Gender, Land and Mining in Mongolia

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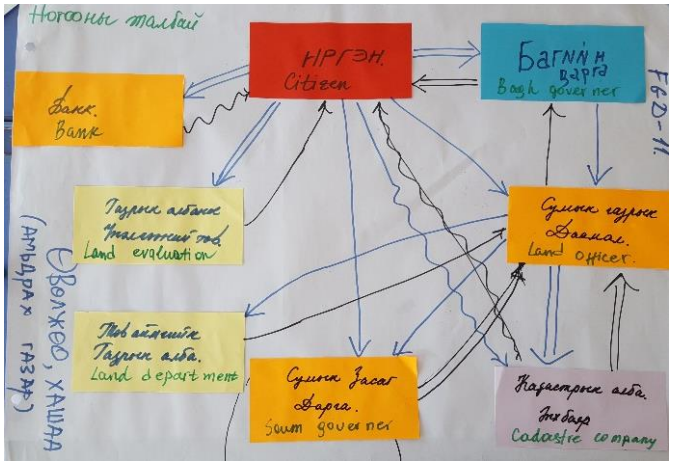
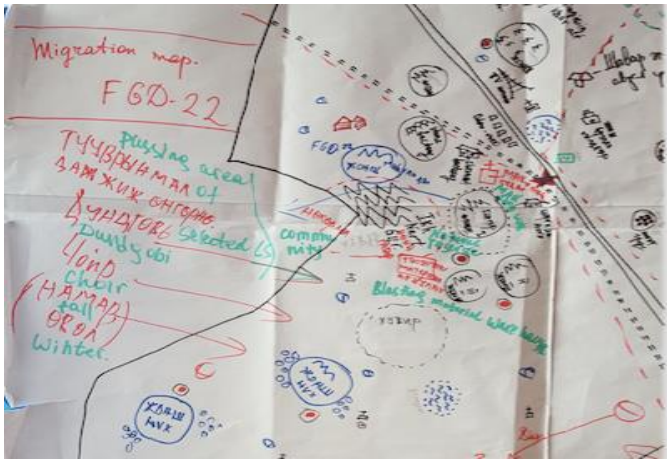
Daley, E., Lanz, K., Narangerel, Y., Driscoll, Z., Lkhamdulam, N., Grabham, J., Suvd, B. and Munkhtuvshin, B.





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List of Abbreviations and Acronyms

Acronym	Definition
ADB	Asian Development Bank
AHR	Advocates for Human Rights
ALAGaC	Mongolian Governmental Implementing Agency for the Administration for Land Affairs, Geodesy and Cartography
BI	Biographic interview
CIA	Central Intelligence Agency of the United States of America
CPR	Center for Policy Research
CSO	Civil society organisation
EC	European Commission
EITI	Extractive Industries Transparency Initiative
FAO	Food and Agriculture Organization of the United Nations
FDI	Foreign direct investment
FGD	Focus group discussion
FHH	Female-headed household
FUG	Forest user group
GDP	Gross domestic product
GLRD	Gender and Land Rights Database.
GOM	Government of Mongolia
GTZ	German Technical Cooperation Agency
IFAD	International Fund for Agricultural Development
IMF	International Monetary Fund
IRIM	Independent Research Institute of Mongolia
JICA	Japan International Cooperation Agency
LSLAs	Large-scale land acquisitions
MAK	Mongol Alt Corporation (large-scale mining company)
MCA	Millennium Challenge Account
MCC	Millennium Challenge Corporation
MDGs	Millennium Development Goals
MHH	Male-headed household
MPRP	Mongolian People's Revolutionary Party
MRAM	Mineral Resources Authority of Mongolia
MNT	Mongolian Tughrik
NAMAC	National Association of Mongolian Agricultural Cooperatives
NCGE	National Committee on Gender Equality
NGO	Non-governmental organisation
NCAV	National Center Against Violence
ODA	Official development assistance
OT	Oyu Tolgoi mine
PCC	People Centered Conservation
PUG	Pasture user group
SAM	Sustainable Artisanal Mining
SDC	Swiss Development Corporation
SDGs	Sustainable Development Goals, or Global Goals
TT	Tavan Tolgoi mine
UMMRL	United Movement of Mongolian Rivers and Lakes
USAID	United States Agency for International Development
USD	United States Dollar

Acronym	Definition
USDS	United States Department of State
VGGTs	Voluntary Guidelines on the Responsible Governance of Tenure of Land, Fisheries and Forests in the Context of National Food Security
WB	World Bank
WEF	World Economic Forum
WOLTS	Women's Land Tenure Security Project

Glossary of Mongolian Terms

Mongolian term	Definition
aimag	region or province
bagh	administrative sub-division within a soum
deel	traditional Mongolian dress/costume
dzud	extremely severe winter weather that leads to catastrophic livestock loss
ger	traditional portable Mongolian housing, typically round and made of timber and felt
ger districts	residential areas on the outskirts of Mongolian cities that lack basic public services and infrastructure (e.g. sewerage, water and central heating)
gudamj	street (equivalent of a khot ail within an urban bagh of a soum)
khashaa	housing plot (in a soum centre or other urban area), also used to mean the fences around the plot (so it also covers campsites) and the fences around livestock shelters
kheseg	administrative sub-division within a khoroo
khoroo	administrative sub-division of districts of the capital city, Ulaanbaatar
khot ail	informal administrative sub-division within a rural bagh of a soum
khural	parliament
negdel	agricultural or livestock collective in the socialist period
ninja	illegal artisanal miner (so-called after the Teenage Mutant Ninja Turtles whose shells resemble the baskets that these miners carry on their backs)
nukhurlul	local community group or association
otor	a special case of short or long-term seasonal migration with livestock, usually in the summer, but always out of regular seasonal pastures
soum	administrative sub-division within an aimag outside of the capital city
uul	mountain

Introduction

Mokoro's practical and action-oriented long-term strategic research project, the Women's Land Tenure Security Project (WOLTS), is piloting its methodology through a 'Study on the threats to women's land tenure security in Mongolia and Tanzania'. Working with our NGO/CSO partners – People Centered Conservation (PCC) in Mongolia and HakiMadini in Tanzania – we have been investigating the state of women's land tenure security in pastoral areas affected by mining investments, through both participatory qualitative and quantitative research, to identify the main threats to the land rights of women and vulnerable groups. The WOLTS project's aim is to assess possible means to improve gender equity in land tenure governance and secure the land rights of vulnerable people within communities, as well as to support communities to withstand threats to their land and natural resources.

To date there have been limited studies combining analysis of gender, land, pastoralism and mining – whether globally or specific to either Mongolia or Tanzania. At the same time, the topic of land tenure security is now higher up the international development policy agenda than it has ever been. Widespread attention focuses on threats to community land rights and the livelihoods and food security of rural people worldwide, with specific concerns arising over both internal and external threats to people's land tenure security that are linked to poor land governance, unclear rights and large-scale land acquisitions (LSLAs).

Research and literature on land tenure security and LSLAs has tended to be biased towards African countries, agricultural investments and impacts on small-scale farming – even though land tenure security is equally affected in other regions and livelihood systems, such as pastoral, forest- or fisheries-based systems, and by non-agricultural investments, such as those in mining/extractives, forestry/timber and tourism. Likewise, even though gender issues are now less peripheral in the research and literature on LSLAs than they have been, the internal socio-political, class and gendered dynamics of land tenure security within communities and the gender and social equity impacts of externally-driven LSLAs are still not yet fully understood. This is particularly the case for pastoralist communities in mineral-rich areas. Furthermore, a core tension remains within debates on community land rights and land tenure security over the subject of women's rights. This tension arises most profoundly on the question of how best to protect vulnerable people's land rights within communities from both internal and external threats – including the internal gender-based inequalities and discrimination that are everywhere rooted in social and cultural norms.

By focusing on the intersection of gender and land relations in different pastoralist and mining contexts, WOLTS aims to contribute to these knowledge gaps in a practical and action-oriented way. The present report shares our findings from Mongolia – a country that is well-known for both its longstanding traditions of nomadic herding and its mining boom over the past two decades. The report sets out the findings of our research in Mongolia during the first two years of the WOLTS pilot study. It begins by setting out the national context, based on information gathered during interviews with key stakeholders in Mongolia and during background research and literature review. (See Annex 4 for details of interviews conducted and Annex 5 for secondary sources consulted.) This is followed by a brief introduction to the two community studies that make up the core of the report. The findings analysed in the community studies derive from our fieldwork between April and November 2016, including initial field visits, a baseline survey and a participatory fieldwork phase, and they were validated during follow-up visits to both communities between June and August 2017 and a multi-stakeholder workshop in October 2017. (See Annex 1, Annex 2 and Annex 3 for details of the study methodology.) The report concludes with some comparative conclusions from our two study soums that shed light on the intersection of gender, land, pastoralism and mining in Mongolia today.

National Context

Mongolia is a vast, land-locked country bordered by the Russian Federation to the north and China to the east, south and west. Mongolia's total land area exceeds 1.5 million km2, of which some four-fifths are fragile drylands, and it has 8,082 km of land borders with its neighbours (CIA no date; GOM 2012a). Mongolia had a population of just over 3 million people in July 2016, with approximately 72% of them living in urban areas, including around 1.4 million people in the capital city, Ulaanbaatar – the coldest capital city and second most air-polluted city in the world (CIA no date; GOM 2012a; MCC 2016). Mongolia's population density is the second lowest globally, after Greenland (Moran 2013). Around 73% of Mongolia's land area is permanent pasture and 7% is forest (CIA no date). Mongolia is home to some of the world's largest reserves of copper, coal and uranium. Huge deposits are situated close to its main market in China, but mining takes place throughout Mongolia, with key minerals also including gold, fluorspar, zinc, iron ore, silver and lead (WEF 2014). Licences for mining and mineral exploration covered some 43% of Mongolia's total land area in 2008, with around 14.4% of the total land area assigned for production by 2013 and the balance for exploration (Cane et al. 2014; USAID no date).

Mongolia contains three major topographical zones – mountain chains in the north and west, basin areas between them, and the vast upland plateau that lies across the south and east. Geographically, these divide into seven different types of natural environment – high mountain, taiga forest, mountain forest-steppe, steppe, desert-steppe, Gobi Desert, and wetlands. Administratively, Mongolia is organised into 21 regions (aimags) and the capital city, Ulaanbaatar. The aimags are divided into soums and then baghs; there are further informal sub-divisions called khot ails in rural baghs. Ulaanbaatar is divided into districts, khoroos and khesegs (GOM 1992).

Map 1. Administrative map of Mongolia

Source: http://www.mongolia-trips.com/travel-tips/maps-mongolia/administrative-map-mongolia/

Mongolia faces numerous development challenges, including limited infrastructure, macroeconomic volatility (linked to instability in global copper prices), rapid urbanisation, income inequality (especially between urban and rural areas), corruption, desertification, environmental degradation, and overall sensitivity to climate change (ASEM 2015; GOM 2012a; Isakova et al. 2012; Tovuudorj 2015). The government's assessment of the health of Mongolia's pastureland is gloomy, with a total livestock population of 85.5 million sheep units in 2014 and the then stocking levels far higher than resilient carrying capacity in all but one soum studied in a recent national survey (GOM 2015). Yearly

monitoring of pastureland health takes place at 1,450 sites across Mongolia. Just under half of these sites are considered to need more than three years to recover from current levels of environmental degradation, yet the total livestock population had already risen to approximately 100 million sheep units by August 2016 (Ibid; Stakeholder Interviews, November 2015 to August 2016). Climate-related challenges are also of concern to Mongolia's herders, as increasing global demand for cashmere has contributed to rising numbers of livestock at the same time as irregular seasonal weather patterns make pastoralism increasingly difficult to sustain. For example, summer drought in 2010, followed by a dzud (extremely severe winter), combined to cause the deaths of over 9 million livestock across Mongolia (Abnett 2015). This highlights the relatively tough lives of herders in the countryside, with average life expectancy in Mongolia standing at 74.3 years for women and 64.9 years for men, and healthy life expectancy just 64 for a woman and 57 for a man (Begzsuren & Aldar 2014; WEF 2016).

Historical context

Prior to the twentieth century, Mongolian society consisted primarily of nomadic herders of horses, camels, cattle, goats and sheep (USAID no date). Although pastoral land use patterns in Mongolia have shifted over time, the fundamental characteristics of pastoral livelihoods – the need for mobile and flexible grazing strategies to cope with variable environmental and climatic conditions – have remained central to Mongolian pastoralism for hundreds of years (Fernandez-Gimenez 2006). The emergence of formal land rights started under Chinggis Khan, who, in 1206, appointed nobles to wield control over pastures; this was the first time that groups of Mongolian herders were associated with fixed territories (Ibid). In 1229, two years after Chinggis Khan's death, the first code of land laws was written to describe how specially elected leaders should coordinate nomadic movement (Broere 2017). By the 16th century, Tibetan Buddhist monasteries were among the largest livestock owners in Mongolia and had significant influence on pasture use and allocation (Fernandez-Gimenez 2006). Then in 1691 the northern and western Mongols came under Manchu colonial administration and rigid territorial lines were drawn; new written laws (including the Khalkha Code in 1709) codified aspects of the customary law of the steppe, such as the 'first come, first served' rule of claiming seasonal campsites and adjacent pasture, but radical title to all land in Mongolia remained with the Manchu emperor until 1911 (Broere 2017; Fernandez-Gimenez 2006; Upton 2009).

Following autonomy from Chinese rule and the communist revolution of 1921, all land passed into state ownership (Upton 2009). The Mongolian People's Republic was founded in 1924 and the current administrative districts (soums) were established (Fernandez-Gimenez 2006). At this time, there was little formal regulation of pastoral movement, and herding communities enforced customary rights and managed seasonal migration within their territories. By the 1950s herding collectives (negdels) had gained momentum; 99% of herder households had joined one by 1959 (Ibid). In 1967 the Supreme Council of Collective Farms was founded, which included both herding collectives and irrigated collective farms for agricultural (crop and vegetable) production (USAID no date). From the 1950s to the early 1990s herding collectives allocated pasture, resolved disputes, entered reciprocal cross-boundary agreements, regulated land use and movements of herds, and facilitated the provision of mechanised transport between key seasonal pastures in times of emergency (Upton 2009; USAID no date).

Mongolia emerged from 70 years as a communist, one-party state and close ally of the Soviet Union with the peaceful Mongolian Revolution of 1990. The then constitution was amended, legalising opposition parties and deleting reference to the then ruling Mongolian People's Revolutionary Party's (MPRP's) role as the guiding force in the country, and the first multi-party parliamentary elections were held. In 1992 a new constitution was adopted (subsequently amended in 1999 and 2001), and administrative reforms began (Reeves no date). With the democratic transition, Mongolia became immediately dependent on Western donor agencies whose aid was conditional on economic reforms including privatisation and de-collectivisation of land and livestock. Widespread

privatisation began in 1991, with the disintegration of collectives and with 44% of state property distributed through vouchers to every citizen in the country (Mearns 2004, in Myadar 2009; Sandagsuren & McCarthy 2016). The formal dismantling of herding collectives started in 1992, when the Supreme Council of Collective Farms was reorganised and renamed as the National Association of Mongolian Agricultural Cooperatives (NAMAC), and privatisation of livestock herds and winter campsites followed in 1993 (Fernandez-Gimenez 2006; Myers & Hetz 2004; Stakeholder Interviews, November 2015). This included the distribution of some 25 million animals to former members of herding collectives. However, many other Mongolians also took up the opportunity to become herders at that time – especially as alternative economic opportunities were limited in the face of mass loss of employment and general economic chaos – and between 1990 and 1997 urban to rural migration led to a doubling in the number of herder households (Enkh-Amgalan 2007; Mearns 2004, in Myadar 2009). This contributed to a decline in the distance and number of seasonal movements, an increase in out-of-season and year-long grazing, and an increase in conflicts over pasture – with herders starting to migrate less in order to maintain control of key pastures and campsites, and grazing practices becoming increasingly unsustainable (Fernandez-Gimenez 2006; Narangerel 2010; Sandagsuren & McCarthy 2016). Further, the gains from livestock privatisation were unequally distributed which led to a sudden increase in the gap between rich and poor herders, and increased poverty in rural areas (Mearns 2004a). Improved economic prospects linked to a mining boom through the 2000s then saw urbanisation gather speed and herder numbers fall. However, by 2015, when our WOLTS research began, the mining sector had slumped and pastoralism remained a challenging way of life (Economist 2015).

Political and economic context

The Constitution of Mongolia aspires to a democratic society, cherishing human rights and freedoms, justice and national unity (GOM 1992). Mongolia has held elections every four years since the transition, resulting in a stable and regular rotation of power between the Democratic Party and the Mongolian People's Party, the successor to the MPRP. The country is relatively egalitarian, with relatively high literacy rates and education levels, and there is a relative absence of ethno-linguistic divisions (Chene 2012). However, civil society is less well-developed as a joined-up sector capable of holding government to account, and "a lack of communal spaces in rural areas in which local people can gather together" is symbolic of limited grassroots input into local politics and decision-making processes (Jargalsaikhan 2015; Stakeholder Interviews, April 2016). Moreover, according to the Asia Foundation 2016a, Mongolia ranks globally among the bottom five countries on trust around elections, along with Afghanistan, Chad, Pakistan and Russia. Freedom House 2016 considers Mongolia a 'Free' country, ranking 1.5 out of 7 overall (where 1 is best), but with corruption in government and the rule of law, domestic violence, and limited political representation of women as countervailing problems. Likewise, USDS 2015a identifies corruption and widespread domestic abuse as the most significant human rights violations in Mongolia (and cf. Global Integrity 2011).

Mongolia has nevertheless made considerable progress toward sustainable development since the democratic transition. The Mongolian Action Programme for the 21st Century was developed after the 1992 Earth Summit in Rio and it was followed by the 2007-21 National Comprehensive Policy to develop the countryside and support achievement of the Millennium Development Goals (MDGs) (GOM 2012a; Jargalsaikhan 2015). Rapid urban growth continues and air pollution and poor solid waste management remain major problems in Ulaanbaatar, but local community-based environmental management has also been championed in rural soums (GOM 2012a). By 2011 some 500 small-scale NGOs/CSOs worked in nature conservation and local community environmental initiatives nationwide, and Pasture User Groups (PUGs) and Forest User Groups (FUGs) are today found throughout the countryside (Ibid; Stakeholder Interviews, November 2015 to November 2016; and see below). At the time of writing, Mongolia is among a small number of countries actively pursuing the implementation of the Voluntary Guidelines on the Responsible Governance of Tenure

of Land, Fisheries and Forests in the Context of National Food Security (VGGTs), the key international land governance instrument that supports the Sustainable Development Goals (SDGs).

Mongolia falls globally into the lower-middle income category of countries, for example with some 90% of soums and 70-90% of herder households nationwide having access to electricity in 2012 (GOM 2012a). Mongolia's GDP growth took off after the start of the new millennium – its economy grew by 70% between 2009 and 2014, with annual GDP growth peaking at 17.3% in 2011, and it received foreign capital inflows equivalent to some 54% of its GDP in 2012 alone (Economist 2017a; GOM 2012a; World Bank 2017b). While livestock production has historically been the backbone of economic activity in Mongolia, it is the country's mineral wealth that was responsible for the massive economic growth of these boom years, with mining accounting for an average of 71% of annual foreign direct investment (FDI) between 2012 and 2015 (EITI 2015; EITI 2016). However, the mining boom subsequently stalled as global commodity prices fell after 2014 and exports declined, in part due to slower growth in China, Mongolia's key export market. GDP growth slowed further in 2015, with total FDI dropping from a peak of almost USD 5 billion in 2011 to almost zero in 2015, with net ODA just USD 235.5 million, leading to Mongolia signing its second major loan agreement with the IMF in eight years in February 2017 (Economist 2016; Economist 2017a; OECD 2017; USDS 2015b; World Bank 2015; World Bank 2016).

Although some mining had taken place during the socialist period, development in Mongolia's mining sector really kicked off after the democratic transition, when discoveries of big copper, gold, coal and uranium deposits brought in large foreign investments from the 1990s. However, no big mining contracts were officially signed until 2009, after six years of negotiations – for Rio Tinto's Oyu Tolgoi (OT) copper mine (now jointly owned by Turquoise Hill Resources and the government-owned Erdenes Oyu Tolgoi LLC) in the Gobi Desert of southern Mongolia, where the country's second largest mining investment, the Tavan Tolgoi (TT) coal mine, is also found (Chene 2012; EITI 2015; EITI 2016). The level of FDI in the Mongolian mining sector passed USD 1 billion in 2010, or approximately one sixth of total GDP that year, and in 2015 the share of GDP from mining stood at 20%, twice that of 2005 even though only the biggest mines were still operational at that time (Moran 2013; World Bank 2016).

As at 31st December 2015, 1,899 companies held licences to conduct mining and exploration operations in Mongolia for 57 different types of minerals on 3,329 licensed areas (EITI 2015; EITI 2016). The mining sector accounts for some 90% of Mongolia's exports and provides USD 1-2 billion to the Mongolian government each year, with 98-99% of that coming from just 20 companies (Stakeholder Interviews, November 2015). Since 2016, copper and coal prices have rebounded as the economic slowdown in China has levelled off, and, with global prospects for copper now improving further thanks to growing global demand for clean technologies, the mining sector looks unlikely to diminish in its economic importance to Mongolia (Economist 2017b; Economist 2017c). However, although the sector – and the overall economy – seemed to be visibly picking up over the course of our research, Mongolia's increasing reliance on two main commodities being exported to one country will continue to make it susceptible to external shocks from changing copper and coal prices and fluctuating demand in China (WEF 2014).

