

Mapping Nomadic Space: Are Mining Maps a form of Spatial Injustice in Contemporary Mongolia?

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Abstract: Mongolia's current development trajectory relies almost entirely on the expansion of the mineral extraction industry; the current government's agenda is to transform the Gobi provinces into a mining zone and open new border points for export with China. The last decade has already set the stage for this transformation, with over 2000 exploration and exploitation licenses issued across the country. This transformation in rural land use has involved large-scale land acquisition and the forced displacement of mobile pastoralists. UN agencies have expressed concerns about human rights violations against pastoralists and their exclusion from decision-making during licensing and land acquisition. This paper provides a preliminary discussion of the spatial dimensions of these injustices by examining how mobile pastoralists are represented in maps created during land acquisition processes, in the few cases where international land acquisition and resettlement standards have been implemented. Resettlement processes rely heavily on spatial and temporal scales to determine who is eligible to be an "impacted or affected person/household." How have mobile pastoralists' nomadic land ontologies been represented in this process? In a time when the visibility and recognition of nomadic land is crucial to both avoid and mitigate harm to mobile pastoralists, what are the implications of mapping nomadic spaces in the face of the Gobi's transition to a mining zone?.

Keywords: Spatial politics; nomadic space; Mongolia; maps; mining; land acquisition; mobile pastoralists

Introduction – Why Spatial Justice and Why Mapping Nomadic Space?

I title this exploratory paper "Mapping Nomadic Space" because of the role that mapping and surveying processes play in representing rural, mobile pastoralist spaces to developers during land-acquisition processes. Mapping mobile herder forms of land use presents a fundamental difficulty: how to capture and represent the mobilities of households, livestock and other dimensions of nomadic landscapes on a map? I first became aware of the fundamental role of maps in land acquisition processes during my work in 2016, when I participated as a member of an interdisciplinary team hired to review the resettlement and compensation processes of herder households during the initial development of Oyu Tolgoi by Ivanhoe Mines and later rounds of resettlement and compensation by Rio Tinto. I became very interested in how herder homelands and households were mapped as part of the mine and infrastructure land acquisition and resettlement processes, where discursive constructions of space occur through the technical surveys and assessments of environmental, technical and social impacts. Very few such maps are available in the public domain because Mongolia does not have comprehensive legislation on land acquisition and resettlement; therefore the maps available are usually

found within "resettlement action plans (RAP)" for mines that receive investment from multilateral development banks such as the European Bank for Reconstruction and Development (EBRD), the International Finance Corporation (IFC, which is part of the World Bank), and the Asian Development Bank (ADB). These international financiers have internal standards that apply to projects that they invest in, including requirements for environmental and social assessments and resettlement action plans, sometimes referred to as land-acquisition frameworks. Thus, I offer preliminary reflections on land acquisition and resettlement processes in Mongolia but focusing on maps available to the public through multilateral bank project disclosure requirements.

While over 2,700 mining licenses have been issued by the Government of Mongolia (Mineral Resources and Petroleum Authority of Mongolia, 2025), only a minority of these mines have received investment from multilateral development banks and undergo a multi-stage process of development involving environmental and social impact assessments followed by a household resettlement process including livelihood restoration plans. Mongolian law does not require rigorous processes for social impact assessment of projects or comprehensive and human-rights-driven processes for resettlement when land is acquired (Purevsuren et al. 2022). This means that the majority of mines operating in Mongolia do not create resettlement action plans or conduct social impact

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assessments because they are not required by national law to do so. In the absence of government regulations, mines operating in Mongolia, which are not subject to lender requirements, approach resettlement in an ad hoc way with little regard for the impacts on herders and livestock.

Laws regulating land acquisition have been established in many countries because of long-standing evidence of the relationship between forced resettlement and impoverishment (Cernea 1997). Resettled people face significant livelihood risks as well as the loss of their homes, access to essential natural resources, cultural landscapes, religious sites, and place-based social networks essential for household functioning. However, international practitioners who have developed methodologies for resettlement are not well equipped to deal with mobile livelihoods and areas that lack clear property boundaries and designated human owners. This means that the mines operating in Mongolia which have adhered to some form of international standard for resettlement due to lender requirements tend to produce maps that represent herders and their homelands as sedentary. In these maps, herders are depicted as fixed points in time and space. In most cases, only the locations of officially registered herder winter camps are plotted, but some maps have included officially registered spring camps. The failure to include sacred sites, local place names, other seasonal camps and the multi-sited and mobile nature of herder households and livestock often result in an underestimation of the extent of impacts of a mine or an infrastructure project. I argue that the mapping process constitutes a form of spatial injustice due to the misrepresentations of herder-livestock mobilities and multi-species landscapes. These misrepresentations have material consequences because such maps are used as administrative tools to determine which herder households qualify for entitlements such as compensation for the loss of their homeland territory. However, the maps also point to a wider methodological problem: if they fail to capture the complexities of mobile livelihoods, are there any ways to rectify this?

