep was one to forty or fifty, while the exchange rate between horses and yaks was one to five (Goldstein and Beall 1990: 72). Goldstein and Beall contend that more goats and sheep were raised by Tibetan pastoralists in this region because they have higher haemoglobin, more red cells, and can breathe four times faster than their low-altitude relatives (Goldstein and Beall 1990: 83). This scale and exchange rate clearly suggest that goats and sheep were more abundant than yaks and horses in this region. Consequently, it is reasonable to assume that a significantly larger number of animals were devastated by this disaster than indicated by the survey figures for Namru and Southern Namru.

As indicated, the political geography of Nagchu region in the early nineteenth century is complicated and fuzzy, as it is difficult to determine the political boundaries between different communities or the jurisdictions of the Tibetan government and the Qing court. Part of the confusion seems to stem from the double meaning and usage of the term ‘Nagchu’ as a smaller area to the northeast of the lake Namtso and as a reference to the greater region including Namtso, Naktsang, Amdo and even Tengchen in modern-day Chamdo (although sometimes specified as ‘Nagchu Khul’ or ‘the greater Nagchu region’). Some of these reports and correspondence about the snow disaster of 1828 reveal this complex state of administrative jurisdictions and boundaries

as the disaster and social disruptions forced people to migrate and resettle in neighbouring areas.

Climate change or variability, and especially extreme climatic events like the snow disaster of 1828 in Nagchu often serve as catalysts that intensify or exacerbate existing vulnerabilities in society. Such extreme events, including heavy snowfall, droughts or cyclones, have the potential to trigger various societal disruptions due to abrupt changes in biomass production, such as food and fuelwood, directly impacting the economic, demographic and ecological wellbeing of vulnerable communities like the highland pastoralists of Nagchu on the Tibetan plateau. Examining this fundamental framework of the climate-society relationship provides insight into why numerous reports concerning the snow disaster of Nagchu in 1828 document and lament instances of mass migration, theft and banditry. Sometime in the middle of 1831, two years after the disastrous snowfall, the leader of Nagchu wrote to the Tibetan Cabinet: ‘In addition to the poverty brought about by the snow disaster of the earth-rat year, the people of this region have since been afflicted by the violence of bandits’ (RNGK: 22). He continued the letter by lamenting that ‘of people who fled [Nagchu], communities such as Gacha, Gongga, Phun, and Sigyashok still live in Naktsang and they refuse to return’ (RNGK: 23). Another letter from the same leader again complained that despite his appeal to the religious leader (*bla dbon*) to persuade the 140 households of Amdo Gongga and Sigyashok who had migrated to Naktsang to return, not a single person had come back. Instead, 293 households from Middle Hor, Lower Amdo, and Zungsog had migrated to Phentsateng in 1829 due to the imminent danger of famine and banditry. Even those who chose to stay in Nagchu remained impoverished, devoid of any livestock (RNGK: 24). The letter concluded with two requests: a) exemption from taxation, which required labour contributions for the construction of a stupa in Nepal; and b) an appeal to the Gyadé communities to repatriate all those who had fled to Nagchu (RNGK: 25). These letters addressing the challenge of mass migration prompted by famine and banditry underscore the intricate and intertwined political dynamics between the Tibetan state and the Qing court. They reveal that pastoral communities in the greater Nagchu region maintained varying degrees of allegiance to either the Qing or the Tibetan government.

Furthermore, additional evidence from other archival documents corroborates that the social disruptions in Nagchu indeed transpired after the massive snow disaster. Several Qing memorials address the issue of banditry and livestock raids in Nagchu during the years 1829 and 1830.