Unsurprisingly, the topic of mining dominates political debate in Mongolia (Chene 2012). Vast mineral wealth is often seen as a resource curse causing 'Dutch Disease' – the negative economic effects of sharp inflows of foreign currency – with the interaction of powerful foreign investors and local elites also leading to corruption and imbalanced growth (Moran 2013). Corruption became a social and political norm in Mongolia after the democratic transition, and continued to increase through the 2000s, linked closely to the mining boom (Chene 2012; Reeves no date). Corruption in the Mongolian mining sector has been alleged to be widespread in the awarding of contracts and licences, negotiations of the terms of contracts, regulation and monitoring of operations, and in the collection of taxes and royalties (Chene 2012). For example, World Bank and IFC (2009, as cited in Chene 2012) found that approximately 40% of firms interviewed said that they were expected to

make a gift to secure a government contract. Despite this, Mongolia ranks 64th out of 190 countries in the 2017 Doing Business index (World Bank 2017a).

Some important anti-corruption steps have been taken, including the establishment of an Independent Authority Against Corruption in 2007 that arrested the former President Enkhbayar in April 2012; he was subsequently jailed for four years (Chene 2012). The former chairman of the Mineral Resources Authority of Mongolia (MRAM) was also sentenced in 2012, to six and a half years, for illegally issuing mining licences (Moran 2013). However, the Asia Foundation's twice-yearly perceptions survey in March/April 2016, carried out just before the most recent national elections, found a real sense of "general crisis" among Mongolians (Asia Foundation 2016a). Land, mining and politics were the sectors most widely seen as corrupt, with land ranked as the most corrupt sector since the survey began in 2006. That said, and given the then economic crisis, at the same time unemployment was reported as a much bigger concern than corruption for people living outside the capital city in Mongolia's soum centres (Ibid).

Since the late 1990s, Mongolia's main international development partners (including the ADB, EC, FAO, GTZ, IFAD, JICA, MCC, SDC and USAID) have supported a wide range of projects – from value chain and employment creation support in growing vegetables, to support for intensive livestock production, to pastureland management, to large-scale infrastructure and renewable energy projects (Stakeholder Interviews, November 2015 to November 2016; ASEM 2015; Tovuudorj 2015). In the livestock sector, due to major concerns about pastureland degradation and a desire to reduce livestock numbers, government policies focus on meat, milk and quality cashmere production, and on developing intensive livestock farming (Stakeholder Interviews, November 2015 to August 2016). The latter remains at very small scale, although semi-intensive farming, where livestock are grazed openly in the summer but kept at home and raised on fodder for the rest of the year, is becoming more common, as we found in one of our study soums. Young herders are also encouraged into the livestock sector through financial support and training, and herders with large herds are given financial incentives to employ other herders (Stakeholder Interviews, November 2015 to August 2016). In crop farming, following the allocation of arable plots of up to 1 ha each to 100,000 families with the establishment of Mongolia's Green Revolution Program in 1997, Mongolians have been able to acquire land for cultivating vegetables (such as potatoes and carrots) for both household subsistence and sale (Hanstad & Duncan 2001; USAID no date; and see below). Herding and farming can thus be found widely mixed within Mongolians' livelihoods today, although around 80% of NAMAC's 640 registered cooperatives in 2015 were still herder cooperatives, with others in bee-keeping, vegetable farming and forestry (Stakeholder Interviews, November 2015). Conversely, some 70% of Mongolian herder households have fewer than 100 animals, which is below the minimum herd size of 150 animals regarded as necessary to lead an adequate pastoralist life, and only the very wealthiest few have more than 1000 (Bazzarragchaa et al. 2017; Broere 2017; CPR 2012).

Mongolia's development partners have notably supported several major projects in the land sector. MCC's USD 285 million 2008-13 MCA-Compact included a USD 28 million Property Rights Project with two components. The first, the Property Rights Project, supported improvements in the national property registration system and helped poor households who had migrated in from the countryside to obtain titles to land in the informal ger districts of Ulaanbaatar and other major cities, leading to an increase in women registering land in their own name. The second, the Peri-Urban Rangeland Project, supported improvements in sustainable pasture use and livestock productivity and leasing of pasturelands on 15-year group leases to some 1,300 herder households living near cities, including within its project area the southern parts of one of our study soums (Cutura et al. 2013; IPA 2013; Kingsley 2017; MCA-Mongolia & CPR 2013; MCC 2016; and see below). Both of these projects built on the work of GTZ's Land Management and Fiscal Cadastre Project (2005-2010) and ADB's Cadastral Survey and Land Registration Project (2001-2009), which extensively reformed and upgraded Mongolia's national land administration and land information systems through the

2000s, completing cadastral surveys and registration for over 364,000 urban land parcels covering over 1.5 million ha (ADB 2010).

The legal framework around land

The 1992 Constitution of Mongolia and 2002 Law of Mongolia Civil Code underpin Mongolia's legal framework around land (GOM 1992; GOM 2002a; Hanstad & Duncan 2001). The Constitution allows for land to be given to Mongolian citizens as private property under Article 6(1), but land that is not given, along with forests, water, minerals and wildlife, remains the property of the state. Article 6(2) specifies that only Mongolian citizens can own land, although foreigners may lease land with conditions under Article 6(5). Ownership of pastureland is prohibited under Article 6(3), although under the 2002 Land Law, herders (like all Mongolians) can have private ownership of land for housing in urban areas and private possession rights over their winter campsites and immediately adjacent pasture area (GOM 1992; GOM 2002b; and see below). The Civil Code repeats the constitutional provisions that pastureland, forests, water and all subsoil are owned by the state, and defines common property (i.e. property accrued since marriage, owned by all family members and managed by the majority) and rights of property ownership, rights to possession (i.e. to the use and enjoyment of assets for specified periods of time) and rights for citizens and companies to lease land on use contracts for farming (GOM 2002a).

The 1994 Land Law was the first piece of legislation to regulate land after the democratic transition, and gave aimag and soum level governments primary responsibility for its implementation (USAID no date). This law established new land dispute resolution procedures and defined lease and use rights to state-owned land for citizens and foreigners; it also gave Mongolians the right for the first time to own land as private property, other than pastures, common use lands and land for state special needs (Hanstad & Duncan 2001; USAID no date). The revised 2002 Land Law then expanded private rights to land with three categories of land tenure in place: ownership, possession, and use (GOM 2002b; USAID no date).

Following the enactment of the 1994 Land Law, well informed people started to fight for large pieces of land in good locations, especially in Ulaanbaatar, and this land grabbing accelerated after the 2002 Land Law came into force in 2003 (Bagdai et al. 2009). For example, Fernandez-Gimenez and Batbuyan (2004) showed how wealthier herders in Eastern Bayankhongor aimag were more likely to have been allocated campsites and become more sedentarised, while poorer herders were forced to become more mobile, contributing to the sorts of immigration pressures that we saw in one of our study soums. The 2002 Land Law allowed every Mongolian family (i.e. officially registered married couple or household unit) to own a piece of land for free once in their life, for residential and commercial purposes, and in 2008 this was amended to allow every Mongolian citizen (so every individual family member) to own a small piece of land no more than 700 m2, or 0.07 ha (Bagdai et al. 2009; Batbileg 2008; USAID no date). Thus housing plots (khashaas) in Ulaanbaatar and soum centres can be owned. However, research by Bagdai et al. 2009 showed a lack of transparency and public information in the land privatisation process, with inadequate land use planning and no guidance available to citizens on what the possibilities were for owning land, as well as slow application processes involving many steps, lack of coordination, and duplication – all of which is supported by the evidence of continuing concerns about land allocation processes that emerged during our research. By June 2008 only 7% of Mongolian people held a registered privately owned khashaa, and by June 2014 only 13% of all citizens had claimed their land ownership right to one single free parcel of land (Batbileg 2008; CPR & SSS 2014a).

Article 29 in the 2002 Land Law provides for state land also to be given to Mongolian citizens for possession by licence for housing or farming. This land must not exceed 0.07 ha for housing (for winter and spring campsites) and 0.1 ha for farming; the latter is considered as being for household consumption and use, so mainly includes possession rights for land on which to grow vegetables.

Possession rights can be revoked under Article 40 for environmental degradation (GOM 2002b). Licences are granted to herders for their campsites by soum governors for 15-60 years for the right to manage land (USAID no date). One study cited in USAID no date found that 60-year possession licences for campsites were granted to herders born at the site, who had inherited the site from their parents, and who had used the campsite during the negdel (collective) period – in the case of competing claims, the licence would be granted to the herder household that had been there the longest. Development of a new campsite on currently unoccupied land is also grounds for receiving a possession licence (Ibid). In effect, this means that the granting of possession licences to herder households for their campsites in the pastureland is a formalisation of the customary land tenure arrangements and rights already established there, as we elaborate in our case studies below.

Use rights are granted on contracts (or leases) for terms of five years, with foreigners able to obtain use rights so long as they are not using the land for crop, vegetable or livestock production (USAID no date). Larger areas for commercial farming can also be held on use contracts, and most of Mongolia's agricultural cropland is held by companies under such lease agreements (Ibid). However, Article 52 of the 2002 Land Law makes leaseholders responsible for maintaining and restoring land held on use contracts (GOM 2002b).

Land policy falls under the remit of the Ministry for Construction and Urban Development, while ALAGaC – the Mongolian Governmental Implementing Agency for the Administration of Land Affairs, Geodesy and Cartography – has overall responsibility for land management and implementation of land legislation. ALAGaC was established in 2002 and has been operational since 2003, through a merger of three former government agencies dealing with land management, geodesy and cartography, and real property registration; it has local offices in all 21 aimags, with between 10 and 25 staff members in each, and one land officer in each of Mongolia's 331 soums. Among its various activities, and as permitted under the implementation regulations for the 2002 Land Law, ALAGaC was undertaking a programme of participatory mapping and local land use planning to support integrated land and natural resource management in one soum of each aimag at the time of our research, including in one of our study soums (Batbileg 2006; Batbileg 2008; Stakeholder Interviews, November 2015 to July 2016).

Under Article 20 of the 2002 Land Law (GOM 2002b) citizen khural (parliaments) down to soum level have the responsibilities to ratify land management decisions and enforce land legislation in their local areas, but their level of real power varies in practice. Various sources note the lack of understanding of the land laws in local government, and therefore their irregular implementation and the occurrence of misinterpretations (Myers & Hetz 2004). Moreover, under Article 21, soum land officers can be fired by elected soum governors, making them vulnerable to political influence and the generalised land sector corruption noted above (GOM 2002b). This has specifically contributed to high turnover – and therefore lack of continuity – of many land sector staff after elections (Stakeholder Interviews, November 2015).

Specifically on pastureland, the 2002 Land Law (Article 54) states that aimag and soum governors and local officials are to initiate land management of pastureland with communities, and powers to regulate common tenure land fall to bagh governors. Summer and autumn campsites and rangelands are to be allocated to baghs and khot ails and used collectively. Khot ails, as noted above, are informal administrative units below the baghs in rural areas – customary herding camps – which vary in size from 1-2 households in baghs with very low population densities, especially in the Gobi Desert regions, to 5-6 households in baghs in areas of higher population densities, such as in northern aimags like Arkhangai. Winter and spring campsites can be held under possession rights, as noted above, but the law specifies that winter and spring pastures are to be closed to grazing during the summer and autumn. Disputes over the use of pastureland are to be discussed by public citizen khural at bagh level based on the traditional land use practices and customs of local herders. If there is disagreement, the disputes are to be taken to soum governors.

In March 2015, the Prime Minister established a 'Package Law on Land' Working Group to review and reform Mongolia's land legislation and prepare a new draft land law. This went to parliament prior to the June 2016 elections but it was not approved and the land reform drafting process subsequently stalled (Stakeholder Interviews, November 2015 to July 2016).

Gender equality and vulnerable groups

Policy and legal framework

Social reforms under way since the 1990s have consolidated the rights of women that are enshrined in the 1992 Constitution. Article 16(11) establishes gender equality, stating that: "Men and women shall have equal rights in political, economic, social, cultural fields and in family affairs" (GOM 1992). This is supported by Article 14(2), which includes "sex" as one of several characteristics against which no-one shall be discriminated. The Law of Mongolia on Enforcement of the Law on Promotion of Gender Equality (GOM 2011) specifically legislates for gender equality in political, legal, economic, social, cultural and family relations and regulates provisions for their implementation. This law establishes specific quotas with respect to political parties and the civil service to support the employment of women and their participation in public life, and quotas for women candidates of political parties were also enshrined in the 2012 Electoral Law (Ibid; Battungalag 2012). However, no quotas for women's participation in local government are given for the bagh level; nor does any law set quotas for the involvement of women in land management and administration or in land dispute resolution (GLRD 2014; GOM 2011).

Mongolia is a signatory to all major international instruments relating to women's rights and gender equality (Nyamkhuu 2010). In 1996 the National Programme on the Advancement of Women was adopted as part of efforts to implement the Beijing Platform for Action. It was revised in 2002 as the National Programme on Gender Equality and Domestic Violence (GOM 2014), and replaced in 2013 by the Law of Mongolia on Enforcement of the Law on Promotion of Gender Equality and the corresponding Mid-Term Strategy and Action Plan on the Implementation of the Law of Mongolia on Promotion of Gender Equality (GOM 2011; GOM 2013). It is the responsibility of the National Committee on Gender Equality (NCGE), established in 2005 and headed by the Prime Minister, to ensure consultation, coordination and monitoring of programme implementation (GOM no date; Nyamkhuu 2010; Stakeholder Interviews, June 2017). The 2002 National Programme on Gender Equality and Domestic Violence also established gender focal points in the Ministries and at lower levels (GOM 2014). However, due to poor understanding and awareness, most of the NCGE's aimag-level sub-councils are not proactive and weak capacity is an issue, and there remains a need to strengthen implementation of the Law on Promotion of Gender Equality (Begzsuren & Aldar 2014; GOM 2011; Stakeholder Interviews, November 2015). In April 2017, the government therefore endorsed a new Action Plan on Gender Equality that will be implemented until 2022 through an ADB-funded 5-year programme of the NCGE (Stakeholder Interviews, June 2017).

The subject of gender and land is relatively new in Mongolia, having only risen onto the political agenda in the past four years in connection with implementation of the VGGTs (Stakeholder Interviews, November 2015). There has, however, been wider acknowledgement of the vulnerabilities and disadvantages faced by Mongolia's minority ethnic groups – including the Kazakh minority that largely reside in western aimags, and the Dukha reindeer herders that live in the forests of the Darkhad Depression (USAID no date; Gauthier & Pravettoni 2016). There is also broad social legitimacy within national policy debates for considering gender not just as 'men' and 'women' but as mandating attention to different groups of men and women who may have specific vulnerabilities, such as the disabled (Cutura et al. 2013; Stakeholder Interviews, November 2015 to November 2016).

The 2002 Land Law is gender neutral, with gender equality not specifically mentioned at all (GOM 2002b). Instead, the land legislation in Mongolia makes provision for equal treatment of men and women as citizens. The Law of Mongolia on Enforcement of the Law on Promotion of Gender Equality states in Article 9(2) that it is the duty of "central and local government agencies, bodies of local self-government, economic entities and organizations of all forms of ownership" to ensure that men and women have equal access on equal terms to land (GOM 2011). However, government regulations have not proactively supported gender equality in access to or control over newly allocated land (ADB & World Bank 2005). For example, as land privatisation got under way, the regulations did not question the traditional definitions of 'family' and 'household', and unmarried people who lived outside a registered family were excluded from the right to be allocated land until 2008. Further, although joint titling for all adult members of the household is required by law – despite there being in practice limited space to write more than one name on the forms – an individual can waive this right. In the first wave of privatisation, 46% of rural property was titled only in the name of the male household head; of all land titles registered in Mongolia in 2005, 30% were registered jointly to husbands and wives, and only 16% were registered to wives alone (ADB & World Bank 2005). MCA research has shown that women knew that they had the right to own land but that they were not claiming their rights; spring and winter campsites tended to be registered in the name of the (male) household head, and even women thought this should be so, but when men were violent the women found that they had no rights (Stakeholder Interviews, November 2015). Our research backs this up and goes further in looking at the still unfolding gendered implications of land tenure formalisation in Mongolia, as we elaborate below.

Spousal consent is needed for any transactions of matrimonial property but there remains no provision for joint ownership in unmarried partnerships (GLRD 2014). This is a growing issue as there are now thought to be more cohabiting couples in Mongolia than married couples, and without their names on land titles the women in those relationships have no property rights (Stakeholder Interviews, November 2015). There is also an absence of clear legislation around property rights in the context of divorce and inheritance. Under the Civil Code (GOM 2002a), brothers and sisters have an equal right to inherit an equal share of their parents' property, but there are no provisions for siblings who give up this right to be financially compensated. Legally married spouses are only entitled to inherit a minimum share of the matrimonial property, and there are no provisions granting the surviving spouse the right to use the matrimonial house for life (GLRD 2014). This indicates serious gender imbalance, for example with 71% of inherited plots having gone to males in the MCA's Special Hashaa Plot survey (Cutura et al. 2013). It is to be hoped that the NCGE will be able to address some of these issues through its development of a cross-sectoral integrated policy on gender equality, along with a specific gender policy for the land and agriculture sector, under its implementation of the new Action Plan on Gender Equality noted above.

Gender equality indicators and divisions of labour

Mongolia ranks 58th of 144 countries (with 1 as best) and has an index of 0.705 (with 1 as gender parity) in the World Economic Forum's Global Gender Gap Report 2016 (WEF 2016). It ranks first in the world for gender parity in "health and survival", 23rd for "economic participation and opportunity", 66th for "educational attainment" but only 119th for "political empowerment" (Ibid). There is a cultural norm in Mongolia for men to be primary decision-makers and there is therefore disproportionately low representation of women in political decision-making, with just 4.2% of seats in the national parliament (the State Great Khural) won by women in the 2008 election, 14.47% in the 2012 election, and 17.1% in the 2016 elections – this figure was 23% at the end of the socialist period in 1990 (ADB & World Bank 2005; Begzsuren & Aldar 2014; GOM 2014; IPU 2017; JICA 2013). MCA-Mongolia (2013) found that group leadership within the MCA Compact's Peri-Urban Rangeland Project was seen by both male and female herders as a more suitable job for a man – with 92% of 357 herder groups set up by the project being led by men. Partly this was claimed to arise out of

tradition and respect rather than from seeing women as incapable of leadership, but it remains an outstanding gender issue to be overcome (Ibid).

As these examples suggest, while Mongolia's regulatory framework for gender equality is relatively strong – and there is a history of attention to gender equality in law (at least superficially) during the long socialist period – there are nevertheless pronounced gender biases in Mongolia at the household level and in practice that are linked to longstanding and deep-rooted social norms (Begzsuren & Aldar 2014; Stakeholder Interviews, April 2016). Patriarchy is particularly strong in western Mongolia (Stakeholder Interviews, November 2015). Fewer women participate in the waged labour force than men and the labour market is highly segmented by gender nationwide. There are gender remuneration gaps, with national statistics in 2010 showing that the national (average) wage for men was 14.3% higher than that for women (Begzsuren & Aldar 2014). Yet the story is complicated. There is an inverse gender gap in the education sector, with more men entering the labour market without completing secondary education, in large part due to the demands of herding as families send their daughters to schools in the cities and keep sons in the countryside to help look after livestock (JICA 2013; Stakeholder Interviews, November 2015 to June 2017). As a result, there is gender parity in secondary and tertiary education and in the professions and technical work in Mongolia (WEF 2016).

Long-term effects of the transition from socialism during the 1990s, when many families fell into poverty, included a disproportionate number of female-headed households living in poverty, and a rise in gender-based violence and alcohol abuse. In 2007-08, at least 34.7% of all poor households in Mongolia were headed by women (as de jure female-headed households), and by 2010 one Mongolian woman in three was estimated to be a victim of domestic violence (ADB & World Bank 2005; ADB & World Bank 2005; WEF 2016). However, by 2014, men in rural areas and women in urban areas were the people more likely to be poor, with a growing split in the urban female population between educated, employed and empowered women, and the urban poor – and both groups included female-headed households. According to the Mongolian Statistical Information Service female-headed households make up just 8.93% of the total households in Mongolia (Mongolian Statistical Information Service 2016), but figures from the 2010 Population and Housing Census cited by the Mongolian Ministry of Food and Agriculture in 2012 put the national average proportion of female-headed households at 21.5%, varying between 24% in urban areas and 16.4% in rural areas (GOM 2012c). There are also numerous concerns over the deteriorating health conditions of men, especially alcohol-linked, while discrimination against disabled people and LGBT persons is another major human rights concern (Begzsuren & Aldar 2014; USDS 2015a; Stakeholder Interviews, November 2015).

For women herders in rural areas, access to legal services to help combat gender-based violence is not easy (AHR & NCAV 2014). The legal and procedural hurdles to obtaining legal redress are very high, with lack of legal services at soum level and women often having to travel long distances to get the documentation required for restraining orders. Gender-based violence is often seen as a private matter, divorce is expensive, and there are significant barriers to women's access to justice, including corruption and the misconception that alcohol abuse is the main cause of gender-based violence. A Law to Combat Domestic Violence was passed in 2004, but implementation remains weak (Ibid).

There is a Mongolian saying that 'herding is tough and not easy for women' – a woman on her own would have to ask for help with so many tasks from the neighbouring man that herding is rather seen as being a job for a man and a woman together. In keeping with this, and as our research has also found, there is much evidence of strong gendered divisions of labour in herder households in Mongolia (e.g. JICA 2013; Voltolini et al. 2015). Since herding itself is often considered to be a predominantly male activity, this poses specific problems for female-headed households in rural areas as they face specific difficulties around childcare, physical labour and security, as our case studies also show.