Many counter-mapping initiatives in the environmental justice movement respond to spatial injustice through citizen-led mapping to create new representations of space which contest the terra nullius gaze formerly applied to indigenous or subaltern people (such as urban fishers in India, for example). Making a map that adequately captures the complexity of these spaces may not be possible simply because the 2D map cannot sufficiently represent the temporal rhythms of mobile lifestyles. Maps created by Mongolians during the Qing period may also offer fresh insights into the visual depiction of place. Now, I will turn to the literature on spatial justice and representations of nomadic space. Then I will offer reflections on maps utilised in development projects that received financing from the EBRD in Mongolia. Finally,

I will conclude with further reflections on the potential for counter-mapping tools to advance herders' rights to practise their mobile livelihoods.

Spatial Justice and Representations of Nomadic Space

Globally, and historically, nomadic pastoralists have faced discrimination, including sedentarisation policies (United Nations General Assembly, 2024). When we zoom out from the examples in Mongolia, we see a rather disheartening theme of agrarian and pastoralist dispossession, which harkens back to the dominance of terra nullius as a political discourse and related processes of land enclosure of the commons, which affected peasants in rural England as well (Watts 2014). Jérémie Gilbert's (2014) work has traced how the privileging of individual property rights and sedentarist approaches to organising society have come to pervade legal systems globally. States have not extended legal protections for more flexible, mobile and temporally variable forms of using land, which underpins many societies with mobile pastoralist traditions. This is also true for Mongolia, which maintains a unified land territory in which the state can expropriate land at any time, enabling pasture land to be converted to industrial licenses; mobile pastoralist mobility rights or customary tenure are not protected by law. Globally, mainstream land rights and tenure regimes continue to be based on ideas of bounded space which corresponds to a specific owner, even if that owner is a collective such as a company, state, or agricultural collective. Gilbert's (2014) book, *Nomadic Peoples and Human Rights*, raised the fundamental question of "whether human rights law has the capacity to provide a non-sedentarist approach to law which could include a right to nomadism" (2014: 215). More broadly, contemporary development projects tend to approach the world through a sedentarist lens (Semplici & Rodgers 2023).

Attention to spatial justice, advanced by critical human geographers such as Edward Soja (2010), highlights how "space is actively involved in generating and sustaining inequality, injustice, economic exploitation, racism, sexism, and other forms of oppression and discrimination" (p.4). In this sense, we can examine how mapping processes are part of exclusionary processes but might also be used to achieve social justice through attention to space. As Alex Zukas (2005: 59) has written: "Historian of cartography Brian Harley has noted that 'government maps have for centuries been ideological statements rather than fully objective, 'value-free' scientific representations of geographic reality' and often use a cartographic silence to reinforce social and political values." In relation to this, Zukas also highlights the role of mapping in the discursive construction of emptiness as part of many imperial and modernist projects.

This is evident in representations of pastoralist lands as empty, unproductive or “waste” lands. In India, many lands used by pastoralist groups are literally designated as waste land today (Yenneti & Day 2015). These representations have proliferated, often alongside repeated assertions that pastoralists cause land degradation, in contemporary development discourse (Nori & Scoones 2023). Sedentarising mobile pastoralists was an explicit development strategy in the Arab states up until the 1960s (Bocco 2006) and continues to be so in China (Yeh 2013) as elaborated on by Emily Yeh in her work on Tibet and Inner Mongolia. These discursive constructions of mobile pastoralists and the landscapes that they inhabited as empty or degraded further justified the expansion of colonial projects, which attempted to control and transform both dryland environments and the people inhabiting them (Williams 2002). Research on the legal geography of Bedouin rights in the Negev by Kedar et al (2020) demonstrates how Bedouin customary law, property regimes, freedom of movement and collective cultural rights have been denied through a mix of ongoing political, administrative, and environmental tactics. While the examples from China, the Arab States, and Israel reflect state-led campaigns, there is another issue, which is perhaps more subtle, that emerges in the resettlement action plan maps in Mongolia: a misrecognition of nomadic and arid landscapes as empty or vacant.

Jennifer Keating’s (2019) analysis of archival material depicting the construction and representation of Central Asian landscapes as empty during the Russian Imperial period highlights this idea. She points to the mix of fear and awe that feature in Russian accounts of landscapes such as the Kara Kum, which were presented as both inhospitable but potentially “recoverable” through modern state interventions like large-scale irrigation projects. Keating writes, “Emptiness was in effect a commodity, but one in which the currency of potential enabled those surveying the land to claim that its actual value lay in inverse proportion to its current worthless state” (Keating, 2019: 44). Her analysis also reveals that a diverse group of people produced these narratives and were not limited to state authorities. “The experiences of the travellers, military men, tsarist administrators, botanists, engineers and geographers who witnessed these environments first hand contributed to the discursive production of landscape as the imperial visitors compared the terrain to a featureless and alien planet” (Keating 2019: 34). Again, in this example, we see the discursive construction of landscapes largely inhabited by agro-pastoralists and mobile pastoralists as empty, in need of improvement, and ripe for modernist interventions like the diversion of rivers for irrigation to support crop farming.