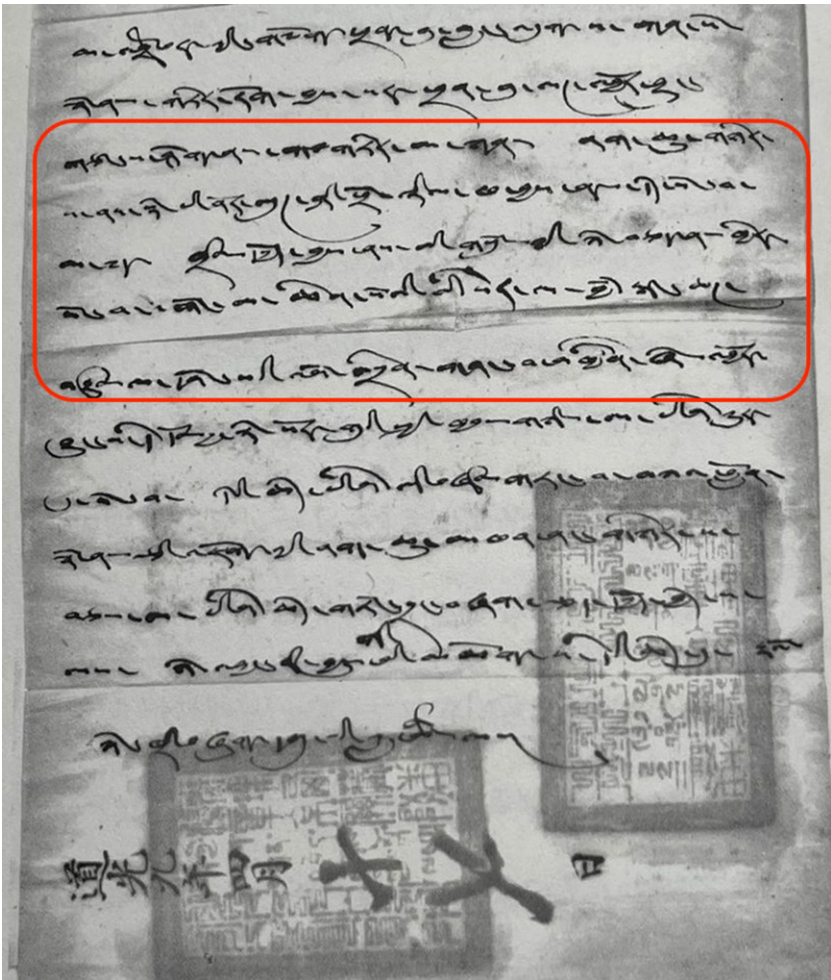


Figure 2. Author photo of document 32, Qing memorial from 1829. Source: Qing dai Xizang di fang dang an wen xian xuan bian, 2017, Vol. 4, Document 32: 279–80.

For instance, a memorial dispatched from the Qing court in 1829 orders the Ambans to investigate the problems of violence and banditry in Nagchu (Qing dai Xizang di fang dang an wen xian xuan bian, 2017, Vol. 4, Document 32: 279–80). The memorial pertains to a petition submitted to the Qing court, detailing an egregious incident involving a steward from Nagchu. According to the petition, this steward not only plundered a significant number of livestock

from an unnamed neighbouring community, but also committed the heinous act of killing three individuals, decapitating them and taking away their severed heads. The petition implored the Qing court for the protection of the Great Emperor's subjects (*gong ma chen po'i mi ser*). Since the letter directs the Kalons (ministers) and the two leaders of Gyadé Sogu to investigate and address the issue, it can be inferred that the affected communities were part of Gyadé Sogu, the direct subjects of the Qing Empire. As we saw earlier in one of the reports, the leader of Nagchu appealed to the Tibetan government concerning the problem of migration of people under its jurisdiction to Naktsang and Gyadé Sogu areas. From the above Qing memorial, we could see a glimpse of the same incident from the perspective of the Qing court and Gyadé Sogu. Although extracting precise details about the livestock raids and bandit activities solely from a limited number of reports and memorials presents challenges, these incidents illuminate the intricate interplays between migration, violence, and climate change.

In another Qing palace memorial, submitted by Huixian during the second month of the ninth year of the reign of Daoguang (3 April 1829), it was reported that heavy snowfall transpired in early September. This snowfall endured for a period of ten days, accumulating over ten feet of snow (Neige bu yuan dang an, No. 001037). Huixian was the resident imperial official (Man. Amban) based in Lhasa from 1827 to 1830. Contrary to the narrative of the Qing's decline and perceived state incapacity beginning in Jiaqing's reign (1796–1820), the active involvement of the Qing court in relief efforts and the handling of social conflicts in Nagchu offers a counterpoint. It underscores the significant degree of Qing imperial power and presence in Inner Asia in the early 19th century. The snow disaster of Nagchu in 1828 not only allowed the Qing court and Emperor Daoguang to showcase imperial benevolence to their distant frontier subjects, but also served to reassert Qing authority and influence in Inner Asia, ultimately earning lasting loyalty from many Tibetan communities in Nagchu until the empire's eventual collapse, highlighting the strategic significance of such displays of imperial power and grace. This came to the fore in the early twentieth century when the Tibetan government declared independence and expelled Qing military and Chinese civilians from Lhasa, Nagchu became a temporary haven for Qing officials, military and Chinese people fleeing the onslaught by Tibetan troops. Some communities of Nagchu fought against the Tibetan army on the side of Qing imperial soldiers and officials (Shakya 2015: 366). It took nearly five years for the Tibetan government to gain complete control over Nagchu. The Gyadé Sogu came under the Tibetan Government in 1916 with the establishment of Hor General (*hor sbyi*) as the governor-general of the greater Nagchu region.

In conclusion, it is imperative to emphasise that this article refrains from assigning blame for all social disruptions to a single climatic event. Such an oversimplified narrative would fail to capture the multifaceted and nuanced ecological and sociopolitical forces at work. To truly grasp the vulnerability of highland pastoralists in this region, a holistic approach is necessary, considering a myriad of interconnected factors. Among these factors, climatic conditions, particularly extreme weather events, hold undeniable significance as they directly impact the availability of pastureland and vital water resources essential for the survival of livestock.

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