Voltolini et al. 2015 found that married women in herder households do not have an equal say in decision-making on such things as household spending, participation in community activities and leadership. This was attributed to property being mostly registered in the husbands' names, which can be disempowering to women and create new insecurity within household relations and bargaining strategies in a situation where individual land registration is a very recent phenomenon, making women also more vulnerable to domestic violence, as noted above (Ibid; Begzsuren & Aldar 2014). Moreover, according to Voltolini et al. 2015, social norms dictate that women are responsible for many of the duties associated with the herd, as well as maintaining the home, which takes up a lot of their time and leaves decision-making to the men; they found the average daily workload of women herders was 11.1 hours compared to 9.2 hours for men (cf. JICA 2013). This higher workload for women has been linked to the widespread return to the pastoral household economy after the democratic transition (UNDP & UNIFEM 2003). However, Voltolini et al. 2015's findings did not completely tally with those of our study, where women's role in household decision-making appeared to be strong across the board. Further, women may actually be relatively more powerful within families in the countryside, as more tensions and violence arise in urban-based families when it is the women who have the education and the jobs and the male household heads who still tend to be named on the land registration documents (Stakeholder Interviews, November 2015).

Our research provides an even more complex set of findings in the current context of policies to promote primary education, which are causing many herder families to now lead separated lives, as one parent takes up residence in the soum centre to enable children from as young as six to go to school, while the other parent has to stay with the herd (see below). The government has provided special herder mortgages to support these families to live in two places at once, but the long-term social impacts of all these policies have yet to become clear (Stakeholder Interviews, November 2015). As we reveal below, our findings paint a very nuanced picture of gender relations in the Mongolian countryside today, with women emerging as very powerful in some domains of household and community decision-making but remaining marginalised in natural resource decision-making relating to traditional herding (e.g. sale of livestock, access to pasture, etc.), which is evidenced by the difficulties we found female-headed households facing if they wanted to continue herding without male support.

Governance framework of the mining sector

Under the Mongolian Constitution, mineral resources are the property of the people under the protection of the State. As indicated above, Mongolia's mineral reserves are in particularly high demand from Chinese state-managed mining companies, who have established a dominant position in the Mongolian mining sector, partly through their stakes in Canadian and Australian mining companies but also by targeting small and medium-sized domestic mining operations in Mongolia (Reeves no date). To challenge this dominance the government passed several laws from the late 1990s that were designed to re-establish a degree of control over mining profits, starting with the 1997 Minerals Law of Mongolia which was put in place to regulate prospecting, exploration and mining of minerals and played a pivotal role in attracting foreign exploration companies. In 2006, major amendments to this law were passed with the adoption of the 2006 Minerals Law (GOM 2006). These included the introduction of a Windfall Profits Tax, which imposes a 68% tax on the sale of copper and gold when their market price is in excess of $2,600/ton and $500/ounce, respectively, to be directed towards social programmes (Johnston 2011). However, the legislative framework is constantly changing, with the 2006 Minerals Law having been amended 22 times by the Mongolian parliament by 2015, including key updates and amendments in 2010, 2013, 2014 and 2015 (Davaasuren 2015). Mongolia has also been compliant with the Extractive Industries Transparency Initiative (EITI) since 2010 (Chene 2012).

Under the 1993 Foreign Investment Law of Mongolia (amended in 2002), businesses with at least 25% foreign equity are treated as foreign investments (GOM 2002c). Of particular relevance to

mining investments are the land utilisation and leasing arrangements in place for foreign investors. The Foreign Investment Law stipulates that environmental protection measures are to be included in all leases and that leases can be cancelled if land is used to the detriment of public health or the natural environment. Leases can be signed for 60 years and extended for a further 40 years, but they lapse if the business folds. Local authorities (i.e. soum governors) are technically responsible for signing the leases on state-owned land, following approval by local (soum) citizen khurals, while competent state authorities must approve leases signed in respect of privately held land. Wholly foreign investments can only lease state-owned land; thus, privately held land is only an option for joint ventures with a Mongolian partner (Ibid; cf. GOM 2012b). However, once the national government implementing agencies grant licences and leases – MRAM for mining licences (see below) and ALAGaC for land leases – the local governments need solid grounds to withhold approval, and thus land both for foreign investors and for mining licences is in effect centrally allocated and controlled.

The 2006 Minerals Law governs large-scale mines (GOM 2006). Article 5 confirms the State as the owner of all minerals, with rights to grant licences for both exploration and production. Under this law, the State Great Khural decides mining policies, approves certain mineral deposits as being of strategic importance (State Strategic Deposits) and oversees government implementation of legislation through MRAM, whose powers are set out in Articles 10 and 11. Under Article 8, the State Great Khural also has the authority to restrict and prohibit mining and exploration in particular areas, such as National Forest Reserves and Local Protected Areas, established under the 1994 Law on Special Protected Areas and the 2007 Law on Forests (GOM 1994; Johnston 2011). Article 12 of the 2006 Minerals Law sets out the powers of local government administrations, but these are limited. The Minerals Law also includes various regulations setting out procedures for mining companies to follow; for example, with mining applications supposed to include environmental assessments, and companies supposed to produce biannual reports on their environmental impacts and protection efforts to soum governments and to pay deposits towards the costs of environmental rehabilitation linked to their environmental protection plans under Article 39. However, there is little required in terms of social assessments of mining impacts. Amendments have required a portion of the licence fees/royalty payments to be allocated to mining-affected local areas for community development, as payments to soum governments (Johnston 2011). There are also provisions for bagh khurals to reject mining licences, as has happened in one of our study soums; Article 19 gives 30 days for local citizen khurals to be consulted and respond, but this consultation is only for exploration licences (GOM 2006). Importantly, Article 42(3) allows citizens to elect a representative to provide public monitoring on mining licence holders' activities, and there have been initiatives led by NGOs such as Steps Without Borders to use citizen score cards to monitor environmental and social impacts of mining and mining company operations, bringing together representatives of communities, local governments and mining companies (Stakeholder interviews, November 2016 to June 2017).

To combat earlier failures to manage natural resource revenues well, a Human Development Fund (HDF) was created in 2009 to ensure the safeguarding of mineral wealth for all citizens, and to which 65% of mineral resource royalties went by 2015 (Isakova et al. 2012; Moran 2013; EITI 2015; EITI 2016). As part of this, every citizen was awarded cash handouts totalling USD 90 in 2010 and the equivalent of USD 180 in 2011, including a portion for tuition support (Moran 2013). However, Chene (2012) suggests that the HDF has had few results, as revenue streams have been funnelled towards short-term priorities such as financing political campaigns. Taxes from mining now go to the National State Fund for redistribution to local governments (Stakeholder interviews, November 2015), but Isakova et al (2012) suggest that more could still be done to incorporate mineral revenues into the state budget to improve services such as education. Public debate on greater state ownership of mines and higher tax rates on foreign investors caused the national parliament to reassess whether Mongolia was receiving as much of the financial benefits from mining as possible, and this was what led to the renegotiation of terms that delayed the signing of contracts for the OT

copper mine noted above, whose projected production is expected to eventually reach 34% of Mongolia's total GDP. As Moran 2013 notes, all these changes to state law cause uncertainty for the large-scale mining companies, who may have already invested huge amounts without yet receiving any returns.

A case in point relates to the 2009 Law to Prohibit Mineral Exploration and Mining Operations at Headwaters of Rivers, Protected Zones of Water Reservoirs and Forested Areas – the so-called Long Name Law – which was adopted in response to much pressure from environmental activists (e.g. Nijhuis 2007), and which mostly affected gold mining companies. No new mining licences were issued after the Long Name Law began to be implemented from 2011 and, by 2013, 346 mining companies had petitioned the government on this law; only at the end of 2015, as our research was beginning, were new exploration licences being issued again (Fehrbach 2013; Stakeholder Interviews, November 2015). However, it is important to note that not all the environmental issues around mining in Mongolia date from the 1990s boom years; we were told that during the socialist period "the Russians raped the land" (Stakeholder Interviews, July 2016). Rivers Without Boundaries nevertheless claim that even though the Mongolian Supreme Court ordered the government to implement the Long Name Law in 2012, efforts were still in motion to make changes that would water it down, leaving activists continuing to fight for full implementation (Rivers Without Boundaries 2015).

Artisanal and small-scale mining

Artisanal mining in Mongolia refers to small-scale mining by individuals, groups and families, carried out either illegally or legally. It is an activity of simplified mineral extraction of primary and secondary deposits carried out by unregistered partnerships established as described in Article 481.1 of the Civil Code (GOM 2002a). Artisanal mining activities are typically highly mobile, subsistence-based, seasonal, and manual labour intensive. They generally involve small deposits of low grade ore that are usually exhausted after only a few years, including both the tailings of large-scale mines that are no longer economically viable for mining companies to operate and the leftovers or rubble from mining company operations (IRIM 2014; Purevjav 2011). Tools and extraction methods are simple and do not require specialised skills. In contrast to large-scale mining, artisanal mining has only two phases, extraction and processing, and not exploration, yet it creates far more jobs in rural areas than large-scale mining.

Artisanal mining was heavily regulated from the 1930s during the socialist period, and was thus limited (Stakeholder Interviews, November 2016). It has grown rapidly since the early 1990s in response to the economic chaos during the transition, as people who lost their jobs moved back to the rural areas looking for other ways to earn money, and informal (illegal) artisanal gold mining (often referred to as 'ninja mining') has been part of Mongolia's mining industry since 1998 (SDC 2017). Illegal artisanal mining boomed as gold rushes were triggered by three catastrophic dzuds between 1999 and 2002, in which a combined total of 11 million animals were lost, driving herders to other livelihoods as well as to mass urban migration (Ibid; Kingsley 2017; Rao et al. 2015). Artisanal mining became the only alternative cash income source and employment opportunity in many rural areas for herders who lost livestock at that time – and this trend was boosted by increases in gold prices from 2003 (SDC 2017).

Artisanal mining in Mongolia is now carried out in some 238 deposits nationwide, of which 181 are in just eight aimags, including both of those where our study soums lie (EITI 2015; EITI 2016). However, it is difficult to establish accurate numbers of people involved in artisanal and small-scale mining, because (as we also found during our research) there is widespread under-reporting of it throughout Mongolia due to its historically illegal and dangerous nature (Cane et al. 2014; IRIM 2014). Artisanal miners now produce gold and fluorspar both illegally and legally (as registered small-scale miners, see below), as in both of our study soums, as well as various other mineral commodities, such as coal and semi-precious stones (chalcedony). Unofficial estimates from 2003

suggested that around 100,000 people (roughly one-third women, two-thirds men) were engaged in artisanal hard rock or placer gold mining nationally, or about 20% of the then rural workforce and 80-90% of all the then artisanal miners (Navch et al. 2006; Purevjav 2011; SDC 2017). By the end of 2009, according to MRAM data, there were some 54,000 artisanal miners working at 100 mining sites across Mongolia, of whom 90% were gold miners (SDC & Hugjliin Ezed NGO no date). However, by 2015, the total number of artisanal gold miners working in the warmer seasons (both illegally and legally) was estimated to have dropped to just 30,000 (EITI 2015; EITI 2016).

Artisanal mining clearly became a social safety net for many Mongolians from the 1990s, undertaken as a supplement to the cash incomes gained from herding, and at that time there were very few possibilities for artisanal miners to mine legally due to lack of proper regulation of the sector (Navch et al 2006). As our research has found, it remains difficult for artisanal miners to operate legally because of the many obstacles small-scale mining companies still face in acquiring mining licences under the 2006 Minerals Law. However, the governance framework for artisanal mining itself was addressed through amendments to the Mineral Resource Law in 2010, with a Regulation on Extraction of Minerals from Small-Scale Mines (Resolution 308), which enabled artisanal miners to start mining legally by creating a locally registered association or partnership under Article 476 of the Civil Code, and accompanying amendments to the Law on Land (GOM 2002a; Heemskerk 2014; SDC 2012; SDC 2017; Stakeholder interviews, July 2016). These amendments to legalise artisanal mining resulted from a crucial dialogue process facilitated by SDC's Sustainable Artisanal Mining (SAM) Project in Bornuur Soum, one of our two study soums, which we therefore discuss further details of below. The SDC initiative itself came out research in Bornuur and Zaamar soums that drew attention to problems such as poor infrastructure for informal miners, poor health and safety, long hours outdoors, violence, child labour issues, and women largely being responsible for amalgamating gold using mercury; this led to growing calls for the government to establish more organised mining groups and safer working environments for all miners (Navch et al. 2006; SDC 2017; SDC 2017; NSOM & SDC 2013).

Under the 2010 legal framework, artisanal miners can now work legally either through tripartite agreements with soum governments and mining companies on mining company land, or on the tailings of mining company operations in the later phases of production. However, once companies have completely ceased their mining operations on a particular licenced area, artisanal miners are not permitted to continue working, and if they want to continue they have to go back to being illegal (ninja) miners and try to gain access to the company's land through trespass or bribery, as we learned during our research. The fact that some artisanal miners do still go onto company sites illegally to access tailings is in part because of difficulties with the implementation and workings of the new regulations in practice, as we discuss further below. The legal framework for artisanal mining also allows aimag governments to create artisanal and small-scale mining focused areas in just some soums, so as to keep separate spaces for artisanal miners, away from the operations of the large-scale companies. However, no more than 50 ha per year per soum can be allocated for artisanal mining, which is substantially less than many of the licence areas allocated to large- and medium-scale mining companies (Stakeholder Interviews, June 2017).

In parallel with, and complementary to, the SDC SAM Project, the Asia Foundation has pioneered the development of a Frugal Rehabilitation Methodology (FRM) for artisanal miners to use to rehabilitate land. This was developed under its SDC-funded Engaging Stakeholders in Environmental Conservation Project from 2013, as well as through its Responsible Investment in Mining initiative from 2010, which has facilitated companies, communities and local governments to enter dialogue and agree key principles around post-mining environmental rehabilitation and restoration, including for citizen monitoring. The focus of the FRM is on economically affordable, socially acceptable and ecologically viable technical and biological rehabilitation of land degraded by artisanal mining, and it is hoped that in due course it could be annexed to the government's artisanal mining regulations

(Stakeholder Interviews, July 2016; Asia Foundation 2016b; Asia Foundation 2016c; Asia Foundation 2016d).

Impacts of large- and small-scale mining

Various researchers have reported on the impacts of both large- and small-scale mining in Mongolia, although the literature tends to focus more on the impacts of large-scale mines. Despite the overall governance framework and amended legislation, there has been a constant reporting of issues around large-scale mining in particular, such as citizens not being informed of licensing bids within prescribed periods and a perceived lack of real tools for local communities to regulate mining investments and operations at the grassroots (Reeves no date). Some studies have also suggested that the mechanism in Mongolia's Minerals Law that requires companies seeking exploration rights to obtain "comment" from the soum or aimag level, has allowed governors and other local officials to stop or delay applications unless they are provided with their "fair cut", or only grant approval to those with political ties (Johnston 2011).

Both positive and negative impacts on local herding communities have been reported from large-scale mining in Mongolia's rural areas. Some herder families have adjusted to wage-based employment as well as indirect work for mining companies, such as through selling food to them; others have seen benefits such as improved access to health and education, especially when mining companies have partnered with communities in economic and social development (e.g. Cane et al. 2015). However, these kinds of corporate social responsibility (CSR) initiatives seem to be quite rare and limited to the larger-scale companies – including Centerra Gold and Mongol MAK in our two study soums, as we discuss further below – and they are constrained by provisions in the law that channel funds through aimag governments and thus often tie company hands locally in the baghs and soums most directly affected by their operations (Centerra Gold Mongolia no date; Stakeholder Interviews, July to November 2016).

Cane et al. 2015 found herders experiencing "weakened cultural values and loss of traditional livelihoods" as a result of large-scale mining, with traditional herder skills and knowledge declining in the younger generation as mining employment seems more appealing; these researchers also found links to more traffic accidents, drinking and anti-social behaviour in mining areas. On the other hand, the whole issue of mining impacts is highly politicised, particularly around elections and in relation to large-scale mining companies, with accusations made against some companies that have been directly denied by the companies involved (e.g. Rivers Without Boundaries 2015; UMMRL et al. 2012; Stakeholder Interviews, July to November 2016).

The presence of both large- and small-scale mining has also been found to put pressure on available land in mineral-rich areas, increasing tensions over access to quality pasture, as we elaborate in detail for our study soums below (Cane et al. 2015; SDC 2012). Cane et al. 2015 note from research around the TT coal mine in the Gobi Desert and the Sharyn Gol coal mine in northern Mongolia that while under customary land tenure arrangements herders would usually refrain from herding their livestock on the pastures around another herder's campsites, particularly during winter, the increased pressure on land from mining often leaves herders with no choice but to graze animals on other herders' land, leading to a breakdown in herder social relations and networks and putting strain on their livelihoods. Issues around the displacement of herders from pastures used for generations and their subsequent resettlement have also been identified and explored. For example, the resettlement programme for the TT coal mine has been heavily criticised for limited government capacity, inappropriate approaches of the mining companies (which did not follow (international) World Bank best practice standards), lack of special attention for women and vulnerable groups, only one compensation package being offered with no alternatives, many herder households receiving no compensation, an overall lack of information, and no grievance mechanisms being put in place (CPR & SSS 2014a, CPR & SSS 2014b; SDC 2012).

The negative effects of mining are widely agreed to have particularly affected women, with gender-based violence a growing problem in Mongolia, as noted above. Karaoke bars in mining towns are reported to have fuelled alcohol-related violence in the home and led to enforced prostitution and sexual exploitation (Cane et al. 2014). Cane et al. 2014 also highlights the increase in divorce, as male miners find second wives in the areas near the mines. Men generally predominate in large-scale mining, with much higher employment rates in mining companies. However, Begzsuren & Aldar 2014 found that women and children were more likely to engage in artisanal mining, with its lower degree of social protection and lower wages. In our study soums both women and men were involved in artisanal mining but the illegal (ninja) mining was more likely to be done by unemployed young men. Yet this depended also on the gender divisions of labour around different minerals; for example, in one of our study soums, semi-precious stone collection was done by women while men went down into holes to mine fluorspar. Women are in some ways also more likely to participate in artisanal mining because of their exclusion from employment in the large-scale mines and from access to higher-management or decision-making positions in mining companies across the board (Cane et al. 2014; Cane et al. 2015; Heemskerk 2014; Purevjav 2011). Heemskerk 2014 showed that family artisanal mining partnerships generally share their proceeds equitably, but that only 20-30% of all artisanal miners were women. Male alcoholism remains a problem, although gender-based violence has reduced in artisanal mining with its formalisation, and women artisanal miners work shorter days and earn less because they also have family responsibilities (Heemskerk 2014; Stakeholder Interviews, July 2016 to June 2017). The health impacts of artisanal mining are also very high, with miners susceptible to tuberculosis, dust exposure, and inadequacy of ventilation in workspaces, amongst others, and more vulnerable than workers in large-scale mines because of poor health and safety standards and lack of protective equipment (Cane et al. 2015). A study by IRIM (IRIM 2014) found that environmental pollution was also reported by 64.3% of participants as an issue associated with artisanal mining, as well as damage to water resources by 48.6%, and degradation of land by 57.3%.

Changing tenure and management of pastureland

Pastureland has a special place in the hearts of Mongolians, with much of the country's Protected Areas comprising pastures (Hanstad & Duncan 2001). That emotional attachment to herding is very strong can also be seen through the widespread phenomenon of 'absentee herders' – urban dwellers who keep animals with their relatives and friends in the countryside. Although land legislation has moved towards increasingly individualised tenure over pastoral resources, pastureland continues to be held and managed as common property in practice in most parts of Mongolia, and to remain formally state property everywhere. According to Fernandez-Gimenez 2006, common property is a pre-requisite for the success of pastoralism in Mongolia, given herders' need for mobile and flexible grazing strategies in the geo-physical and climatic conditions of the Mongolian countryside. Local common property management institutions weakened with the rise of livestock collectives in the mid-50s, although land for setting up campsites, albeit formally allocated and regulated by the state (through the Communal Leader), still tended to be the land that was traditionally used by people in those areas, at least for longstanding residents. Khot ails (customary herding camps) have thus long acted as a forum for the coordination of common seasonal pasture use, having an acknowledged leader to settle disputes over land and resources, and baghs now do an annual pasture management plan that goes up to soum and aimag level for endorsement (USAID no date; Stakeholder Interviews, November 2015). Yet different groups also claim historical continuity of use as the basis of their rights to winter pastures, based on their own or their ancestors' usage in the collective period itself (Upton 2009).

Since de-collectivisation in the 1990s, herders have become much more susceptible to poverty and vulnerable to variable climatic conditions and pastureland degradation. Families have had to cope without the securities previously offered by the collectives, such as transportation, infrastructure

and fodder supply in harsh winters (Myadar 2009). Local governors have been reported to lack financial and labour capacity to fulfil their current obligations with regard to pasture administration, with 80% of herders in a case study by Upton (Upton 2009) commenting on the absence of local government in local pasture regulation. Seasonal nomadic movement of herders has progressively reduced, as noted above, which has resulted in livestock overgrazing in certain areas, and ecological degradation has intensified, with pastureland becoming increasingly fenced off (Sneath 2000). Myadar 2009 suggests that the decline in collectives led to 'survival of the fittest' principles among Mongolian herders, which ultimately benefitted wealthier families. Wealthier herders split up their families to get more campsites and the resultant increasing inequality and poverty in rural areas led to the rise in rural-urban migration in the 2000s noted above (Mearns 2004a; Sandagsuren 2016; Sandagsuren & McCarthy 2016). Furthermore, since the democratic transition, economies of scale have been lost and pastoralism has become an increasingly isolated occupation, making herders even more vulnerable to climatic changes; for example, Sneath 2000 specifically attributed the loss of collective hay reserves and motor pools, used to deliver fodder and move livestock, to the loss of 1.6 million animals in the 2000 dzud. Complicating matters, new herders generally moved to open access tenure practices after the transition, while existing herders wanted to return to the pre-collective customary tenure management arrangements and norms (Sandagsuren & McCarthy 2016; Sandagsuren 2016).

As noted above, impacts of mining include significant changes to local pastureland tenure and management practices. Mining thus threatens the livelihoods of traditional pastoralists who have depended on (relatively) open access to Mongolia's land (Tumenbayar 2002). A lack of formal property rights to pastureland makes herders vulnerable to losing their lands to both mining and other non-herding activities such as crop farming. Compensation is very difficult to assess and deliver to affected herders if they have no formal land entitlement, and mining royalties and lease fees are anyway not permitted to be used by soum governments for compensation payments to individual herders (Ibid). Within this overall context, and with increasing land privatisation, as we elaborate below, poor herder households, including poor female-headed herder households, young and older couples, and single parents, have become relatively more disadvantaged as campsites have become a scarce resource for which users must compete (Sandagsuren 2016).