Likewise, environmental historians of the Soviet Union have elaborated on the intersections between

social engineering of a socialist society and “the Soviet man” and environmental engineering projects. The belief that environmental dynamics could be fundamentally altered was reflected in Stalin’s Great Afforestation Plan, discussed by the scholar Stephen Brain (2010), and the creation of large-scale hydraulic infrastructures to feed cotton and wheat plantations in contemporary Kazakhstan and Uzbekistan by Maya Peterson (2019) and William Wheeler (2019). Alla Bolotova’s (2004) article on the Colonisation of Nature in the Soviet Union discusses the rapid expansion and development of the field of geology to map and discover mineral deposits across Russia’s territory in Siberia in the 1960s. According to Bolotova, the geologist, usually depicted in popular Russian media at the time as a man with a beard due to their long sojourns in the Taiga, was presented as a hero equivalent to cosmonauts for their ability to make sense of the Taiga as a place filled with mineral treasures to be discovered. While the actual fieldwork conducted by Soviet geologists in Siberia was gruelling and not always fruitful, the pervasive trope of conquering nature and using it to achieve a modern industrial, urban socialist society drove significant investment in geological investigation and detailed mapping projects.

One might say that Mongolia was not subject to the same form of settler colonialism that took place in Central Asia during Russian Imperialism in the 18th and 19th centuries, yet in the historical record we can see discourses that took root in the socialist period that reflect a social evolutionist bent and an obsession with modernism and related industrial development and transformation of the economy and society. The wide-scale purges of Buddhist lamas, destruction of temples, and forced agricultural collectivisation were already a significant reordering of rural space, though mobile traditions were supported and allowed to continue, unlike in most of Soviet Central Asia. For example, both Caroline Humphrey (1978) and Dupuy et al. (1970) write about the Mongolian herder resistance to collectivisation in the 1930s; according to Dupuy’s account (1970: 67), herders killed seven million of their own livestock. The Mongolian People’s Republic was moving towards the creation of an agro-industrial state, with support from Soviet investment for much of the 20th century. Alongside the Soviets’ significant military presence in Mongolia, joint initiatives focusing on mining development, even before livestock collectivisation, were evident with the establishment of joint Soviet-Mongol research expeditions and the training of Mongolian geological specialists in order to develop this professional field of scientists and related government apparatus and institutions (Graivoronsky 2014). Space and the environment were organised to maximise the potential for industrial production and development.

I describe these histories in order to illustrate that

contemporary mapping processes are not only about the creation of a single map for placement in a technical report. These mapping processes are made possible through decades of prior mapping and surveying that make certain data about the landscape easily calculable through spatial analysis. The spatial representations of landscape in contemporary Mongolian land-acquisition processes are created by people, often foreign consultants, or technical experts, who often lack a deep understanding of rural Mongolia and mobile pastoralism and are under time pressure to complete their reports. They also operate within a wider assemblage or milieu of actors that work to bring large scale project to fruition. Often a longer process of mapping and surveying has occurred prior to land acquisition in order to determine if a project is worth investing in. These surveying processes model the dimensions of geological entities and their quality, and involve institutional, administrative, and financial investment processes that bring these geological nodes to the attention of private actors for eventual extraction. What is obviously absent from much of the scientific mapping of spaces critical to the national economy are the spiritual and cosmological worlds that were widely featured in maps from the Qing period. As the spatial justice literature points out, certain representations of space reflect and reinforce social and political values. Twentieth century maps of Mongolia reflect an effort to industrialise and advance national economic forms of production, which in turn informs the maps that we see in technical reports, not the earlier maps produced in the 19th century.

Caroline Humphrey's (2021) article on map-making by Mongols for Qing authorities in China highlights that Mongolian map-making from the 1830s to 1920s was participatory, relational and also political. She highlights several maps, which incorporated 12 astrological signs of the lunar calendar, thereby including both temporal and spatial coordinates. In her argument, "the task of mapping was of less concern than the creation of maps as a 'placing' of the subject,' i.e., the domain and its people, in a cosmological vision of the world" (Humphrey 2021: 242). Maps were created to mark temples and sacred sites as well as routes and distances between places measured by indigenous Mongolian measurements, such as the num (length of a bow shot) or orlege (a fast day's ride, approx. 30 km). "One sees where this Banner is cosmologically but not in practical geography" (2021: 259). She explains how in many maps, the wheel of cosmological coordinates brings time into the representation of space and writes:

The system of astrological signs was used to coordinate time with spatial orientation; in other words, it determined the auspicious moment linked to the favourable direction for any important activity, journey or life event. When embedded in a complex matrix with zodiac-signs, celestial

movements and constellations, spirits, elements, etc., this was specialist knowledge encoded in divination manuals (Humphrey 2021: 264).

However, these maps were also political – they were being produced for the Qing authorities and contained subtle messages for the Chinese. Pratte (2022) further elaborates on the way in which the production of maps in the late 19th century reflected an attempt by the Qing state to systematically map the territory.

Humphrey's reference to these maps as a form of specialist knowledge struck me. The expertise reflects familiarity with astrology, divination, and mobility across the landscapes with orientations towards sacred mountains and other human authorities. In maps for land acquisition today, although Mongolian authorities must be aware of the continued importance and presence of sacred landscapes, we do not see these visualised even in the official cadastre systems maintained by the Mineral Licensing Authority or the Agency of Land Affairs, Geodesy and Cartography which maintains the Gazar.mn database. It also strikes me that graves or sky burial sites are particularly absent given the sensitivity towards disturbing these sites in any land acquisition context. Perhaps this is due to secrecy and taboos around discussing sky burial sites in detail, or the lack of knowledge of burial sites from the deeper historical past. Given these significant transformations in spatial representation of nomadic space during the Mongolia People's Republic and beyond, I think it is also important to highlight how the creation of these maps feature in wider power dynamics, both in the historical period to today.

Oyu Tolgoi Resettlement Mapping

In order to elaborate on the impacts that a lack of sensitivity to mobile pastoralist land use practice and Mongolian customary tenure norms have on local communities, I will present a short story about a household that was excluded from resettlement compensation from my follow-up research following from the Oyu Tolgoi-CAO complaint case, as an entry point to further unpack the issues.

In December 2018, I was traveling in Khanbogd, Ömnögobi, with my master's student from Oxford, my research collaborator, Tsesu, from Mongolia, and our local friend named E¹, who was involved as a herder representative during the dispute-resolution negotiations for two complaints lodged with the Compliance Adviser Ombudsman of the International Finance Corporation. The complaints were lodged in 2012 and 2013. The first complaint from 2012 lodged by herders clearly specified problems with resettlement and compensation calculations, including an opaque methodology for

¹ Herders' names are anonymised.

determining impacts on local livelihoods and landscapes. The complaint further discusses the impacts on nomadic ways of life; it reads:

We consider ourselves as indigenous to this area, as well as carriers of the ancient tradition of nomadic herding. We are mobile pastoralists dependent on pasture for our livelihoods. These pastures are ours as recognized under the customary law. The Company, however, does not recognize our rights, justifying their decision only by the fact that we are not an ethnic minority. The compensation does not include mitigation or remedy for the loss of opportunity to carry on with our traditional nomadic herding lifestyle and the related loss of property and cultural heritage to be passed on to our descendants (CAO, 2012).

The complaint goes on to explain that herders had gone to government representatives and other stakeholders, who did nothing to address their concerns. The CAO complaint was a last resort and was deemed eligible for mediation by the IFC.

As part of my work on this case in 2016, we were tasked with researching how resettlement planning took place. We interviewed over 100 families across Khanbogd soum, local government officials and Oyu Tolgoi mine management. The research found that herders who were not physically present at their winter camp when the resettlement survey took place were excluded, and only formally registered winter camps were included. At that time, many herders had not registered their winter camps, as they were using them based on customary principles of entitlement based on long-term or multi-generational occupation and use, which were widely recognised by other herders in the area.

One of the first herders that we interviewed in May 2016 was B. He gave us his life history. At the time we met, he was 58 years old and had four daughters. He explained that he was born and raised in Khanbogd. His mother and father continued to live in Khanbogd as herders, and his livestock were cared for by his younger relatives while he was away serving in a soldier's unit for border protection in Bayan-Ovoo soum in Ömnögobi. He returned to the area in 2011; prior to that point, he was working in the military service until he was officially released, and then he returned to Khanbogd to herd. Following his return, his wife and youngest daughter would visit home in the summer during the school holidays, and otherwise, he lived alone in the countryside.

In December 2018, two years after our research in Khanbogd, we returned to many of the families that we originally interviewed in 2016. By then, an agreement (Compliance Advisor Ombudsman 2017) had been reached between the three parties privy to the CAO Complaint negotiations – representatives of local herders, local government and the Oyu Tolgoi mine management.

Through the dispute resolution process, Oyu Tolgoi agreed to reopen a compensation committee to review the many cases where households had been left out. Over 100 households received retrospective compensation from the claims committee (Compliance Advisor Ombudsman 2020).