Nevertheless, numerous land management initiatives have attempted to improve the livelihoods of Mongolia's herder households over the last 10 to 15 years, including through work with Forest User Groups (FUGs) and with communities living in fragile wetlands (Narangerel et al 2012; Schmidt et al 2006). One key initiative is SDC's Green Gold Project, which has promoted sustainable management of rangelands and improved access to technical knowledge and relevant markets – including enhancements in the processing and marketing of valuable yak down and camel wool – through herder cooperatives known as Pasture User Groups (PUGs). PUGs are based on traditional khot ails and sign contracts with soum governors to manage their traditional grazing areas through pasture management plans (SDC 2014; Stakeholder Interviews, November 2015 to July 2017). SDC 2015 shows that the PUGs facilitated by the Green Gold Project have had a positive impact on women, as they have become more involved in decision-making; herders involved in the project were also keen to have more involvement of local government in supporting PUGs. However, soum governors sometimes did not want to sign contracts with PUGs as this could be interpreted as giving the group some kind of land rights recognition to its pasture area, which could preclude that land from otherwise being allocated for mining (Stakeholder Interviews, November 2015 to April 2016).

Various efforts have also been made to show that pastures can be formally regulated, so that the rangelands do not suffer from overgrazing, without resorting to full land privatisation (SDC 2015; Tungalag 2015; Ykhanbai 2011). JASIL, a Mongolian NGO, argues that a move towards more traditional methods of land use management is needed and that co-management (i.e. private community rights) arrangements that are facilitated by the 2002 Land Law would be beneficial (JASIL no date). However, JASIL notes that co-management can be made to work only if all stakeholders,

including herders and government officials, engage seriously over a long period, learning as they go along, and if women's participation is actively supported (Ibid; Ykhanbai et al. 2006; Ykhanbai 2011; Stakeholder Interviews, April 2016). Tungalag 2015 emphasises that already by 2006 there were 2000 communities of herders in Mongolia, all of whom were practicing good dzud preparation and experiencing less livestock loss as a result. CPR 2012 discusses two options of pastureland possession rights (group leasing) and grazing fee systems, as tested by the World Bank in 2011 but which were not popular with absentee herders (Stakeholder Interviews, April 2016). Most clearly, the MCC Peri-Urban Rangeland Project has shown that group land leasing is a feasible response to the environmental degradation resulting from unregulated pasture use and does not lead to conflicts over land use, but instead changes herders' mentality from focusing on their total animal numbers (maximisation) to quality improvement; rangeland leasing on 15-year leases (tested across 50 soums) was seen as a very beneficial option to secure herder tenure rights and protect the pastureland (Bazzarragchaa et al. 2017; CPR 2012; CPR 2013). However, Enkh-Amgalan 2007 argues that any moves towards pastureland possession must be driven by local people from the bagh level up, and reserve pasture must continue to be controlled by local government.

Over the last 20 years, and in parallel with these various practical initiatives, there have been three or four attempts to draft a new pastureland law to extend possession rights for herder communities, enshrining the co-management approach with winter and spring campsites allocated under communal use rights. However, the Constitution still maintains that pastures are for common use, and old issues remain unresolved, such as what should happen in the event of a dzud (Land Rights Now 2016). A draft pastureland law including provision for leasing arrangements got caught up in the election cycle during our research. Meanwhile, there remains ongoing debate about a 'Pasture Protection and Conservation Law', with the government elected in 2016 proposing to first issue a new Law on Protection of Otor Pasture – the very small emergency hardship areas that currently cover just 0.7% of Mongolia's total pasture but should be 10% of the total pasture area according to state policy on livestock – and then revisit the pastureland issue as a whole (Stakeholder Interviews, November 2015 to 2016). In any case, as our research also suggests, gender issues and dynamics within communities will need to be carefully weighed in taking forward efforts to reform the legal framework for pastureland, given the predominance of male herders in pastureland management that persists today.

Community Case Studies

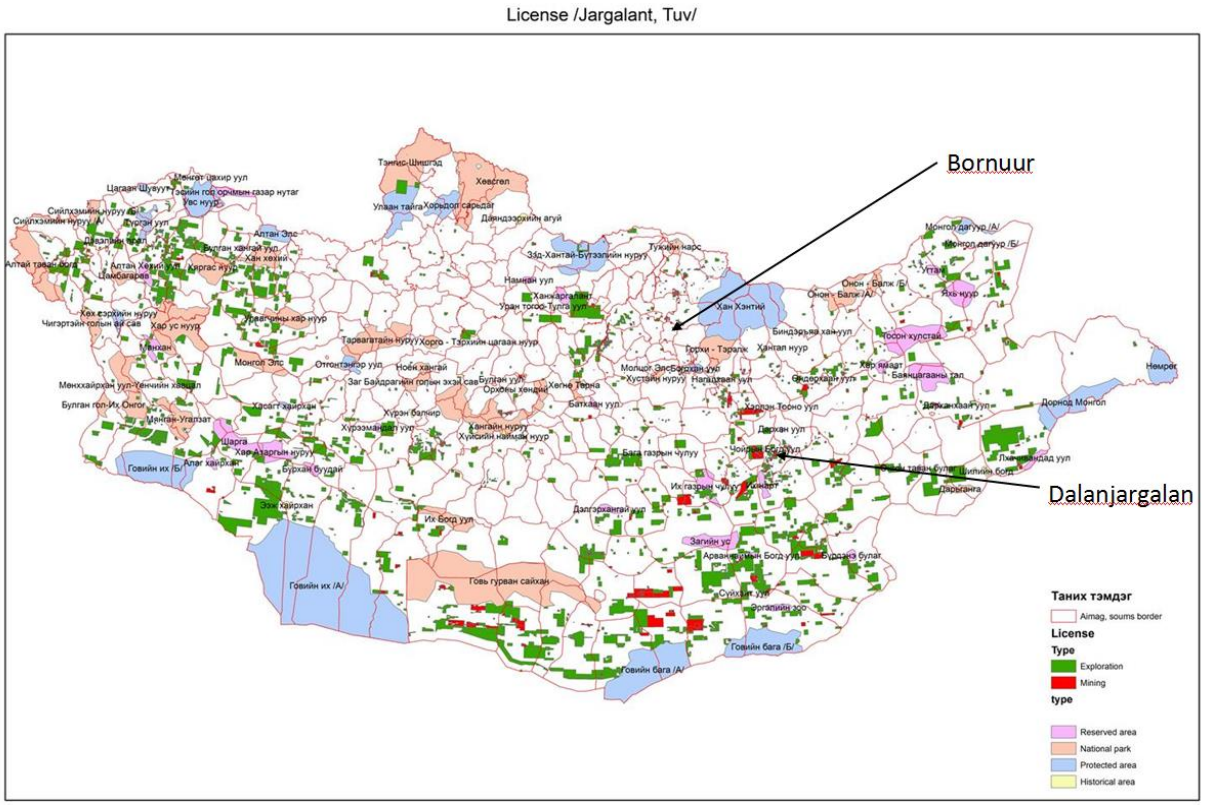
The field research on which this report is based took place in two communities in Mongolia – Bornuur soum, in Tuv aimag, and Dalanjargalan soum, in Dornogovi aimag. These areas were chosen after field visits in April 2016 and careful assessment based on a wide range of considerations including, among others: local geography and environment; main land uses and livelihoods, including the nature and extent of herding; nature, scale and history of mining investments and activities; population size and composition; accessibility from Ulaanbaatar; presence of other NGOs/CSOs and/or government projects; and support from local governments at both soum and bagh level for the WOLTS research. The two soums share a similar ethnic and religious make-up, but there are contrasts between them in terms of patterns of grazing, the scale and extent of mining, and types and depths of linkages with the wider Mongolian economy. Table 1 summarises some of their key characteristics.

Table 1. Key characteristics of the study communities

Characteristic	Bornuur	Dalanjargalan
Local geography and environment	Mountain Forest-Steppe Includes three mountains of 1600 m or more, forested areas, rivers, and a local protected area Approximately 114,687 ha, of which 90% is pastureland (including forests) Main paved road north from Ulaanbaatar passes through the soum	Desert-Steppe Includes Ikh Nart Nature Reserve and hot springs but no forests or rivers Approximately 404,590 ha Trans-Siberian Railway passes through the soum, as does a paved road from Ulaanbaatar
Main land uses, livelihoods and economy	Herding, semi-intensive livestock farming (dairy), forestry, vegetable growing, and formal employment as main livelihoods 114,073 livestock in 2016 census The aimag (Tuv) ranked 5th (of 21) overall on provincial competitiveness in 2015; but 21st on business efficiency (lowest of 21 provinces)	Herding and formal employment as main livelihoods 154,373 livestock in 2016 census The aimag (Dornogovi) ranked 10th (of 21) overall on provincial competitiveness in 2015; 4th overall on government efficiency, but 20th overall on its economic competitiveness
Mining	Large-scale gold mining (Boroo Gold Mine, no longer operational) plus legal and illegal artisanal gold mining 18 mining licences issued (at 3 March 2015) – 6 production, 12 exploration	Large- and medium-scale coal, fluorspar, iron and construction materials mining (Mongol MAK, still operational, plus others), plus legal and illegal artisanal fluorspar and gemstone mining, and a cement factory (Mongol MAK) 90 mining licences issued (at 6 April 2016) – 42 production, 48 exploration
Population	Approximately 5,059 people in 1,404 households in 4 baghs (at 4 August 2016), with herder families living in small khot ail settlements outside the soum centre in the two more rural baghs Majority Buddhist and Khalkha ethnic group In the aimag (Tuv) there were 2,348 women single parents compared to 930 men single parents in 2013	Approximately 2,641 people in 916 households in 5 baghs (at 28 July 2016), with herder families living very far apart outside the soum centre Majority Buddhist and Khalkha ethnic group In the aimag (Dornogovi) there were 2,674 women single parents compared to 958 men single parents in 2013
Accessibility	Soum centre approximately 115 km north-northwest of Ulaanbaatar	Soum centre approximately 288 km south-southeast of Ulaanbaatar
Government and development partner projects	SDC Sustainable Artisanal Mining Project (from 2005, ongoing) MCA Peri-Urban Rangeland Project (2008-13)	ALAGaC Participatory Land Use Mapping Project (commenced in Dalanjargalan during 2016) UNDP/GEF Strengthening of the Protected Area Network in Mongolia (SPAN) Project (2011-16) Steps Without Borders (NGO) community groups in Ikh Nart Nature Reserve (ongoing)

Sources: GOM 2014; EPCRC 2016; NSOM 2017; Stakeholder Interviews November 2015 to November 2016; Official data from Bornuur and Dalanjargalan soum governments, 2016, and from ALAGaC, 2017.

Map 2. Mongolia showing locations of mining licences and protected areas



Source: ALAGaC

Methodology

Following selection of our two study communities, a baseline survey was carried out in August 2016 and a participatory fieldwork phase in November 2016. Following an intensive period of data analysis, our findings were then shared and validated during follow-up field visits to both soums between June and August 2017 and a multi-stakeholder workshop in October 2017.

The baseline survey was conducted with 10% of households in all baghs of both soums. In Bornuur, the baseline included 142 households, of whom 111 were randomly sampled and 31 were additional female-headed households. Seventy-eight per cent of the total survey sample in Bornuur was therefore randomly sampled (including 82 male- and 29 female-headed households) while 22% comprised deliberately targeted female-headed households. The total number of male-headed households surveyed was 82; the total of female-headed households was 60. Where possible our survey was carried out with the household head and/or their spouse if they had one, otherwise with the most responsible adult present. Among all 142 surveyed households in Bornuur there were 54 male respondents and 88 female respondents.

In Dalanjargalan, the baseline included 93 households, of whom 74 were randomly sampled and 19 were additional female-headed households. Thus 80% of the total survey sample in Dalanjargalan was randomly sampled (including 57 male- and 17 female-headed households) while 20% comprised deliberately targeted female-headed households. The total number of male-headed households surveyed was 57; the total of female-headed households was 36. Among all 93 surveyed households there were 39 male respondents and 54 female respondents.

Our sampling method was designed to boost the total number of female-headed households surveyed so as to help uncover critical gender issues for vulnerable groups. Data from the additional

female-headed households have only been included in comparative analysis of male- and female-headed households and male and female respondents, and not in all the general baseline analysis.

Our participatory fieldwork phase included 14 focus group discussions (FGDs) and 11 individual biographic interviews (BIs) in each soum, thus a total dataset of 28 FGDs and 22 BIs, involving over 102 people in Bornuur and over 94 people in Dalanjargalan. Different types of social groups and individuals were specifically sought out for these discussions and interviews so as to reflect different characteristics and issues that we considered worth exploring further after analysing our baseline results (e.g. widows, miners, married men and women, etc.). FGDs were structured around standard participatory exercises, including natural resource and migration mapping, seasonal labour analysis, and stakeholder analysis and institution mapping. BIs followed structured question guides that were tailored to the circumstances of the individual being interviewed in order to help us learn about people's lives and livelihoods and the ways both gender relations and access to different resources have changed since their childhoods. All FGDs and BIs included free-ranging discussions about gender, land, pastoralism and mining too.

Annex 2 provides fuller details about our baseline survey; Annex 3 provides fuller details about our participatory fieldwork methodology. Our research also included interviews with local government officials and representatives of some of the mining companies and organisations working in the two soums; these are listed at Annex 4. The remainder of this report draws extensively on both the quantitative and qualitative results of our research.

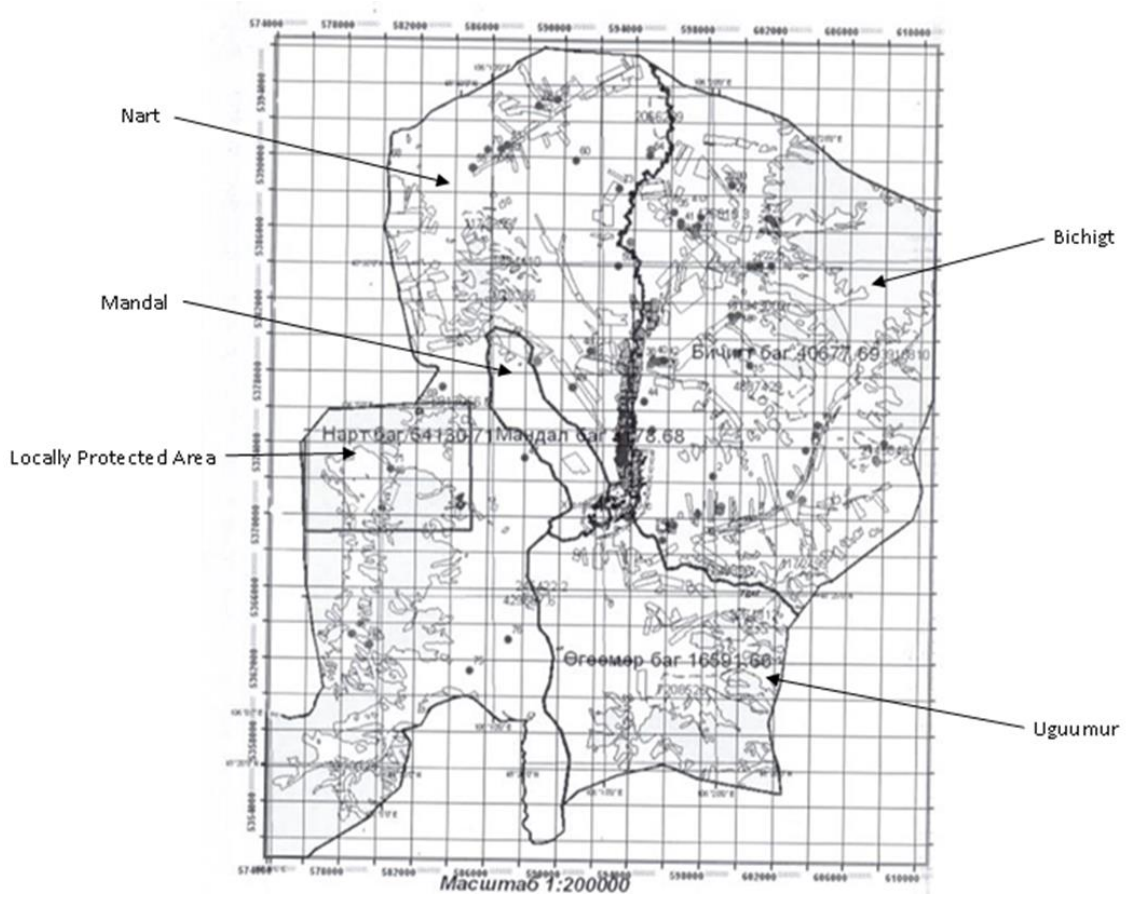
Currency conversions in the text were calculated at the rate of USD 1 = MNT 2,180, which was the average of the exchange rate that prevailed at the time data were collected, thus August 2016 for data from the baseline and November 2016 for data from the participatory fieldwork phase.

Bornuur Soum

Location and population

Bornuur soum is located in Tuv aimag, 115 km north-northwest of Ulaanbaatar. Its total land area is 114,687 ha, of which approximately 36,000 ha is forested, 68,000 ha is pastureland, and 8,100 ha is cropland. As at 3 March 2015, 18 mining licences had been granted in the soum – six for production and 12 for exploration. Bornuur's main mineral resource is gold. Bornuur soum is made up of four baghs, two of them more urbanised, Uguumur and Mandal, and two more rural, Bichigt and Nart, where most herders live.

Map 3. Bornuur showing bagh boundaries



Source: Official map from Bornuur Soum Government, April 2006.

The total population of the soum as at 4 August 2016 was 5,059 people, living in 1,404 households. The distribution of households across Bornuur's four baghs is given in Table 2 below. Average population density for the soum as a whole was 0.04 people per ha. Geographically the four baghs differ in size, but it was not possible to calculate their individual population densities due to lack of data on the bagh areas.

Table 2. Number of households in each bagh, Bornuur

Bagh	Number of households
Nart	293
Uguumur	438
Bichigt	359
Mandal	314
Total in Bornuur	1,404

Source: Official data from Bornuur Soum Government, as at 4 August 2016.

The most frequent number of households per khot ail among those interviewed during our baseline survey was one (in the case of 70 out of 111 randomly sampled households), but Nart had one household which was in a khot ail of 12 households and another which was in a khot ail of 13 households.

A total of 60 female-headed households were included in our baseline survey, of which 29 fell within the 111 randomly sampled households, equivalent to 26% of the random sample. Extrapolating to the soum as a whole suggests that some 365 households in Bornuur were female-headed at the time of our survey. The average size of the randomly sampled households in Bornuur was 3.96 people. The average size of all 60 female-headed households was 3.93; the average size of all 82 male-headed households was 4.28. There were a total of 440 people (221 females and 219 males) living in the randomly sampled households, with their age breakdown as summarised in Table 3.

Table 3. Age distribution of people living in 111 randomly sampled Bornuur households

Age (in years)	Number of people	Percentage of total people in each age group
5 or under	*46*	*10%*
6 to 12	*59*	*13%*
13 to 18	*60*	*14%*
19-24	*39*	*9%*
25-34	*62*	*14%*
35-44	*59*	*13%*
45-54	*61*	*14%*
55-64	*30*	*7%*
65-74	*15*	*3%*
75 and over	*9*	*2%*
Total	440	100%

Source: WOLTS Mongolia baseline survey, 2016. N = 440.

The data in Table 3 suggest by extrapolation that 37% of Bornuur's population were children (aged 18 or under), 5% of the population were elderly (aged 65 or older), and 57% of the population were working age adults (aged 19 to 64). The youthfulness of Bornuur's population is underscored by the number of younger adults (aged 19-24 and 25-34), who made up 40% of the working age population in our randomly sampled households, and by the fact that in total some 60% of people in these households were aged 35 or under; it is also not surprising given the background context of Mongolians' relatively low life expectancy noted above.

The population of Bornuur is largely Khalkha – the ethnic group of 89% (99) of the heads of randomly sampled households in our baseline survey – and Buddhism is the predominant religion, attributed to 68% (75) of the heads of randomly sampled households. Twenty-six per cent (29) of the heads of randomly sampled households were reported to have no religion; the remainder were reported to be either Christian or Shamanist. Other ethnic groups found in the soum included Bayad, Durvud, Khotgoid, Khoton and Uriankhai.

Bornuur's four baghs

Bornuur soum centre lies in Uguumur bagh, where the government offices, public hospital, secondary school and kindergarten are all located. All settlements in Uguumur are permanent houses on plots held under either possession or ownership rights. Members of many herder families

with children spend the whole school year in Uguumur, moving to Nart bagh just for the summer. Nart is the most rural area in Bornuur, where the majority of people are traditional herders. Most of its land is divided into pastureland and haymaking areas, but the main tourist camps are also located in Nart, in a Tuv aimag Local Protected Area which is protected forest in the western part of Bornuur.

While most of Bichigt bagh used to be pastureland, nowadays most of its land is held under winter camp possession rights or used for crop farming and haymaking. Most herders from Bichigt move to Nart for grazing in the summer and some have become semi-intensive or intensive livestock or crop farmers. Gold deposits are also found in Bichigt; the only mines to have ever been operational in Bornuur are both located in its forested area. Much of Bichigt's remaining forest, which also serves as pastureland, has been allocated to three of Bornuur's 10 registered forest user groups (FUGs), who have partly fenced it and thus excluded herders; six FUGs have also been allocated forest in Nart, and one in Mandal.