I was keen to visit B and had spoken to him on the phone earlier in the day. E seemed reluctant to go to B's place, but I insisted, since I had promised him that I would visit. We arrived, and everyone got out of the car to enter B's ger. His wife was at home, cleaning dishes and helping B, who was cutting up a recently slaughtered cow on the floor of the ger. There was a significant amount of blood and several very sharp knives lying on the floor. We greeted B and slowly it became evident that something was not right. It took a moment for me to register B's drunken state. Our greetings were relatively normal until he became visibly agitated when seeing E. He said that the compensation claims committee refused his case, and he was not recognised as an impacted person despite being a child of Khanbogd and a current herder, returning just around the time that Rio Tinto took over the management of Oyu Tolgoi from Ivanhoe Mines. He seemed to partially blame E for the unsuccessful case, and started weeping, also blaming his wife for not helping him herd in the countryside and leaving him to fend for himself for so many winters. B's distress and pain were obvious; his rejection was extremely personal because he was judged not to belong to the place that he considered to be his nutag (birthplace). His return in 2011 was considered to be too late to qualify for a compensation claim, something that he found to be incredulous given the fact that his "presence" had always been there in Khanbogd, through his livestock and family relations. B directed his anger at E, who had received compensation from the claim committee. E was originally overlooked because he was absent from his winter camp at the time of the resettlement survey but otherwise was a full-time resident of Khanbogd. B begged me to come back and help to sort out this situation; I wanted to help, but I had no influence over the claims committee or ability to advance his case. His escalating anger towards E scared me and at one point, E angrily postured at B and seemed ready to punch him. I thought that something awful might happen given the proximity of multiple sharp knives and the bloody cow carcass on the floor nearby. It was the only time that I ever felt that things could get violent during my last 20 years of visits to Mongolia, even by accident. I tried to give as much respect to B and his wife as I could, who was also crying by that point, as I pushed my master's student out the door and into the cold night to the car.

The relationship between B and E was but one of many casualties of the Oyu Tolgoi resettlement process. Their methodology of only mapping winter camps and counting

affected households as those who fall within an arbitrary one to seven km distance from a piece of infrastructure made herders only visible based on a sedentary model for understanding rights. The formal registration of winter camps, which the developers considered to be a form of ownership or “property”, fell into this purview. Also, due to the mobile nature of land use, there was a pervasive suspicion among the Oyu Tolgoi mine management that herders were making false claims of residency and opportunistically moving into the area to receive compensation. Since B returned to Khanbogd after the Oyu Tolgoi development was significantly underway, it appears that his situation was interpreted in this way. Mobile pastoralist temporalities of mobility were insufficiently understood by developers, where general practice is to establish a ‘cut-off date’ for counting residents and immovable property in surveys and maps, which then become eligible for compensation. B’s life trajectory, however, is typical for many who may maintain ties in multiple sites, enabling multi-sited or seasonal residencies. The map developed as part of Oyu Tolgoi’s resettlement action plan (Oyu Tolgoi 2012) creates a visualisation of entitlements in a seemingly systematic way, yet it leaves so much important information out – where are the livestock? Pastures? Wells? Sacred sites? Other seasonal campsites? Burial sites? etc. Also, winter camps are represented by single fixed squares with the assumption that one square represents one family unit, whereas we know that herder households are flexible and there may be two or more families staying in one site, or perhaps a relative using the camp, which is still in the name of the original registrant. However, the winter camp became the main unit for mapping affected households, and the person under whose name the camp is officially registered was recognised as the only legitimate user.

The maps that we see in resettlement action plans like this are found in reports written by consultants and technical experts, which are intended to fulfil the required due-diligence process of any large-scale investment by international financiers such as the IFC. Some of the technical experts are from Mongolia, others are international consultants. The reports are available in English and posted online for public view and can be downloaded free of charge. We may know what companies were contracted to do the work, but we rarely know specific authors who created the maps, which are not meant for widespread public consumption. The maps are instrumental in many ways; they are meant to visually illustrate the geographical area that is considered to be an impact zone of the project, as well as the extent of the project footprint. The maps are embedded in longer documents which describe the technical elements of the project. These also offer prospective designs, blueprints for the imagined transformation of space through

industrial processes, often offering simplistic renditions of major infrastructure.

This became even more personal for me in August 2025, when I was visiting my host family in the countryside in Bayankhongor, a place that always seemed safe from mining encroachment to me. My host brother-in-law, G, told me that large trucks, diggers and other equipment had been dropped off close to his winter camp, which are associated with a potential gold mine being explored in the area. G explained that establishing a gold mine at his winter camp site would destroy their family’s life. As a proud herder who has never given up riding a horse and has four young children to care for, both he and his wife would lose not only their livelihood but their identity. This would also have repercussions on their family members living in the provincial centre and Ulaanbaatar, who own some of the livestock in G’s herd, which they use for annual meat supplies. The impact of truck traffic, new roads, and the influx of external workers that would accompany a major mining project would completely transform the peaceful community of herders living in the first bag, whom I have come to know very well for the last 15 years. And yet the company has already made inroads by donating money to the large Naadam held in summer 2024 to celebrate the 100th anniversary of the founding of the soum.

Government Maps and Implications for Making Herder Customary Land Rights Visible

My experience indicates that developing maps for developing projects is informed and constituted by many prior iterations of mapping, making it a composite of prior discursive approaches used to govern rural territories. For example, the locations of wells and herder winter and spring camps were registered with the Mongolian Government as part of changes to the Land Law in the early 2000s, which was followed by several large-scale World Bank projects, most notably the Sustainable Livelihoods Project (2002-2012), that supported pasture management planning and the collection and mapping of pasture-related data across Mongolia (World Bank 2022). Prior to these maps, the socialist period saw a great expansion of mapping of water points, pasture, hay-fields as well as large-scale geological surveys, which laid the foundation for contemporary environmental and extractivist interventions.