Mandal is the most recently established bagh and mainly civil servants and teachers working in the soum centre (Uguumur) live there. The soum centre was established in the 1980s, but up to the 1990s almost nobody lived in Mandal. There is a river with a bridge that divides north and south Mandal. In the northern part there are two ger districts. All of the gers are permanently there and situated in fenced housing plots (khashaas) held under ownership rights. The households in Mandal generally practice semi-intensive livestock production, keeping their livestock within their fenced plot and moving them to pasture in the summer in the southern part of the bagh.

There was also a new planned residential area close to the main road at the time of our fieldwork in 2016, but it lacked infrastructure, making people reluctant to move there.

Recent history of economic and population change

What is now Bornuur was first established as a soum in 1923 (within the former Tuhseet Khan aimag) and, after several name changes, it became 'Bornuur' in 1959. In socialist times there was a potato and milk collective farm in Bornuur (in Uguumur) and the soum was famous for supplying potatoes nationally. According to information from the soum government, milk and vegetable production was supported by government policy from 1955, due to favourable soil and climate conditions, and from 1962 the Mongolian government specifically supported the development of modern dairy farming, irrigation systems and agricultural technology to provide milk and potatoes for Ulaanbaatar; Bornuur received several awards for its milk and vegetable production quality in socialist times. According to participants in our FGDs and BIs, crop farming really benefited from the good irrigation system and livestock farming was carried out using equipment from Germany. Many people also mentioned the 800-cow and 400-cow farms area in Bichigt; the farms were completely mechanised and had a fodder-processing unit attached. An East German gold mining company also operated in Bornuur, in Bichigt, from approximately 1979 to 1990, but it seemed that nobody engaged in artisanal mining under socialism.

In those days, many herders and livestock specialists from other soums were sent to Bornuur by the Mongolian state to look after state-owned livestock; some outsiders also applied to be transferred to Bornuur to engage in herding. All land belonged to the state; there were no fences, and the majority of produce from herding and farming had to be given to the state authorities. The negdel (collective) ran everything, and households only possessed a few livestock to support their individual needs. As across Mongolia, land for setting up camps was allocated or approved and movement was regulated by the soum governor, who would decide where and when every herder household went; vehicles were provided by the negdel to help them move. Once herders moved away from an area, crops were planted there, so conflicts between the two land uses were minimised.

Many participants in our FGDs and BIs looked back on the socialist days nostalgically, as a time when they perceived that everybody worked hard and there was no unemployment. Various people also

mentioned that nature used to be more beautiful in those days, with good quality pasture and many rivers and springs flowing through the soum.

> "Life was better in those times of socialism. Now it is becoming very hard to live a life. Commodity prices are so high. What can you buy for MNT 20,000 (USD 9) today? In the old times, we used to get MNT 1,000 (US cents 46) monthly salary and it was enough for everything. Now we don't have any cash to buy winter clothes." (BI7, married middle-aged male miner)

Transition from socialism

After Mongolia's transition to democracy in the early 1990s, privatisation took place very suddenly. The state-owned assets of the negdel crop farm and two cow farms were allocated to different negdel workers as private individuals; farm employees who had been herding cows were given those cows, truck drivers were given the trucks they had used, machinery went to accountants, engineers and so on. People were left free to work together or separately, but no management meant bankruptcy and production collapsed as equipment that was considered by participants in our FGDs and BIs to have been working well under socialism was run down after privatisation. It seemed that a number of wealthy outsiders from Ulaanbaatar managed to obtain large tracts of land in Bornuur at this time too.

Ordinary people in Bornuur were hit hard by the changing conditions. As many people lost their jobs and as prices increased, they were left struggling even to purchase the basic provisions for life. In the poverty of the 1990s, while many Bornuur citizens who lost their jobs and did not own much livestock moved to Ulaanbaatar to try to find employment, people from Bayankhongor in the Gobi Desert and from Mongolia's western aimags started to move to Bornuur to engage in mining and herding, including those seeking to benefit from the good pastures and closeness to the huge market for meat and milk in Ulaanbaatar.

To cope with the new situation, many unemployed Bornuur citizens who remained in the soum started to engage in (illegal) artisanal mining in the former East German mine after the company left Bornuur in 1992. While it was mainly men who blasted big holes in the rocks and went down into them to extract the ore – a highly dangerous undertaking – women also took part in washing the ore and cooking for the miners, and some women went underground with the men.

> "After democracy began in 1990, privatisation started happening. At that time, there was a saying of "no cash to wash the clothes and no cash to go to the capital". During these hard times, the citizens of the soum, no matter if you were a woman or a man, started doing artisanal mining to feed their families and children. In 1999, people did not have a vehicle to go to the mountain so they used to go by sledge. They did all the processing work in their homes. They would cut a gas balloon and turn it into a mill for the ore, then they would add mercury to the ore and burn it. They would extract the gold using cloth. By 2003, a few households bought a proper mill in their khashaa." (FGD15, female household heads)

The high amounts of gold extracted attracted people from other soums to Bornuur to try their luck. Participants in our FGDs and BIs remembered this as a time when there was a lot of fighting, prostitution and violence, which affected the whole soum. Some people also lost their lives as mines physically collapsed. The use of mercury and cyanide and the washing of gold in the mountain streams polluted Bornuur's rivers; this and mining itself had important health consequences, which were felt later on when many miners started to get lung diseases.

However, due to the mining boom, the local economy in Bornuur developed rapidly and several supermarkets were opened in the soum centre. In part, the local economy did so well because artisanal miners in Bornuur stayed in the soum and did not go away to mine in other soums. More recently, wealthy people from the capital have also been attracted to Bornuur to engage in intensive

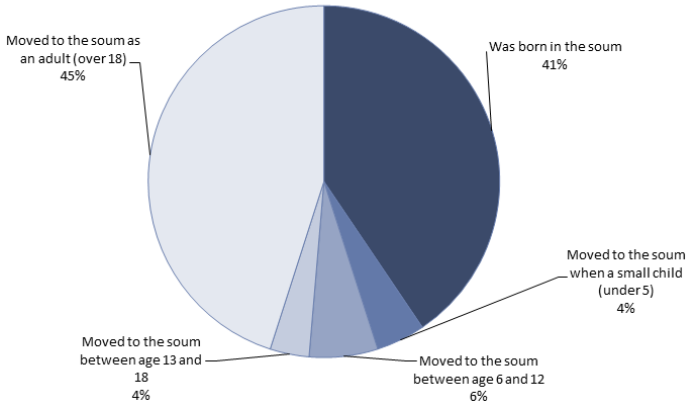
livestock farming, commercial crop farming (fodder plantations) and tourism – or simply to escape Ulaanbaatar's air pollution on their retirement.

> "I started artisanal mining over 10 years ago. At the beginning it was a profitable business, but lately it is becoming harder and harder, and I am feeling more and more sick. Generally I feel ill all the time." (BI7, married middle-aged male miner)

Due to its accessible location – its proximity to Ulaanbaatar, and with the main paved road north passing right through the soum – as well as the historical availability of good pasture, cropland and high gold deposits, Bornuur has therefore experienced continuing high levels of immigration since the transition to democracy. While under socialism people could not move freely, as all movement was controlled by the state, the later waves of immigration also included people voluntarily moving to Bornuur in response to difficult living conditions in their home areas, especially from western aimags during major dzuds. This has all contributed to increased land scarcity and land-related disputes in Bornuur.

The high level of immigration of people from different soums during socialist times and since is illustrated by the evidence in Figure 1 below, which shows that less than half of all heads of randomly sampled households in our baseline survey were born in Bornuur. Reasons given for moving to Bornuur as an adult included moving with their family, getting married, or being assigned by the government for work (in the socialist times – for example teaching, farming, at the hospital or with the army). The highest proportion of households whose heads had moved to Bornuur as adults was in Nart, the most rural (herding) bagh, where 72% (18) of randomly sampled households had heads that had moved to Bornuur as adults. In contrast, 46% (7) and 52% (14) of the heads of randomly sampled households in the more urbanised baghs, Mandal and Uguumur respectively, were born in Bornuur.

Figure 1. Age of household head when they moved to Bornuur



Source: WOLTS Mongolia baseline survey, 2016. N = 111.

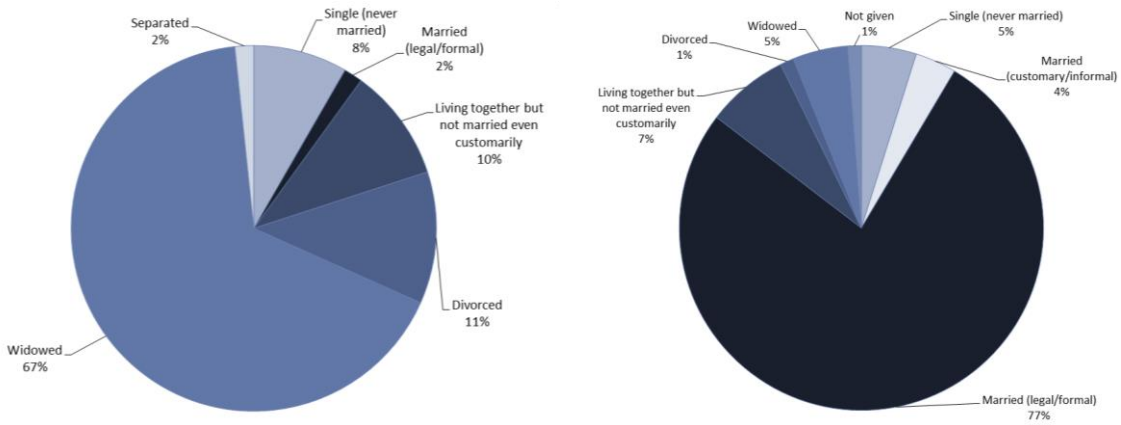
Livelihoods and gender relations

Marriage and family situation

Our baseline survey suggests that the majority of adults in Bornuur were legally married, but that there were also high numbers of female-headed households. As noted above, 26% of the randomly sampled households in our survey were female-headed (29 of 111); 74% (82) of the randomly sampled households were male-headed. As Figure 2 below also suggests, there were a high number of widowed female-headed households in Bornuur – 67% of all 60 female-headed households

included in our baseline survey. Eighteen per cent (20 of 111) of all randomly sampled households were headed by widows – almost one fifth of the total.

Figure 2. Marriage status of female- (left) and male- (right) headed households, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Female chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households

Eight per cent of heads of all 60 female-headed households were single and never married, as were 5% of heads of all 82 male-headed households. Divorce rates appeared to be quite low, as was confirmed also by our participatory fieldwork, with just 4% (4) of the 111 randomly sampled households reported to have divorced household heads; three out of four of these households were female-headed. There was one household among all our surveyed households headed by a legally married female; thus 98% of all surveyed households led by a legally married household head were male-headed (63 out of 64). Among the nine household heads from the randomly sampled households who were living together with a partner but not married (of whom six were male and three were female), seven lived in the soum centre, Uguumur, which was also the bagh with the highest proportion of household heads claiming to be non-religious; a further 4% of all 82 male household heads were reported to be married but only customarily or informally. No divorced, separated, single (never married) or cohabiting household heads were reported in Nart, the most rural and traditional herding bagh.

Fourteen per cent (15) of the randomly sampled households in our baseline survey reported having at least one disabled member. Nine per cent of all male-headed households reported having a disabled member, compared to 27% of all female-headed households.

At the time of our survey, 15% of randomly sampled households (17 of 111) had at least one other person living in the house with them who was not part of their household; these were largely grandchildren who were visiting their grandparents for the summer holidays. On the other hand, from among the 440 members of the randomly sampled households, only 85% (372 people) were reported to live at the household's main residence for the majority of their time. Forty-nine people (11%) were reported to often live elsewhere (temporarily for the year), and a further 12 people (3%) were reported to usually live elsewhere in the medium to longer term. These 61 people who were not living permanently in their household's main residence were distributed across 37 households (33% of all randomly sampled households). They included school children and students, as well as parents (usually mothers) staying in soum or aimag centres while their children were at school. A handful of other people were reported to be away elsewhere for work; none were household heads.

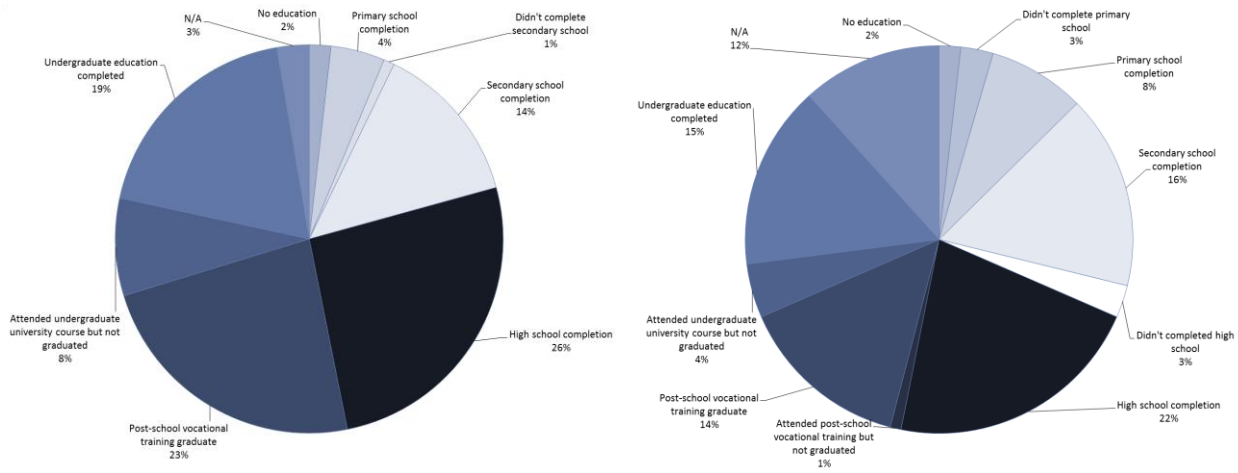
Furthermore, only one seven-member female-headed household among the randomly sampled households reported to sometimes live elsewhere (for the season), suggesting a very low level of seasonal movement with livestock; a further female-headed household from those additionally surveyed also reported moving with livestock in different seasons. Our baseline survey took place

during the summer, when some families were away with their livestock and therefore could not be surveyed, but participants in our FGDs and BIs in the winter confirmed that traditional nomadic patterns of seasonal movement for grazing livestock are much reduced and relatively uncommon among households in Bornuur today. Whereas in socialist times (and before) many herders moved as families between four seasonal camps, the main movements of herders were nowadays between summer and winter camps within Bornuur; some people have become semi-intensive and intensive livestock farmers and many people also reported giving their livestock to relatives to pasture, rather than moving with them themselves, as we discuss further below.

Education

As illustrated in Figure 3 below, only 6% (7) of all randomly sampled households in our baseline survey in Bornuur did not have at least one female adult member whose education had progressed to secondary school or beyond, and 50% (56) of all randomly sampled households had at least one female adult member who had progressed to some form of tertiary education (vocational training or university). In contrast, 13% (14) of all randomly sampled households did not have at least one adult male member who had progressed to secondary school or beyond, while only 35% (39) of the randomly sampled households had at least one adult male member who had progressed to some form of tertiary education.

Figure 3. Highest education level of adult females (left) and adult males (right) in Bornuur households



Source: WOLTS Mongolia baseline survey, 2016. N = 111. N/A = no adults of that gender in the household.

There were generally more adults with lower education levels in the rural baghs of Bornuur, and more adults with higher education levels in the more urbanised baghs. As Figure 3 shows, for female adult members across all randomly sampled households, the top three most common responses for highest level of education were 'high school completion' (26%), 'post-school vocational training graduate' (23%), and 'undergraduate education completed' (19%). For male adult household members the top three were 'high school completion' (22%), 'secondary school completion' (16%) and 'undergraduate education completion' (15%). Taken together, some 42% of randomly sampled households in our survey contained at least one adult female who was either a 'post-school vocational training graduate' or had completed undergraduate education, compared with only 29% of households where adult males had reached the same educational level. This all shows clear evidence of gender disparities in education, in line with national data.

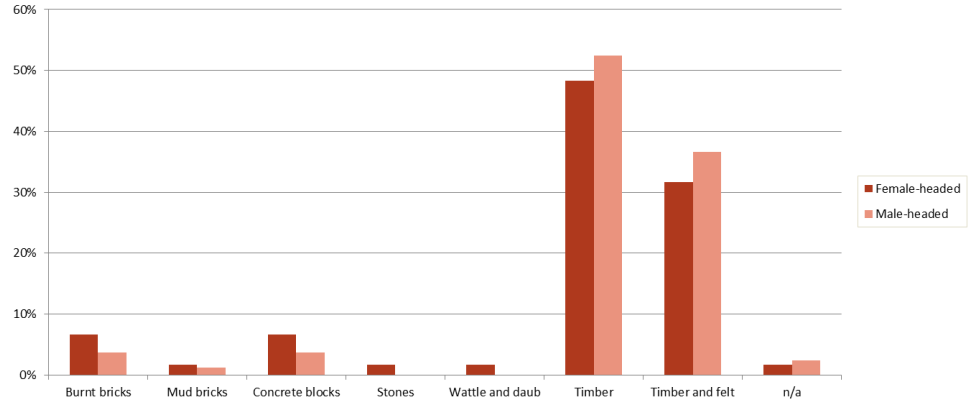
Relative wealth and poverty

Housing

Thirty-four per cent (38) of the randomly sampled households in Bornuur had a ger, 33% (37) had a house, and 30% (33) had both. Three households had none, and were sharing a place to live. Of the households that had a ger, the average number was 1.2; one household in Uguumur had four. The most common number of walls for our randomly sampled households' primary gers was five, with 61% of primary gers (43 of 71) having five walls; one wealthy household in Nart had a ger with eight walls.

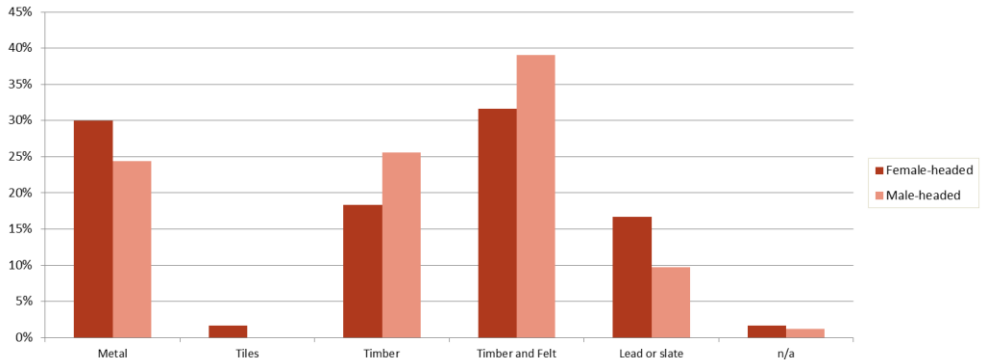
Figure 4 and Figure 5 illustrate our data on housing type and materials, where we recorded the highest-order (i.e. most expensive) wall and roof materials of each surveyed household's main residence.

Figure 4. Percentage of female- and male-headed households with different wall materials, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

Figure 5. Percentage of female- and male-headed households with different roof materials, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

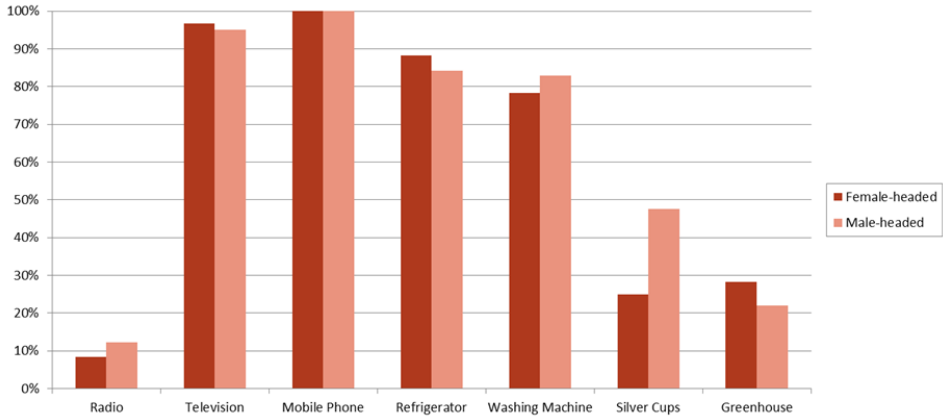
While gers were constructed out of timber and felt, timber alone was the most common building material for houses in Bornuur. As these two figures show, these were the most common highest-order housing materials in both female- and male-headed households. Overall, 50% (56) of the randomly sampled households in our baseline survey reported timber and 34% (38) reported timber and felt as the highest order wall construction material of their house and/or ger. Female-headed households were slightly more likely than male-headed households to have walls made from burnt bricks or concrete blocks. Conversely, timber and timber and felt roofs were more prevalent among male-headed than female-headed households, with the latter more likely to have roofs of metal, tiles or lead or slate. This all suggests that female-headed households were slightly more likely to

have a house than a ger as their main residence, which would be in line with the lesser involvement of female-headed households in herding that we discuss further below.

Possessions

The vast majority of our surveyed households in Bornuur had televisions, refrigerators and washing machines, and 100% of them had mobile telephones. This was particularly helpful for herders, who could then access weather forecasts and prepare themselves accordingly. However, with the exception of silver cups, there was little difference between the possessions of female-headed and male-headed households. As Figure 6 below illustrates, a higher proportion of male-headed households reported having silver cups than female-headed households. Since silver cups are mainly held by herders as a traditional store of wealth, this suggests either lesser involvement of female-headed households in herding and/or relative poverty of female-headed herder households compared to male-headed herder households.

Figure 6. Percentage of female- and male-headed households with different possessions, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

Electricity, water and sanitation

Ninety-nine per cent (110) of the randomly sampled households in our baseline survey in Bornuur had electricity; the sole household without it was male-headed. The vast majority had access to mains electricity, including 97% (32) of the randomly sampled households in Uguumur, 96% (26) of those in Mandal, and 81% (22) of those in Bichigt, while many of the remainder relied on portable solar panels. In Nart, only 56% (14) of the randomly sampled households had access to mains electricity, but 40% (10) relied on portable solar panels.