Mongolia maintains multiple legally separate cadastre systems that are partially interoperable but not unified. For example, the land cadastre is available on egazar.mn and is maintained by the Agency for Land Administration and Management, Geodesy and Cartography. This system includes officially registered land parcels and areas covered by ownership or possession rights, such as herder

winter camps. The Ministry of Environment and Climate Change maintains the National Water Information System and the Environmental Information Database, which include spatial data on rivers, lakes, wells, water protection zones, and protected areas and forests, respectively. The Mining Cadastre Information System, maintained by the Mineral Resources and Petroleum Authority, registers mineral exploration and exploitation licenses. From 2019 to 2021, the EBRD worked with the Government of Mongolia through a technical cooperation project to create a National Geological Service, hosted by the National Geological Survey. The National Geological Service is an online geoscience database that consolidates historical and contemporary geological survey data, maps, and spatial datasets within an interactive GIS system. According to the EBRD, millions of pages of maps and related geodata were consolidated through the National Geological Service database project (see Figure 1), and prior to the creation of the database, “it was extremely difficult for both domestic and foreign investors to evaluate Mongolia’s resource potential when fundamental geoscientific datasets could not be provided in digital formats or accessed online” (Moffat 2022: 48). Cadastre systems in Mongolia all have a legal underpinning and were established following legal reforms concerning land ownership, mineral extraction and environmental protection. It is obvious that these systems are critical for the visualisation and definition of natural resources and their legal status, as well as for the

governance of these resources. However, it is also striking that these cadastre systems do not attempt to visualise the pastoralist landscape as it is used according to customary mobile land use systems. Local place names, sacred places, folk habitats, sky burial sites, seasonal camp sites, and overlapping, shared pastoral land-based resources are absent. The invisibility of the pastoralist landscape has repercussions for how these spaces are represented during resettlement processes as well as for the legal protection of pastoralist ways of life in Mongolia.

These repercussions became evident during my own involvement in mapping several locations in rural Mongolia as part of a site assessment for a potential wind farm. This was not an RAP or even a detailed environmental and social impact assessment. It was a pre-project assessment to assess if there were any technical, environmental or social risks that would preclude further development of the potential sites. I represented the social team with two Mongolian researchers. We made a detailed list of the issues we wanted to assess, including everything from sites of cultural and sacred significance to existing licenses or protected areas, histories of land use, and existing governance norms at the soum and provincial levels. It was a long and detailed list with particular attention to impacts on herder livelihoods and cultural landscapes. To conduct this site assessment, we needed to obtain a formal letter from the government Ministry involved in the project, which we could present to provincial and soum government authorities to initiate