There was little difference between male- and female-headed households in terms of access to water. Throughout the year in Bornuur, the main water source of 49% (29) of all female-headed households in our survey was an open deep well nearby (paid-for access). In summer, 49% (40) of all male-headed households also used this source of water, rising to 50% (41) in spring and 52% (43) in winter. The second most common source of water in Bornuur was an open deep well nearby (communal or shared access), used by 17% (14) of all male-headed and 25% (15) of all female-headed households across all seasons. Water kiosks and traders were only used by three male-headed households in Uguumur, Mandal and Nart, in spring and summer only. Four female-headed and 11 male-headed households reported having private wells on their khashaas, both deep and shallow, and these households used their wells across all seasons. River water was only used by 4% (4) of the randomly sampled households in winter, 6% (7) in spring and 9% (10) in summer – more by male-headed than by female-headed households and mainly by households living in Nart.

Concerning sanitation, 78% of the randomly sampled households in our baseline survey had an external toilet without a flush tank (a long-drop). Internal toilets were very uncommon, reported by

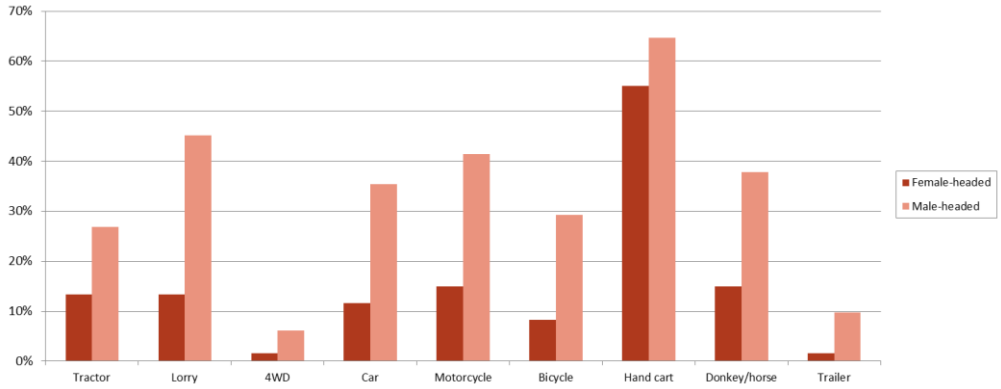
just one female-headed household. Only 5% of all 60 female-headed households and 4% of all 82 male-headed households did not have a toilet at all, and no-one in Mandal, the newest settlement area, did not have a toilet. However, female-headed households were slightly more likely to rely on public toilets than male-headed ones – 8% of all female-headed households did so, compared to 4% of all male-headed households.

Transportation

Handcarts were the most common form of transport in Bornuur, used by 59% (65) of the randomly sampled households in our baseline survey for seasonal moves and for taking vegetables and dairy produce to market, and four-wheel-drive cars were the least common, used by only 5% (6) of the randomly sampled households. Surveyed households in Uguumur, the soum centre, reported a lower incidence of all the mechanised modes of transport.

Across all modes of transport – lorries, tractors, four-wheel-drive cars, two-wheel-drive cars, motorcycles, bicycles, hand carts, horses and trailers – more male-headed households reported having them than female-headed households, as Figure 7 below, where respondents reported all modes of transport that they had access to, shows. For example, 35% of all male-headed households reported having a two-wheel-drive car, whereas only 12% of all female-headed households did. Given the importance of access to transport in herding communities, this apparent inequality between male- and female-headed households points to the relative poverty of female-headed households, as well as to the relative difficulties female-headed herder households face.

Figure 7. Percentage of female- and male-headed households with different modes of transport, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

Overall, our WOLTS baseline survey data on housing type and materials, ownership of certain possessions, and access to electricity, water, sanitation and transportation provided some indications of relatively higher poverty rates among female-headed households in Bornuur, and suggestions of potential areas of vulnerability, particularly for female-headed herder households. This was supported by the findings from our participatory fieldwork phase, which revealed the dangers of slipping into poverty, particularly for widowed women with young children, as we discuss further below.

Main livelihoods

Due to rapid urbanisation in the soum centre, land privatisation and perceived degradation of pastureland, some people in Bornuur had given up traditional nomadic herding and become intensive or semi-intensive livestock farmers, and sometimes also crop farmers, cultivating medium-sized fodder plantations as well as vegetable plots. Unlike the intensive (modern) livestock farmers, who kept their animals within the confines of their khashaas most of the time and therefore relied totally on fodder, traditional herders still relied mainly on pasture in summer and hay in winter to

feed their animals. While fodder was planted on plots held under possession or use rights, hay was made in the autumn from the natural vegetation occurring on common pastureland. However, there seemed to be a lack of good quality pastureland in Bornuur, and of haymaking areas, which were increasingly being fenced off, leading to numerous disputes over these valuable resources, as we discuss further below. Meanwhile, it emerged in our FGDs and BIs that many young people were not interested in herding any more, but little employment was available for them in Bornuur; some have moved to Ulaanbaatar in the hope of finding work, others have engaged in (illegal) artisanal gold mining in the soum.

> "I have five children. They all live in Ulaanbaatar. Two are unemployed. I urged them to come and stay with me but nobody wants to be a herder anymore. They want to be like city people and their behaviour has changed. I proposed to them that they come home for two years and share all the money from herding with me but they refused. When I pass away they will just sell all my livestock." (BI3, elderly married male herder)

On balance there seemed to be quite high levels of livelihood diversification in Bornuur, with many households engaging in both herding and crop farming and/or having a household member in formal employment. In our baseline survey, 56% (62) of the randomly sampled households mentioned that their household included 'herders herding own livestock' and 18% (20 households) included 'people with formal employment'. Sixty-three per cent of all male-headed households in our baseline survey (52 of 82) included herders herding their own livestock and 18% (15 of 82) included people with formal employment, whereas only 37% of all female-headed households (22 of 60) included herders herding their own livestock but 23% (14 of 60) included people with formal employment. Only four of the randomly sampled households included members who farmed crops for others for cash, and only two included members who carried out livestock-related activities for others for cash. This suggests generally low levels of casual labour and a strong reliance on family labour (and/or labour in kind) within agriculture in Bornuur. Only a few households said that they included people renting in land to farm, all male-headed, but there were both male-headed and female-headed households reporting to include large-scale commercial crop farming among the activities of their members.

> "I live with my mother in my younger brother's khashaa. He's got 5 ha of cropland but only uses 2 ha for growing vegetables. I help my brother to farm." (BI10, elderly unmarried disabled man)
>
> "Our friends help us a lot with our fodder plantations so we give them some cows as gifts." (BI6, wealthy married female herder)

Overall, 23% of the randomly sampled households in our baseline survey relied on only one source of cash income in the previous 12 months, 25% relied on two sources, 31% on three sources, 12% on four sources and 6% relied on at least five sources of cash income. There were no large differences between male- and female-headed households, as Table 4 shows.

Table 4. Number of sources of cash income among all surveyed households, Bornuur

Number of sources of cash income	None	1	2	3	4	5 or more	Total
Female-headed households	1 (2%)	17 (28%)	17 (28%)	19 (32%)	2 (3%)	4 (7%)	60 (100%)
Male-headed households	0	16 (20%)	21 (26%)	26 (32%)	15 (18%)	4 (5%)	82 (100%)

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

Only 33% (37) of the randomly sampled households in our baseline survey gave herding as their top source of cash income in the previous 12 months, and in 41% of these 37 households the household head had moved to Bornuur as an adult. Fifty-nine per cent (16) of the randomly sampled households in Bichigt and 5`6% (14) of those in Nart, the two most rural baghs, gave herding as their top source of cash income. However, in both Mandal and Uguumur only 12% reported herding as their top source of cash income. Seventeen of the randomly sampled households (15%) reported

crop farming and two reported mining as their top source of cash income in the previous 12 months; 20 (18%) relied on a state pension. Table 5 provides the gender breakdown in top source of cash income reported by all our surveyed households.

Table 5. Top source of cash income for all surveyed households, Bornuur

Top cash income source	Female-headed households	Male-headed households
Herding	12 (20%)	31 (38%)
Pension	21 (35%)	10 (12%)
Crop-farming	1 (2%)	16 (12%)
Government employment	8 (13%)	6 (7%)
Private business (type not specified)	3 (5%)	9 (11%)
Disability allowance	4 (7%)	1 (1%)
Farmer (type not specified)	2 (3%)	3 (4%)
Mining	1 (2%)	2 (2%)
Foster care allowance	2 (3%)	-
Shop assistant	1 (2%)	1 (1%)
Cook	1 (2%)	-
Field worker	1 (2%)	-
Milk truck driver	-	1 (1%)
Own business (auto spare parts shop)	1 (2%)	-
Private business (restaurant)	-	1 (1%)
Private business (supermarket)	1 (2%)	-
Unknown	-	1 (1%)
No income	1 (2%)	-
Totals	60 (100%)	82 (100%)

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

As Table 5 shows, 38% (31) of all male-headed households reported herding as their top source of cash income in the previous 12 months, compared to only 20% (12) of all female-headed households. Among the 29 female-headed households in our randomly sampled group, 6 households (21%) reported herding as their top source of cash income. Extrapolating from this suggests there were some 77 female-headed herder households in Bornuur at the time of our survey, which is not an insignificant number of potentially very vulnerable families in a rural community.

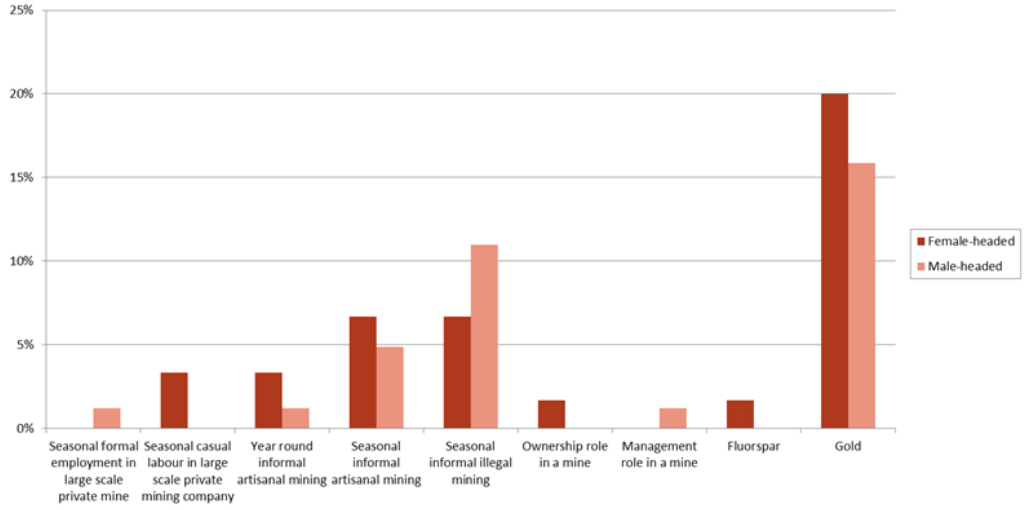
It emerged from our FGDs and BIs, however, that female-headed households were generally less reliant on both crop farming and herding for their main livelihood activity, linking to prevalent notions that these are both traditionally male activities. Adult women were instead more often involved in government employment and other types of formal employment (e.g. in schools and hospitals), which can be linked to their higher education level as compared to men, noted above. Of interest here is also that 51% of the female members (women and girls) of randomly sampled households had received a cash income in the 12 months prior to our baseline survey, compared to just 42% of the male members (men and boys).

The full range of cash incomes earned by people across all our surveyed households in the previous 12 months was from just MNT 32,000 (USD 15) right up to MNT 33,900,000 (USD 15,550), both in male-headed herding households. Four of the top five highest cash incomes earned in the 12 months prior to our baseline survey were found in male-headed herding households, with the household head earning or receiving the money in three of these households and his wife earning or receiving the money in the other. The fifth highest cash income we recorded was in a female-headed household from a supermarket business; this was an additionally surveyed female-headed household, not a household from the random sample.

Those receiving cash income from crop farming received annual amounts ranging from MNT 140,000 (USD 64) up to MNT 8,000,000 (USD 3,670); all were male-headed households. There was one male-headed household from Uguumur who reported receiving an annual income of MNT 10,000,000 (USD 4,587) from (illegal) artisanal mining in the previous 12 months – the largest reported amount earned from mining by any of our surveyed households. Households involved in gold mining generally had annual takings from their gold mining activities ranging from MNT 100,000 (USD 46) to MNT 3,000,000 (USD 1,376). The only three female-headed households reporting cash incomes from gold mining fell into the lower end of this spectrum, earning between MNT 180,000 (USD 83) and MNT 500,000 (USD 229) from mining in the previous 12 months, and all these were additionally surveyed female-headed households, not households from the random sample. There was just one household in our whole baseline survey in Bornuur that reported to have received no cash income at all, a randomly sampled female-headed household.

As noted above, since Mongolia's transition to democracy, artisanal gold mining has helped to offset high unemployment in Bornuur, so that it seemed during our fieldwork in 2016 that almost every household in the soum had at least one member who had engaged or was still engaging in artisanal mining. However, this was despite the very low reporting of mining as a top source of cash income in our baseline survey, noted with Table 5 above. Only 14% (16) of the randomly sampled households reported that they included members who were involved in artisanal mining, the majority (14 households) in either legal or illegal artisanal gold mining (working as 'ninjas'). Figure 8 sets out the breakdown of different types of involvement in mining that were reported by female- and male-headed households in our baseline survey.

Figure 8. Types of involvement in mining by all surveyed households, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

As Figure 8 shows, 20% of all female-headed households reported to have at least one member involved in gold mining (12 of 60), compared to 16% of all male-headed households (13 of 82). For most households, this meant artisanal or illegal mining rather than either formal employment or casual labour with mining companies. However, during our FGDs and BIs we detected much evidence of significant initial under-reporting of household involvement in artisanal mining, because of its history of illegality. In contrast, 45% of all female respondents in our baseline survey (40 of 88) and 33% of all male respondents (18 of 54) said they agreed with the statement that: "The majority of people in this community depend on mining for their survival". While undoubtedly contributing to household income in Bornuur, mining has nonetheless also brought increased violence and alcoholism, as well as many health problems and casualties – as is the case elsewhere in Mongolia, and as we elaborate below.

Herding

Table 6 below sets out the different types of cash incomes from herding and livestock farming received by all 63 households within our random sample who reported receiving money from these activities within their top five cash income sources in the 12 months prior to our baseline survey, where many of them reported more than one specific income source. Among this 56% of randomly sampled households who received some form of cash income from herding and livestock farming in the previous 12 months, 76% (48 households) sold milk, 52% (33 households) sold cashmere, and 29% (18 households) sold meat.

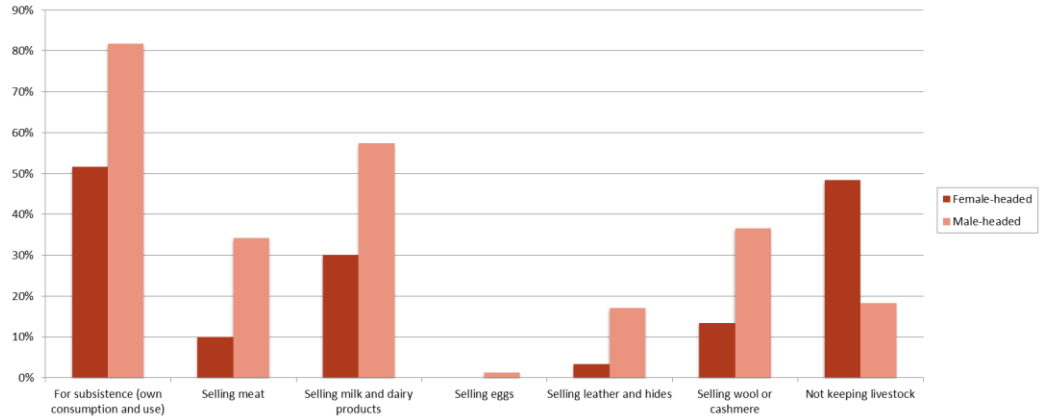
Table 6. Cash income from herding and livestock farming among randomly sampled households, Bornuur

Source of cash income	Number of households	As percentage of households receiving any cash income from keeping animals
Herding - milk	48	76%
Herding - cashmere	33	52%
Herding - meat	18	29%
Herding - wool	7	11%
Herding - unspecified	3	5%
Herding - horse trade	1	2%
Herding - livestock trade	1	2%
Herding - selling fodder	1	2%

Source: WOLTS Mongolia baseline survey, 2016. N = 63.

Other households were involved in keeping animals for their own consumption but had not generated any cash income from this activity in the previous year. Some, such as those who intensively or semi-intensively farmed a few livestock on their khashaas in Mandal and Uguumur, or left animals with relatives in the countryside, did not even consider themselves herders. Across Bornuur there were a high proportion of households using livestock and other animals for subsistence in general – thus 75% (83) of the randomly sampled households in our survey, at the time the survey was carried out, compared to just 51% (57 households) that reported selling milk and dairy products, and 29% (32 households) that reported using livestock for meat sales at that time. The data are broken down separately for all male- and female-headed households in Figure 9 below, where respondents reported all uses of their livestock and other animals that applied. It is notable that a higher proportion of male-headed than female-headed households appeared to be reliant on livestock for their livelihoods across the board, whether for subsistence and/or for cash income. Moreover, very few female-headed households reported selling meat, due to traditional social norms that prohibit women from slaughtering animals, discussed shortly below.

Figure 9. Use of livestock and other animals by all surveyed households, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

The most common type of livestock kept by people in Bornuur was cattle, which 72% (80) of the randomly sampled households in our baseline survey kept, although only four of them had more than 50 cattle. Sheep and goats were also relatively common, kept by 45% and 43% of randomly sampled households (50 and 48 households), respectively. The largest single herd we came across in Bornuur belonged to a male-headed household that reported to have between 251-350 sheep. Patterns of herding also reflected the characteristics of the different parts of the soum, as shown in Table 7 below. In Nart, for example, 92% (23) of the randomly sampled households kept cattle, 68% (17) kept goats and 60% (15) kept sheep. In Mandal, where semi-intensive cattle keeping is concentrated, 69% (18) kept cattle; in Uguumur (the soum centre) just 45% (15) did.

Table 7. Number and percentage of randomly sampled households keeping animals, Bornuur

Bagh	Cattle		Sheep		Goats		Horses	
	Number of households	As percentage of households in bagh	Number of households	As percentage of households in bagh	Number of households	As percentage of households in bagh	Number of households	As percentage of households in bagh
Bichigt	24	89%	17	63%	16	59%	13	48%
Mandal	18	69%	13	50%	11	42%	5	19%
Nart	23	92%	15	60%	17	68%	14	56%
Uguumur	15	45%	5	15%	4	12%	3	9%

Source: WOLTS Mongolia baseline survey, 2016. N = 27 in Bichigt. N = 26 in Mandal. N = 25 in Nart. N = 33 in Uguumur.

Three milk companies from Ulaanbaatar have established milk collection points in Bornuur, where herders and livestock farmers could sell their milk; vegetables and meat were often also sold directly in Ulaanbaatar. While women mainly sold milk in the soum, men tended to drive to Ulaanbaatar to sell agricultural produce there. However, women generally organised these trips and they also seemed to traditionally keep all their household's cash income and be in charge of looking after the household's finances, as we discuss further below.

Our baseline survey produced specific data on the division of tasks between men and women in herding. In 50% (56) of all randomly sampled households women were involved in milking, whereas men were involved in milking in just 14% (15 households). Likewise for processing and preparing milk products, this was done by women in 46% (51) of all randomly sampled households and by men in just 5% (6 households). Children helped with herding tasks when not at school, and outsourcing took place too – in 23% (26) of all randomly sampled households non-household members were involved in milking and in 14% (16 households) non-household members were involved in processing and preparing milk products. Conversely, no women at all were reported to slaughter animals in our baseline survey; those women who sold meat or used animals for domestic food consumption either asked a male neighbour or relative to carry out the slaughtering or sold their animals live.

Crop farming

Fifty-six of the randomly sampled households in our baseline survey (50%) reported to have been farming agricultural land in Bornuur at the time it was carried out. The average size of their cultivated land was 3.25 ha, and it included vegetable plots of 1-2 ha each in the much sought-after former collective irrigated farm area (of around 1,000 ha in total) in Uguumur that had been distributed to Bornuur households under use contracts and possession titles with land privatisation in the 1990s, as well as farms outside the irrigated area, in Bichigt, and in the former irrigated area in Nart, whose irrigation system had been operational under socialism but was no longer; farmers in these non-irrigated areas relied on wells and river water. Our data on the scale of crop framing at the time of our baseline survey are broken down by bagh in Table 8, which indicates that the largest amounts of cultivated land were to be found among households living in Nart.

Table 8. Average area under cultivation (hectares) by randomly sampled crop farming households, Bornuur

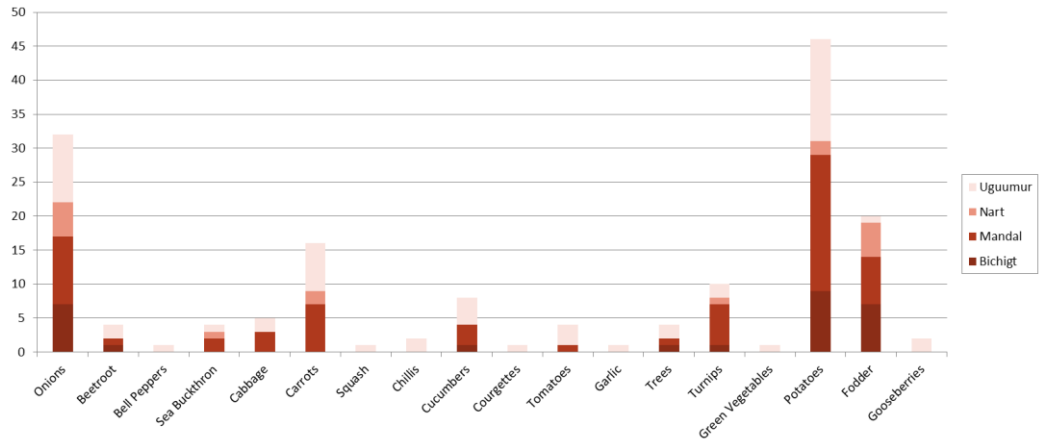
Bagh	Average amount of land under cultivation (ha)
Bichigt	2.6
Mandal	2.85
Nart	8.43
Uguumur	1.97
Average for Bornuur	3.25

Source: WOLTS Mongolia baseline survey, 2016. N = 56.