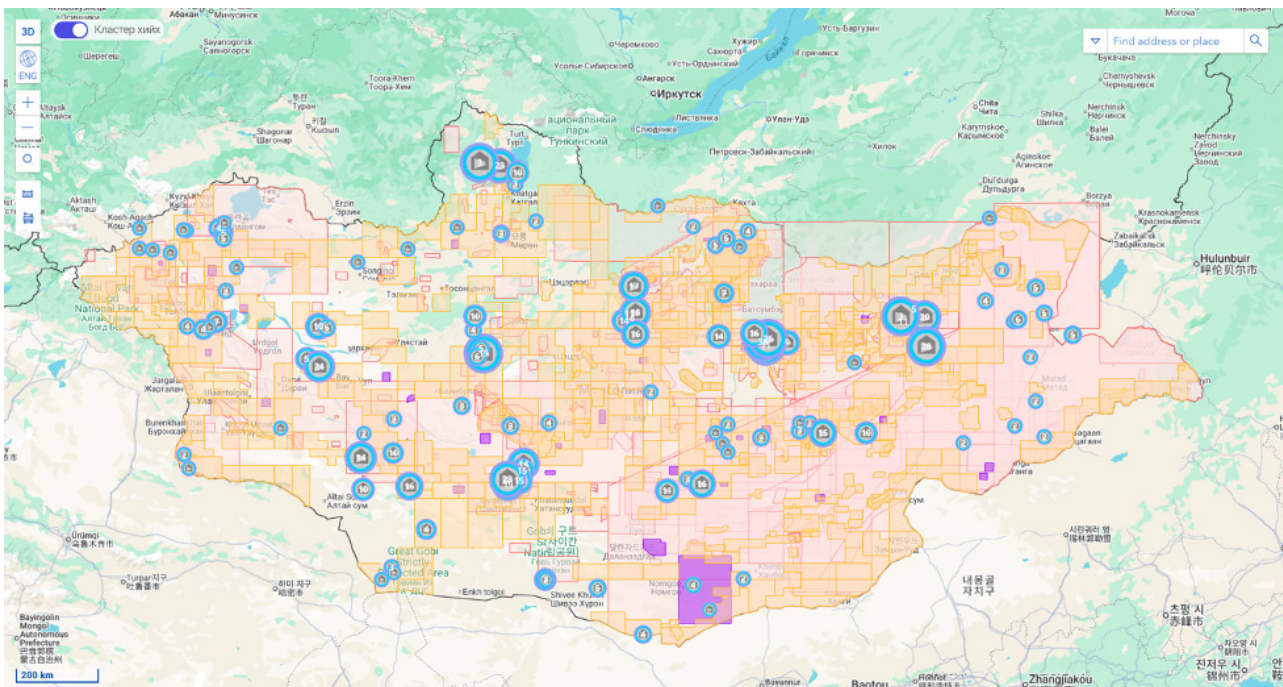


Figure 1. Screenshot of the Mineral Resources Information System (MRIS) WebGIS, a Mongolian government GIS platform that displays spatial records of geological work across Mongolia, created through an EBRD-funded project (2019-2021)

conversations and access locally held data. The Ministry was reluctant to issue the letter, and it took weeks for it to eventually be released. To create maps of the sites, our team had to compile a long list of data from a wide range of sources, which required constant cross-checking between official records and ground-truthing. Local, provincial, and soum governments had data on livestock numbers, water wells and springs, locally protected areas, and winter camps. However, when we checked the actual locations of winter camps, we found that many officially registered winter camps were not officially logged with the soum government, and those that were marked did not always match their physical locations. Likewise, winter camps without official registration were not marked at all in the soum geodata. It was much more difficult to find information on spring camps; and summer and autumn camps would need to be determined through extensive engagement with local herders as they are not static. We did not have the time or budget to physically map these locations, and we were also constrained by the fact that it was spring, and many herders had moved elsewhere due to a lack of pasture. We also needed to locate any sites of cultural significance, including sacred or religious sites, sacred mountains, springs, or archaeological sites and graves. These places were identified only through discussions with herders and local cultural centres. One provincial cultural center provided us with a book that presented information on standing stones and ancient graves, but their location was not included in the book, and we needed to physically find them and mark their coordinates in order to include them on the map. In another case, the soum cultural center showed us many photos of standing stones, rock paintings, and other sites of cultural significance, but explained that they did not have any of these places mapped and they asked us to contact a local herder and ask him to physically show us each of the sites.

Throughout this process, the Ministry showed no interest beyond the project's technical elements. In this sense, the mapping experience took place within a broader set of power dynamics that had to be carefully navigated and negotiated. As mappers, we were not free agents, able to create the maps that we hoped for despite articulating the importance of including a detailed representation of the mobile pastoralist landscape in order to avoid negative impacts if the project were to be further developed. The more fine-grained information that we wanted to obtain on livestock grazing areas, mobility and seasonal camps (as many herders had moved several times already that year) would involve a much deeper participatory mapping process. While we spent as much time as we could with herders to understand the local cultural landscape, much of this data was not easy to represent in a map at the large scale required by the project developers.

The single map embedded in our report was largely based on data from existing cadastre systems, which were built on geodata collected and consolidated in government records. This data narrowly represents mobile pastoralists as fixed points in space, based primarily on winter-camp location, which has become a sticky norm. Our team was also troubled by the lack of an alternative representation for this assessment. This is worrisome given the Mongolian government's recent efforts to encourage more bounded use of pastures in the passage of several new laws pertaining to herders.

As mentioned previously, resettlement action plan reports have primarily been created for projects that receive financing from multilateral development banks and are usually found on project pages on their websites. There are several other examples to reflect on: the Choir-Sainshand Transmission Line Project (2021), the Sainshand Wind-Park Project (Sainshand Salkhin Park LLC) and the Erdenes Tavan Tolgoi Resettlement Remedial Action Plan (2014). In the available RAP reports, usually, there is a substantial section reviewing Mongolian laws relevant to land. In several cases that I have read, the reports do acknowledge herders' communal land rights, or at least the potential for them. For example, the Erdenes Tavan Tolgoi Resettlement Remedial Action Plan (Centre for Policy Research and Social Sustainability Services 2014) states:

Although there is no official land ownership, land possession or land use rights to pastureland, the herder communities recognize customary tenure to pastureland. The herders were using certain pastures for generations and have [a] feeling that the right to use this "certain" pasture belongs to them. This is also well known to the local authorities, soum administration and bag governors. The customary land tenure issues and the access to pastureland as a source of livelihood of the potential affected entities need to be taken into consideration (2014: 14).

This remedial action plan was a retrospective assessment of the process that Erdenes Tavan Tolgoi undertook during its development of the East Tsankhi Coalfield located in Tsogttsetsii, Ömnögobi and offered remedial actions to correct its problematic approach, which failed to adequately address the impacts of the mine on local herders and other residents.