A total of 182 ha were reported as being under cultivation by the 56 crop-farming households in our baseline survey at the time it was carried out. Extrapolating to Bornuur overall suggests that there could have been some 2,275 ha under cultivation for crop farming in total in the soum at that time, farmed by some 708 Bornuur households.

Although there were a variety of crops grown by the households we surveyed, potatoes, carrots, fodder and onions were the main crops grown. As noted above, government policy had strongly promoted potato production in Bornuur in socialist times, but this had since extended to include cabbages, carrots and onions. Eighty-two per cent (46) of the 56 randomly sampled households that reported growing crops in our baseline survey grew potatoes, 57% (32 households) grew onions, 36% (20 households) grew fodder, and 28% (16 households) grew carrots. Of all four baghs, households in Uguumur, where the irrigated farm area was, demonstrated the largest variety of crops grown, as shown in Figure 10.

Figure 10. Number of households growing different crops in each bagh in Bornuur

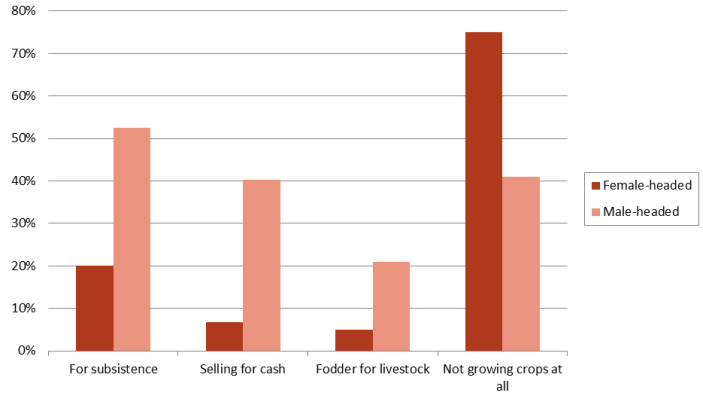


Source: WOLTS Mongolia baseline survey, 2016. N = 56.

The most common use of crops in Bornuur was for subsistence. Forty-four per cent (49) of the randomly sampled households in our baseline survey were growing crops for their own subsistence; 33% (37 households) sold their crops for cash; 19% (21) used their crops as fodder for livestock; and 49% (54) were not growing crops at all. One household did not respond to this question, but of the 56 randomly sampled households that did grow crops in Bornuur, 85% used their crops for their own subsistence.

Commercial crop farming (mostly of potatoes, onions and carrots) was perceived by participants in our FGDs and BIs to be a male activity, since it was largely mechanised, thus requiring heavy labour and handling of machinery, and therefore considered hard for female-headed households to engage in. This was confirmed in our baseline survey, which found that 75% of all 60 female-headed households reported not even growing any crops at all, compared to only 41% of all 82 male-headed households. Our data are provided in Figure 11 below, where respondents reported all uses of their crops that applied. What also stands out as interesting from these data, are the seemingly very low levels of multiple crop use by female-headed households compared to male-headed households.

Figure 11. Use of agricultural crops by all surveyed households, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

Participants in our FGDs and BIs reported that commercial crop farmers in Bornuur hired in casual labour during the planting and harvesting seasons if they had vegetable plots that were too big to manage with just the labour of household members. Seasonal casual labourers fell into several different categories, including itinerant labourers with no fixed abode, the very poor (i.e. those with no other sources of employment or cash income, including alcoholics), and students and young adults seeking cash incomes during the summer. Work for this last group was often organised by school administrations, contracting with large-scale farmers.

> "I used to do work milking cows for one family. I got MNT 200,000 (USD 92) per month. Then I started working as a farm helper for MNT 20,000 (USD 9) daily. Now I have some experience growing vegetables I could do that on my own if I got land. But it is so hard to get land." (BI8, middle-aged widow)

Gender relations

While it seemed that women in Bornuur were mostly in charge of housekeeping, looking after the children and milking livestock, men did most of the more physically challenging and outdoors work of herding, slaughtering animals, haymaking, collecting fuelwood, fixing fences and undertaking any mechanised farm work. In our baseline survey, for example, cooking for the family and washing clothes were reported to be done by women in 90% and 91% of our randomly sampled households (100 and 101 households), and by men in only 29% and 27% (32 and 30) of these households, respectively.

> "Women can do everything apart from slaughtering and herding animals. Men generally also do the heavy stuff like building vegetable cellars and fixing khashaas. Women-headed households always have to call a man for these activities which makes life very tough." (FGD3, women herders)

However, our FGDs and BIs also revealed a strong sense of complementarity as many activities were reportedly undertaken by household members together, i.e. men cut the hay, women and children make bundles, and men load them onto the truck; women milk, while men clean the dung; men work on the farm, while women cook at the back of the field; men go down into artisanal mines, while women stay up and wash the soil and cook for the men. Both women and men seemed to work hard, but women's time and work burdens tended to be greater than men's due to childcare and household chores. Women also tended to be the ones chasing after bank loans or land certification documents, which were very time-consuming and tedious tasks.

Even though men were regarded traditionally as the heads of their household, women seemed to have a strong role in household decision-making in Bornuur and most participants in our FGDs and

BIs agreed that it was either women who took decisions or the couple together, apart from decisions relating to slaughtering and selling of livestock, which tended to be taken just by men. While men took these kinds of major financial decisions relating to herding by themselves, all participants in our FGDs and BIs confirmed that women generally managed household funds. The reasoning given to us was that men usually herd the livestock so they have more decision-making powers over what to do with them, but they let women manage the cash income they bring into the household from slaughtering or selling livestock because women are perceived to know better than men what is needed for the children and for household maintenance and also to have better budgeting skills.

> "Men have a more symbolic role, like as security guards. They have to do all the hard work outdoors and only sometimes get rewarded at night!" (FGD1, local leaders)
>
> "Women work non-stop and move faster than men. We just try to do our chores fast so we can have some free time. Men have more free time to watch TV. We only watch TV while we are doing other things…There is less work in winter since animals have less milk…Children also work a lot…We feel proud of ourselves today for doing all this work [*i.e. the participatory exercises in the FGD*]. It shows we are no less than men." (FGD7, married female herders)
>
> "In the countryside, women are very strong but the men also work very hard…It is women who carry life. We lead more naturally and men just follow our decisions." (FGD14, non-married women living with their partners)

Women (especially married women) also tended to be the ones who attended bagh and soum khurals, and several bagh leaders and khural representatives were women at the time of our fieldwork in 2016, even though the most powerful political positions in Bornuur were occupied by men. Female household heads who had children, however, found it difficult to attend bagh and khural meetings due to time constraints and were thus often only later informed of important things happening in the soum, indicating a lower level of political participation by these women.

> "Women themselves have to look after their own land issues. It is friends who help women to speak up…We approach our bagh governors first about land matters. If they are not supportive then things don't go further." (BI1, widowed female miner)
>
> "The khural usually takes place when we are working so we can't participate. We are usually not informed about dates for the bagh khural. We are just informed about decisions taken at the khural meeting." (BI2, middle-aged widow in formal employment)

For the most part, both women and men who took part in our FGDs and BIs did not perceive there to be any obvious gender-based discrimination in Bornuur, but rather spoke about natural and complementary roles of the two sexes, with men engaging more in heavy work and women being more involved in housekeeping, as described above. However, it was clear that many problems for women arose in the case of the death of their spouse, as female household heads then had to take on both male and female roles and were often unable to cope with the heavier workload. This was particularly the case in herding and farming, which, as noted above, were perceived to be largely male activities requiring heavy labour. Female-headed households also seemed to have more difficulties in accessing land and were relatively more often involved in land disputes, as we discuss further below. Evidence from our BIs suggests that widowhood is a time when women become particularly vulnerable to poverty and land tenure insecurity, with several widows reporting that they had to sell agricultural land and/or livestock, as well as housing plots and winter camps.

"When my husband passed away, I had many problems. He had taken a lease for a car for MNT 4 million (USD 1,835), which I had to pay off. At the same time, my daughter also started university in Ulaanbaatar. That is why I sold all my livestock. I also sold my vegetable plot three years ago. I took up crop farming two years after my husband passed away, but everybody pushed me to sell my plot, since it was in a very good position in the irrigated area. I sold it to a man whose plot was nearby for MNT 1.5 million (USD 688)." (BI2, middle-aged widow in formal employment)

"My oldest son is an artisanal miner. He goes two or three times a month to the mountain, for two or three days each time. Sometimes he comes back empty-handed, but last time he got MNT 100,000 (USD 46). He gave me MNT 60,000 (USD 28) and spent the rest on alcohol." (BI8, middle-aged widow)

During our research in Bornuur numerous people also raised the issue of increased male alcoholism as a result of mining, which affected household budgets as men spent their money on alcohol. However, it was notable that the domestic and gender-based violence that is linked to mining and alcoholism in much other research on Mongolia was not openly discussed during any of our fieldwork in 2016. As a result, it is very difficult for us to assess the extent to which gender-based violence poses problems for gender relations in Bornuur today.

Mining companies and artisanal mining

Mining activities in Bornuur nowadays mostly take place in Bichigt, in Sujigt and Khargana mountains. At the time of our fieldwork in 2016, Khargana Mountain was used particularly by artisanal miners, who used the tailings from operations on mining company land and had no self-established mines in the soum. Participants in one of our FGDs explained that the best conditions for mining were in winter, when the soil was frozen; in summer and spring it was more dangerous because of the likelihood of floods.

After the closure of the former East German mining operation in Bornuur noted above, the high levels of gold deposits in Bornuur attracted other corporate investments, and at the time of our 2016 fieldwork there had been 18 mining licences issued, of which 12 were exploration licences and 6 were mining operation/production licences; no new licences had been issued since 2012 following endorsement of the Long Name Law. Two of the 18 licences were for molybdenum while all the rest were for gold. Table 9 below gives the approximate areas covered by these licences from the available data for the six production licences and for 11 of the 12 exploration licences; data on one exploration licence was unclear. According to this data, the total area licensed under both forms of mining licence was at least 23% of Bornuur's total territory.

Table 9. Smallest and largest areas (hectares) under individual mining licence, Bornuur

	Smallest area	Largest area	Average area	Total area
Exploration	42.22	8,469.72	2,173.64	23,910.04
Production	4	2,174.58	479.3	2,875.78
				26,785.82

Source: Official data from Bornuur Soum Government, as at 3 March 2015.

Four exploration licences for new (unmined) areas were held by Selenge Minerals, covering some 14,879 ha. This included the largest single holding of 8,497 ha in Nart Mountain, and three licences held in Kharaa-gol, Arangat and Sair Mountain. Exploration licences also included 2,786 ha held by Centerra Gold Mongolia in Undur Mountain. Of the six production licences held in Bornuur, Gun Bilegt and Zuun Mod Ull each controlled two, with the remaining two being held by Tunshan Shiandon and Centerra's Boroo Gold. However, only three of these six production licences were ever operational: Gun Bilegt in Khargana and Sujigt Mountains in Bichigt, and Centerra Gold's Boroo Gold Mine, located in Unjin Mountain in the forested area of Bichigt and where some 1,000 employees and contractors worked when it was fully operational. Gun Bilegt appears to have operated from 1998 to 2012, while the Boroo Gold Mine, which only started operating in 2003, continued to extract

gold from low-grade ore with cyanide until its operations fully ceased in 2016. Most participants in our FGDs and BIs said that they had never been invited to any meetings to discuss these companies' mining operations in Bornuur and they seemed to know little about them. Most people did not even know who the companies were, but complained that only foreigners (Chinese) or people from Ulaanbaatar had been hired by them.

> "The big mining companies should inform local people about their activities, but they have not done that. We would like to know the impact of these companies on the environment, pasture, livestock, our own health. Only the soum and aimag governments are informed. The companies just come to dig the gold and go." (FGD12, male miners)

It was unclear at the time of our fieldwork in 2016 whether these two mining companies would ever resume their operations in Bornuur and whether the other companies with licences would start new exploration or production activities. However, in both of the formerly operational mining sites, the companies had hired security guards to protect their property from artisanal miners, who nevertheless seemed to find ways to either sneak into these areas at night or bribe the guards to allow them to carry on mining. According to one participant in our fieldwork, approximately 30-40 artisanal miners were working illegally in both areas in November 2016, of whom just five or six were reportedly women.

Effects of mining

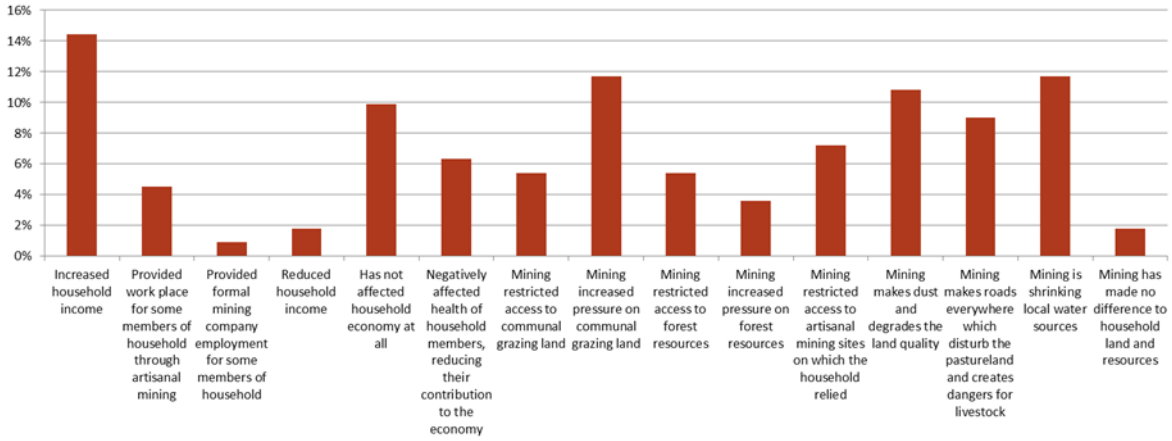
In our FGDs and BIs, many people claimed that mining investments had not brought any benefits or work opportunities to Bornuur, but instead had just reduced and polluted water in the rivers and destroyed the local environment. This was a particular worry for herder households, who depended on rivers to water their livestock and could only keep livestock if they had access to clean water. The only positive aspect of mining mentioned in our FGDs and BIs was that people could get cash income from artisanal mining. However, for many people the costs they paid in terms of their health and the risks incurred to engage in (illegal) artisanal mining outweighed the benefits.

> "We are not involved in artisanal mining…The big mining company has closed down, but artisanal mining is very dangerous since the mines can collapse anytime." (BI6, wealthy married male herder)
>
> "I don't think mining is bringing anything good to the local community. It probably affects people whose income depends on mining. Rivers were polluted and the environment is damaged. Mining companies don't inform local people before they start their operations…I don't know what mining brings to local life, maybe the government people know more about it." (BI4, elderly widow)
>
> "I see both positive and negative aspects of mining. The positive side is that people now have work to do and this is the only work that everybody can do. The disadvantage is that it is very risky and it negatively affects people's health…I was always afraid rocks would fall on me or the mine holes would close up, so I never stayed underground long. It means my health is okay, but most people have lung diseases…I think nowadays artisanal mining is not good anymore and there is not even much gold left in the soil, so people should try to find alternative jobs." (BI3, elderly married male herder)

During our baseline survey, 28% (31) of the randomly sampled households reported that mining had affected their household in the previous two years, ranging from 42% of the 33 randomly sampled households in Uguumur, to 12% of the 25 randomly sampled households in Nart. This compares to just 4% and 6% of randomly sampled households across Bornuur overall reporting that national parks and large-scale land acquisitions, respectively, had affected their household in the previous two years. As Figure 12 below shows, 14% (16) of the randomly sampled households in Bornuur reported that mining had increased their household income, while 2% (2) reported that mining had reduced their household income; 6% (7) reported that mining had negatively affected the health of household members. There were only a few differences in reported effects from households living in the different baghs. For example, 24% of the 33 randomly sampled households in Uguumur, and

19% of the 26 households in Mandal reported that mining had increased their household income, compared to none of the 27 households in Bichigt. There were greater differences, however, according to the gender of the respondent. Thirty-eight per cent of all female respondents (33 of 88) reported that mining had affected their household, compared to just 24% of all male respondents (13 of 54).

Figure 12. Reported effects of mining on randomly sampled households, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. N = 111.

As Figure 12 also shows, our baseline survey brought out specific worries about the impacts of mining on local natural resources, including that 'mining makes dust and degrades the land' (reported by 11% (12) of the randomly sampled households in Bornuur), that 'mining is shrinking local water sources' and 'increased pressure on communal grazing land' (both reported by 12% (13)), and that 'mining makes roads everywhere which disturb the pastureland and creates dangers for livestock' (reported by 9% (10)).

As discussed above, natural resource issues around mining are not restricted to Bornuur, and similar concerns about contamination of water sources and environmental degradation have been raised in places such as neighbouring Mandal soum in Selenge aimag, in relation to Centerra Gold's proposed Gatsuurt mining project, and in nearby Shariin Gol, in relation to operations by the mining company JSC (Cane et al 2015; UMMRL et al 2012). However, in interviews with Centerra Gold's staff, the company claimed that issues in Mandal soum had been much politicised and did not reflect reality on the ground (cf. Centerra Gold Mongolia no date). They also expressed pride in its environmental reclamation policies, as well as in the USD 250,000 per year paid to the local communities affected by its Boroo Gold Mine, which we visited during our fieldwork in 2016 and has now more or less completely closed down. Of the money paid out, USD 9,785 was reported to have been specifically allocated for environmental reclamation work that was due to continue through to 2020, employing local casual labourers in seeding, tree planting and watering. In compliance with international standards and the instructions of MRAM, there were no plans to fill in the big pit at Boroo Gold Mine, which covers about 92 ha, because it still contained gold; one idea the company was exploring with the soum government at the time of our fieldwork in 2016 was to use it for hydropower. Another option was to explore partnership agreements with artisanal mining groups that used environmentally friendly equipment and safe working practices, to prevent liability and destruction of the reclamation efforts by the 'ninjas' who were continuing to trespass on the site and mine illegally and were considered by the company to be a huge problem (see below). However we were told that the Ministry of Environment and the State Inspection Agency wanted the pit filled in, suggesting a lack of clarity on the national government policy. Further, if and when the Gatsuurt mining project goes ahead, gold ore will be transported for processing to the Boroo Gold Mine site, where it may create new local jobs (Centerra Gold Mongolia no date).

Legalisation of artisanal miners

While the mining boom in the 1990s helped to offset the high unemployment and poverty that resulted from the collapse of socialism, it also created multiple problems. The high numbers of people from both within and outside the soum that were engaged in artisanal mining, as well as the then unregulated and illegal nature of it, resulted in high levels of violence, prostitution and accidents, as well as environmental pollution and health effects from the unrestricted use of mercury. In 2007, an official central government inspection was carried out in Bornuur and 147 mercury-using mills were confiscated and discarded, promoting human safety and environmental health but destroying livelihoods for the thousands of people then depending on artisanal gold mining in the soum (SDC & Hugjliin Ezed NGO no date). This marked a turning point, prompting the miners to establish an NGO to protect their rights and legalise their work places (Ibid). In order to find solutions for these growing problems around artisanal gold mining in Bornuur, and to support the miners efforts at organisation, a multi-stakeholder meeting, facilitated by SDC Mongolia's SAM Project, was held in Bornuur in 2007, involving artisanal miners, the then soum governor, MRAM, Centerra Gold, and representatives of the soum and national citizen khurals. As a result of this meeting, and the broader efforts of the SDC project, and as discussed above, the Minerals Law of Mongolia was amended in 2009 with Resolution 308, which stipulates that artisanal miners can mine legally if they create an association and enter into a tripartite agreement with the soum government and a mining company.

According to participants in our FGDs and BIs, the first umbrella organisation of artisanal miners in Mongolia was established in Bornuur in 2008 through the SDC project. Each artisanal miner joined a nukhurlul (a small group of miners who pay an annual subscription to their group), who all together formed an umbrella artisanal miners' association that included more than 800 people. The artisanal miners' association then entered into a multi-stakeholder agreement with the Bornuur soum government, Centerra Gold and SDC, whereby Centerra Gold provided some land out of their licence areas in Bornuur to the artisanal miners' association. The soum government contributed MNT 120 million (USD 55,046) and SDC contributed MNT 220 million (USD 88,707) to establish an environmentally friendly gold processing unit – one that did not require the use of harmful chemicals. While SDC played a crucial role in helping to get the law amended to make artisanal mining legal and in providing money and equipment to the miners, the Mongolian national government developed new regulations for coordinating the artisanal miners and their partnerships into the 2010 legal framework for artisanal mining described above.

The artisanal miners' processing unit was set up on the ruins of the processing unit of the former East German mine. Several artisanal miners who took part in our FGDs and BIs claimed that the then leaders of the umbrella organisation took the money and set up the processing unit, which they registered as a private company (Khamo, an abbreviation of *khuviaraa ashigt maltmal olborlogchid*, which means 'private artisanal miners' in Mongolian), without consulting all the member nukhurluls. Khamo then made agreements with each nukhurlul concerning the panning, crushing and processing of the gold ore. The ore was usually panned two to three times, and the agreement was that the gold coming out in the first panning belonged to the individual miners in the nukhurlul and the gold coming out in the second and third panning belonged to Khamo; but with 30% of the profits from the second and third panning to be distributed among all nukhurlul members. Khamo also started to buy gold directly from individual artisanal miners at the minimum market rate.