However, I have not seen any maps that include local place names or use more creative symbols to represent communal land rights, sacred mountains, salt marshes, or springs, for example. Some of the maps produced by these projects attempt to include summer camps, in the case of the Choir-Sainshand Transmission Line Project. What we see in most available RAPs is a map of the planned infrastructure, with an impact zone drawn around it. The impact zone is meant to define

the area where impacted households reside. The Choir-Sainshand Transmission Line project has a 6-10 km impact zone around the transmission line right-of-way (European Bank for Reconstruction and Development 2021). Winter camps and wells are plotted on the map; in this case, several summer camps are also included. These households are determined to be affected by the project, and an entitlement package is determined. The narratives in the texts provide more detail on mobility and pasture use, though the reports' goal is to determine who qualifies as an impacted person. The focus of maps is making a determination on how a household's assets or livelihood resources are impacted by a project; yet even this assessment is done very narrowly. For example, the Choir-Sainshand transmission project made this observation:

Existing laws recognise private ownership under a freehold (ownership) or leasehold (possession) regimes. In practice, these tenure regimes are restricted to residential land, i.e. winter/spring shelters in the case of herders. Pastureland remains as state land. Private and communal usage rights over pastureland could in theory be formally recognised; however, this is rarely the case in practice (European Bank for Reconstruction and Development 2021: 26).

Here we see another interpretation of herder rights to common pastureland.

Conclusion

While I have been researching mobile pastoralist livelihoods and local government processes for many years, mainly in my long-term field site in Bayankhongor, and continue to focus on this theme as a core area of work, it has become increasingly clear over the last two decades that herders face multiple forms of discrimination and bias towards their mobile forms of life. Some development discourses are remarkably similar to those we have seen promulgated by the Chinese state with regard to Inner Mongolia and Tibet to enclose grasslands and incentivise herders to settle (Yeh 2013, Williams 2002), as well as the use of grassland degradation discourse by states in the Levant to dispossess Bedouin groups of their long-standing ways of life (Gilbert 2013). Setting this issue aside, herders in Mongolia have very little or no power to prevent central authorities from issuing mining licenses in their homeland. Mongolia has approximately 2,700 exploration and extraction licenses across the country (Mineral Resources and Petroleum Authority of Mongolia 2024). I have been to counties in Dornogobi and Ömnögobi where dozens of mines operate in a single soum, managed by multiple companies. Concerns regarding land-acquisition practices have been reflected in several recent UN reports, including the UN

High Commissioner for Human Rights report issued on 6 March 2020, which strongly stated the need for government attention to human rights issues associated with large-scale development. The report reads:

The Committee on Economic, Social and Cultural Rights expressed concern that nomadic herders' rights to their pasture, hay land and water resources were continually infringed owing to mining activities on their traditional lands; free, prior and informed consent of herders was not obtained when licenses for mining in their traditional territory were granted and compensation to herders affected by mining projects were not adequate (OHCHR 2020:3).

The Government of Mongolia outlined its agenda for the next four years following the June 2024 election. The government's primary economic development strategy is to open mines to extract rents, and mining will likely continue to expand under the new critical minerals and green development agenda. Understanding how land acquisition processes unfold and how rural herder homelands are represented during these processes reveals deeper insights into the social production of space and the ramifications of transformations in rural lives, Mongolian mobile livelihoods, and landscapes themselves. So, where do we go from here? How do we address the spatial injustices of land acquisition and resettlement processes in Mongolia, especially given the difficulties of mapping nomadic space? We can see the implications of producing maps that represent herders as sedentary households. B's story is but one of many who have experienced a feeling of dispossession, lack of recognition or exclusion based on both the temporalities and spatialities represented in the maps. In the case of B and E, both were absent at the time of resettlement, when surveys were being conducted. But it was B's extended absence that made him ineligible for compensation. Is this about updating the mapping method? Or is it about the wider structures and histories in which mapping takes place – i.e. those multiple layers of past surveys and maps that are reproduced in some way or another in new maps? On the one hand, we do need new mapping methods, perhaps taking inspiration from maps that Caroline Humphrey (2021) analysed that incorporated much more complex cosmological worlds in a single landscape? Perhaps we might also look back on relatively recent maps, such as those produced during the socialist era from Ölziit, Bayankhongor, which carefully include hundreds of local place names.

Local place names are entirely absent in RAP maps, another silence or invisibility with political ramifications. It is an erasure of nomadic history and the reiteration of terra nullius. It communicates the idea that nothing is there except for static winter camps. In some cases, locations are given new names that correspond to the project or developer. Past maps can give us insights into how we

might address the spatial injustices of resettlement and mining expansion. Another possibility is to take inspiration from groups such as Forensic Architecture, which work to reconstruct places through architectural techniques, spatial analysis and engagement with local peoples and historical archival materials (<https://forensic-architecture.org>). This requires a special skill and has largely been used to investigate and address historical injustices such as the German Colonial Genocide in Namibia. As historians, anthropologists, artists and archaeologists, we all have a role to play in re-imagining these maps and how nomadic space is represented in them, especially as the new wave of mineral development in Mongolia promises significant transformations of mobile pastoralists spaces into sites of extraction and export of minerals.

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