While the use of harmful chemicals such as mercury has been reduced and artisanal mining has become more organised and less violent in Bornuur, many artisanal miners we spoke with still expressed worries about environmental issues created by Khamo, especially groundwater contamination and dust creation, and said that they felt cheated by Khamo, which they perceived to be making a huge profit from them and not distributing money in line with the agreements made with the nukhurluls. According to the Monitoring Director of the local miners' association, the tax

record of Khamo indicated that it had made a profit of over MNT 2 billion (USD 917,431), but only distributed MNT 60 million (USD 27,523) to its members in the nukhurluls in 2015. Although Khamo had temporarily stopped operating at the end of 2015, by the end of 2016 it had become operational again; participants in one of our FGDs likened it to a seasonally operating company as officials close down its operations so often.

> "I don't know which chemicals Khamo is using in the processing factory and whether they will affect us, but I think that the dust it makes will affect everybody…The bad side about Khamo is the environmental issues they created. In their area they made two or three deep groundwater wells, so now the river there is shrinking. Previously it went everywhere, but now it just stops there. If this stream goes away, herders will not survive, because there will be no more water for their livestock. They would have to use groundwater, but even this is hard to find, so wells have to always be made deeper and deeper." (BI3, elderly married male herder)
>
> "Mining is only beneficial for Khamo, but not for the artisanal miners or the citizens of the soum." (BI6, wealthy married male herder)

Back to illegality

As noted above, no big mining companies were operational in Bornuur during our fieldwork in 2016, and the proportion of gold in the soil was perceived to be reducing, making artisanal mining less profitable than it had been. Some participants in our FGDs and BIs said that the land that had been allocated to the artisanal miners' association from the Boroo Gold site under the multi-stakeholder agreement was sold to another company (Gun Bilegt) without the artisanal miners' knowledge or consent. We were told that even though the new mine owner was not yet operating in that area, it had put in place heavy security to try to prevent artisanal miners from entering onto that land (cf. SDC 2012). As a result, many people in Bornuur who had been mining in previous years had stopped, and those that continued were doing so illegally again. Meanwhile, Khamo was reported to be processing the 'illegal gold' provided by those miners that were continuing to mine, and despite their complaints about Khamo, artisanal miners thus depended very much on the company for their livelihoods.

> "We give our gold earth to Khamo for processing and they also buy our gold at the minimum market price. Khamo keeps telling us that the percentage of gold in the earth is less, but if Khamo stops operating, we have no life." (BI7, married middle-aged male miner)

While artisanal miners therefore seemed to be suffering (again) from their illegal status, which offers them no social protection – and despite the efforts of the SDC SAM Project to have brokered a long-term solution to this – from a company perspective (as highlighted in interviews with staff of Boroo Gold), entering into a tripartite agreement with artisanal miners and a soum government might not be very advisable, as the company might become liable for any accidents and/or environmental damage that occurred in the artisanal mining operations in its licensed area. Resolution 308 did anyway therefore seem not to be working in practice in Bornuur, because the tripartite agreement would only hold if the big company party to the agreement was actually operating. Further, without any operational big companies, artisanal miners could not even work legally with small tools under Resolution 308 on the tailings that company machinery was unable to get at.

> "The mining companies are creating thieves. If they would give us 10% if their land, we could go and mine there legally…Because we are on the land illegally, there is no protection for us." (FGD12, male miners)

What seemed clear as a result of our research was that whereas previously both men and women had engaged in artisanal mining, it was by then mostly unemployed young men doing it out of necessity, often going at night or bribing the security guards to get access to the mountain. Any cash

income also seemed more likely to be spent on alcohol, rather than to be put towards household expenses as was reported to have been the case when men and women engaged in artisanal mining together. Some women, particularly from female-headed households, also continued to mine illegally. When they were caught, police and rangers could confiscate their equipment; some female miners told us that the security guards also asked them to wash their clothes (cf. Cane et al. 2015).

> "A few years ago, all Bornuur citizens, men and women, were doing artisanal mining and people even came from other soums. Lately, it is mainly young men who do it. Young people are all unemployed, so they are doing it out of necessity. If they had jobs they would not do it…Both my sons went to Ulaanbaatar to work for a construction company but the company did not pay their salaries so they are both back in Bornuur doing mining again now." (FGD7, married female herders)
>
> "Lately it has become very hard for me to mine gold and my household income has been reducing. Before, women and men all used to do mining but now it is mainly men who are involved in mining. It is a very hard job and we never knew that the gold mountain was going to be sold and artisanal miners would not be allowed to enter anymore." (BI1, widowed female miner)
>
> "In earlier days, wives worked with their husbands and made money together and women had control over the money. Women would spend their income properly. Nowadays, only men are going to the mines and they make money but they spend it on alcohol." (FGD15, female household heads)
>
> "Men who are artisanal miners tend to become alcohol addicts. We call them 'walking dead'." (FGD5, women miners)

Apart from growing alcoholism among male miners, health problems were also reported to be more prevalent among both current and former miners, with some participants in our FGDs and BIs reporting that a recent recruiter had found no young men in Bornuur who were fit to join the Mongolian Army. According to the Monitoring Director of the local miners' association, 27 artisanal miners in Bornuur had died from lung cancer by the time of our 2016 fieldwork, and another 82 were in a very bad condition; none of them had access to company health insurance because they had been working illegally (cf. SDC 2012). The health situation for artisanal miners in Bornuur thus seemed not to have improved over the last seven years, since the SDC SAM Project baseline survey of artisanal miners took place in December 2009 (SDC & Hugjliin Ezed NGO no date).

Land scarcity, land concentration and environmental degradation

The overall picture to emerge from our fieldwork in 2016 in Bornuur was one of increasing land scarcity, land concentration and environmental degradation. Yet the necessity that unemployed young men felt to engage in artisanal mining was exacerbated by their difficulties in getting access to land for housing, farming and haymaking. We were told that there were no more housing plots available for allocation by the government in the soum centre and no more vegetable plots in the irrigated farm area, as all available land had already been allocated. However, a land market seemed to have been rapidly developing, so that people with money could now purchase or rent land for different purposes. For example, due to high demand for sites for tourist camps, of which there were already six in the 16,500 ha Local Protected Area in Nart (Dugana Khad area) at the time of our fieldwork in 2016, some people in Nart had sold their land to individual and corporate investors from Ulaanbaatar; 400 ha was also sold to investors in tourism through aimag and soum government auctions in accordance with the 2002 Land Law, with money raised at land auctions going into their local budgets. According to the Soum Land Officer, these auctions take place whenever someone wants more than 0.07 ha of land; the soum government can acquire any unused land and auction it off to the highest bidder, and this is when outsiders are able to come in and buy land in the soum.

> "The problem is that now ownership certificates can be sold to get extra money and the land market is growing rapidly. For example, 10 years ago, one household bought 100 ha, now they can sell some parts for vegetable plots, others for haymaking areas. So someone who has money can also buy land if their application does not work out." (FGD14, non-married women living with their partners)

Increasing land scarcity and the development of a land market have led to a rise in land certification. Property ownership titles and possession licences could be obtained for housing plots, as well as vegetable and fodder plots, but access to pasture continued to be regulated mainly through customary arrangements and haymaking areas had only recently been allocated to households on the soum's cadastre map without the issuance of possession licences or use contracts, as we discuss further below.

Formal land ownership was widely perceived by participants in our FGDs and BIs to be highly unequal, with a few rich individuals said to be holding (possessing or renting) very large tracts of land for tourism camps, mining sites, haymaking and farming – notably vegetable and fodder plantations in the pastureland in Nart, contributing to particular conflicts between farmers and herders there. Meanwhile, other, poorer people were unable to obtain any property titles, possession certificates or use contracts. In keeping with wider national concerns about corruption, there was also some unhappiness expressed in relation to the belief that poorer households were discriminated against.

As noted above, many more outsiders have come to Bornuur since Mongolia's transition to democracy and several participants in our FGDs and BIs now doubted whether soum citizens were given preference when applying for land, as they should be by law. Instead, the common perception was that it was outsiders who had been granted large areas of land in Bornuur. We heard much expression of resentment in particular towards wealthy outsiders and foreigners. Some had subsequently sold or rented out some parcels of their land; others were leaving parts of their land fallow but fencing the boundaries so as not to allow anybody else to enter. As elsewhere in other countries, this general increase in fencing which has accompanied the transition to a market economy is likely to be a result of people becoming increasingly aware of the (growing) monetary value of land. However, in some cases outsiders were using land that had been allocated to local people but which they were not using and had made private arrangements to lend or rent out instead. Soum government officials shared that when land certification started from 2003, many local people were too focused on artisanal mining as a source of cash income to see any significance in having land; it was only much later that they noticed outsiders using and benefiting from having land that more and more local people started to apply.

> "10 years ago, people were not so much worried about land, but now they are getting more worried and try to apply for certificates to get access to land. 10 years ago, there were many more open fields, which were used communally, but now people see land as property and want to get certificates. It is much more difficult to access pastureland since there are fences everywhere and people even fence their hayfields now. Even the forest user groups build fences, so accessing pasture is very difficult. Land is now seen as money and nobody wants to share." (FGD14, non-married women living with their partners)
>
> "Outsiders get land under the category of Special Use Land. This is land with rich natural resources, ecotourism, health spas, for research. Then they sell land or lease it to other people…Only outsiders who come from Ulaanbaatar buy local land and sell it to other people." (FGD13, married male herders)

Despite all these resentments, or perhaps because of them, we also detected a general lack of knowledge and information regarding the large landholdings of both foreigners and outsiders, with people claiming to often be surprised to find a new area had been fenced. This was reflected in our baseline survey, where 47% of all female respondents (41 of 88) and 50% of all male respondents (27 of 54) agreed to the following statement: "In your community, companies have been able to come in and take people's land without consulting ordinary people." Specific concerns were raised about one

land parcel that had been allocated to an iron ore smelter. Because its operations were highly toxic, many herders had demonstrated against it and it shut down. However, people were worried that the smelter might restart its operations.

Degradation of pastureland and water sources

Mining, increasing farming activities, as well as a general increase in the soum's livestock population that was exacerbated by outsiders coming to Bornuur with their animals, were all perceived to have contributed to the degradation of pastureland and water sources in Bornuur. People from other soums need to apply for a residence permit with the soum governor before they are allowed to use pastureland in the soum. However, according to participants in our FGDs and BIs, some herders from neighbouring Jargalant and Zuunkhara soums were using Bornuur's summer pastures without permission and without paying local taxes. The summer pastures were reported to be badly degraded, with people considering that carrying capacity had been exceeded. Water resources were also shrinking, creating a precarious situation for Bornuur's traditional herders but one that also reflected the wider national context discussed above (cf. Enkh-Amgalan 2007).

We were told that many of the immigrants from the western aimags came first without livestock, and then brought larger herds as soon as they received their residence permits, creating further resentments against outsiders within the local population. However, those migrants who still lived with their relatives, notably in Nart, had no secure rights to land, and feared that they could be chased away anytime, thus making them a very vulnerable group of people within Bornuur. They came to stay with relatives who had settled earlier in the soum, attracted by the companies that came to Bornuur to buy milk from local herders for the Ulaanbaatar market and hoping to get land for themselves, but they still lived with their relatives because land was so scarce and difficult to get.

> "People from western aimags do not just come and graze their animals and leave, but instead they come again every year with more livestock. They generally come to an area where their relatives came earlier and the next year another relative comes to that area as well. They all come here because it is only 100 km away from Ulaanbaatar and companies come here to buy milk. Most of them settle down in Nart and send their children to school in the soum centre." (FGD7, married female herders)

In addition to the degraded water quality due to mining, noted above, participants in our FGDs and BIs also complained about large landholders digging deep wells, which increased water scarcity in the soum, as well as about tourist camps creating a lot of litter and water pollution in the main river left in Bornuur, which was affecting water quality and was dangerous for livestock.

> "The most important resource for us is water and we only have one river left. Tourists usually come to the camps near the river. They go to the toilet there, leave lots of garbage and even wash their cars in the river, so there is a lot of pollution in the water. But we herders can only have livestock if we have access to water." (FGD12, male miners)

The overall extent to which people perceived their local environment to be degraded is indicated by our baseline survey data set out in Table 10 below. Eighty per cent of all female respondents (70 of 88) and 85% of all male respondents (46 of 54) reported that there were issues of environmental degradation around natural resources in Bornuur, with 63% (55) of all female respondents and 54% (29) of all male respondents concerned about water pollution too.

Table 10. Perceptions about the local environment by gender of respondent, Bornuur

	True (as percentage of respondents by gender)		False (as percentage of respondents by gender)		Don't know (as percentage of respondents by gender)	
	F	M	F	M	F	M
In your community there are issues around environmental degradation of natural resources.	80	85	15	9	6	6
In your community there are issues around water pollution.	63	54	32	43	6	4
In your community there are issues around access to water sources.	52	57	40	39	8	4
In your community there are issues around access to forest resources.	39	50	23	28	39	22

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 88 for female respondents. N = 54 for male respondents.

Forests

Rapid deforestation and degradation of the forested areas in Bornuur, due to a lot of uncontrolled and illegal logging, was identified as a further issue by many of the participants in our FGDs and BIs; in our baseline survey, 39% of all female respondents (34 of 88) and 50% of all male respondents (27 of 54) identified access to forest resources as a major issue in the soum. However, most people seemed to welcome the introduction of FUGs, which have partly offset these problems.

Map 4. Bornuur showing forest areas

Source: Bornuur soum government office.

FUGs have been formed to protect, use and rehabilitate forests since the Forest Law was amended in 2012, by entering into a contract with the soum governor to possess and protect the forest. By the

time of our 2016 fieldwork, 10 FUGs (with 214 members) had been established in Bornuur and 22,000 ha of the soum's 36,000 ha of forested areas were under their management, at locations in Nart and Bichigt baghs (indicated mostly in red in Map 4 above). Approximately 40% of members of these 10 FUGs were women; often both a husband and wife belonged to the same FUG, but most FUG leaders were men. All FUG members were supposed to be local citizens and 50% of members should live near the forest. However, this was not precisely defined in Bornuur and it seemed that many FUG members came from the soum centre, Uguumur, rather than living near the forest – even when soum centre residents were generally considered better-off than the more remote-living herders. We detected concerns from participants in our FGDs and BIs who were not involved in FUGs that information about the establishment of FUGs had not been shared widely enough, that FUG members often had good local connections which brought them tangible benefits, and that the benefits of FUG membership should be more widely distributed within the soum; a few concerns were also raised that illegal logging might not have completely stopped.

At the time of our 2016 fieldwork, any individuals (including FUG members) who wanted to collect timber from an area controlled by a FUG had to get a permit from the Soum Environmental Inspector. They had to pay MNT 9,000 (USD 4) per truckload for fuelwood and MNT 30,000 (USD 14) per truckload for timber for housing, but the price was reduced for FUG members. It was mainly men who collected fuelwood and timber, since it was considered to be heavy labour and the forests were sometimes far from people's homes. We were also told that female-headed households used to get a discount, but that this was not the case anymore. FUG members were supposed to check people's permission and make sure they did not engage in illegal logging

FUGs were also supposed to work to prevent bushfires and to clean the forest, for example by picking up fallen trees and branches; they also engaged in thinning the forest and replanting trees. Two groups in Bornuur had established bee-keeping in the forest and were selling the honey. Others organised activities such as berry-picking and jam-making for their members. We were told that FUG members generally saw potential to increase the profits that they could make from non-timber forest products, since they were not yet making much profit and instead were using their own money to protect the forest. Members of FUGs drew our particular attention to conflicts with herders, who they accused of letting their animals graze in the forest and eat small trees. As a result, some FUGs had already fenced their forest management areas and others were also hoping to put up fences. This, in turn, was resented by local herders, who would lose access to their pastures.

Land allocation processes

It seemed from our FGDs and BIs that there were some unresolved issues around formal land allocation processes in Bornuur. Many participants said that the process of applying for different types of registered land was very cumbersome and not transparent. People told us that they had to apply several times for their certificates, as their applications got lost in the system. There were stories of people being sent to see different officials, with each one adding a different form that they needed to fill out. As noted above, it seemed to be generally women who engaged in this very time-consuming application process, even though land certificates were often just issued in men's names. Most participants in our FGDs and BIs explained this state of affairs as being due to the perception of women as more patient and persistent, and therefore the ones who should engage in this complicated process, while their husbands should have their names put on the certificates because they were the family heads. However, in one of our women-only FGDs, the participants expressed the wish for men to participate more in such time-consuming tasks as chasing after land certificates and bank loans; one woman argued that applications were more successful when husbands joined their wives in dealing with them.

"Men easily give up when it comes to applying for land, but women are more persistent. When I applied for land in 2012 there were only women waiting in line. Men just quickly give up and say it's not working. Certificates are usually named in the husband's name. According to the Land Law, certificates should be named in the husband's name as household head, but this is not a problem since the land is for household use." (BI2, middle-aged widow in formal employment)

"I think that for women, it is better to visit the Land Office with their husband. I know one couple who applied for a vegetable plot and already got their land because husband and wife were visiting the office together." (BI8, middle-aged widow)

Most people seemed to have an adequate understanding of the relevant Mongolian laws, as shown in Table 11 below. For example, 83% of all female respondents (73 of 88) and 89% of all male respondents (48 of 54) in our baseline survey correctly knew that women were allowed to own land. Ninety per cent (79) of all female respondents and 94% (51) of all male respondents correctly knew that discrimination between men and women as regards land ownership was illegal. However, 51% (45) of all female respondents and 39% (21) of all male respondents believed, incorrectly, that having rights to the land also meant having the rights to the minerals under the land; a further 26% (47) of all 142 respondents did not know whether that was the case or not. Moreover, 38% (33) of all female respondents and 26% (14) of all male respondents thought that according to Mongolian law men's rights to land took precedence over women's rights. This could be linked to indications in the law that certain types of land were for 'household use', which, as noted above, participants in our FGDs and BIs generally equated with registering them in the name of the (male) household head. Relatedly, and as Table 11 also shows, only 33% (18) of all male respondents in our baseline survey and 27% (24) of all female respondents thought that women played a big role in decision-making about natural resources in Bornuur, while 52% (28) of all male respondents and 32% (28) of all female respondents thought that all people were involved and consulted in decisions about community land management.

Table 11. Perceptions about Mongolian land laws by gender of respondent, Bornuur

	True (as percentage of respondents by gender)		False (as percentage of respondents by gender)		Don't know (as percentage of respondents by gender)	
	F	M	F	M	F	M
In your country the law does not allow women to own land.	5	4	83	89	13	7
In your country the law says that men's rights to land take precedence over women's and that husband's rights to land take precedence over their wives'.	38	26	53	65	9	9
In your country it is illegal to discriminate between men and women as regards land ownership.	94	90	6	6	5	0
In your country, if you have the rights to the land, you also have the rights to the mineral resources on or under the land.	51	39	24	33	25	28
In your community all people are involved and consulted in decisions about community land management.	32	52	50	44	18	4
In your community women play a big role in decision-making about natural resources.	27	33	48	46	20	25

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 88 for female respondents. N = 54 for male respondents.

During our FGDs and BIs, while many people claimed that both poor people and newcomers to the soum (including poor newcomers) were discriminated against when it came to land applications, most did not perceive there to be any discrimination by gender with regard to the actual registration and certification of land. People told us that it was equally easy or difficult for women and men to get their name registered if they wanted it to be done, and that, in case of divorce or widowhood, it would be easy for a woman to change the name on the household land certificates to her own.

"The soum government doesn't interact with poor people. They don't treat poor people as human…All poor people are unable to get land, neither women nor men." (BI7, married middle-aged male miner)

"When my husband passed away we changed the name on the ownership certificate, so now our house is jointly in my and my son's names. The certificate for the housing plot is in my name alone…My father had also bought a 1 ha vegetable plot in the irrigated farms area. When he passed away, two other people claimed it and someone called me about it. I was already married by then and I went to court with those people and won my case because I was the closest relative to him." (BI2, middle-aged widow in formal employment)

"Household heads are named on land certificates, even women want their husband's name there. It is a tradition. A woman on her own can get a certificate in her name but it will just be difficult for her alone to arrange everything." (BI3, elderly married male herder)

However, in case of divorce (which, as noted above, was not very common in Bornuur), the issue would likely be settled in court. In that case, the person whose name was already on the land certificate (i.e. usually the husband, if only one name was recorded) might have an advantage in winning the case. However, several participants in our FGDs and BIs mentioned that they had never thought about divorce, and hence had never thought about what would happen to their household's land in case of divorce. They also did not know of any cases of divorce and what the court ruling had been, so were unsure what the outcome might be. Instead, it was generally agreed that the person who left the house might have difficulties getting access to a new housing plot, due to the general shortage of land for housing in the soum – and this has clear implications for people's options and bargaining power in situations of domestic violence that might itself contribute to divorce.

During our FGDs and BIs, women from female-headed households were more likely to identify gender-based discrimination as an issue in land allocation processes in the soum, as the process of applying for land seemed to be particularly burdensome for them. We were also told that female-headed households found it very difficult to get access to pastureland and haymaking areas, and that the rights of widows were often not respected because of the perception of herding as a traditionally male-led activity – as we discuss further below.

"Generally it is hard for women to get access to land." (BI1, widowed female miner)

"Female-headed households are often involved in land disputes. Even our neighbours take advantage by building fences on our khashaas." (FGD15, female household heads)

"Even if there is no specific discrimination for women-headed households, the process to get land is too complicated and slow. This affects everybody equally, no matter who applies for land." (BI9, elderly widow)

Housing plots

The increasing land concentration and land scarcity discussed above have led many people in Bornuur to start applying for formal certification of a 0.07 ha housing plot, in accordance with their rights under Mongolian law. According to the Soum Land Officer in November 2016, 47% of the adult population of the soum had received an ownership certificate for a housing plot, of whom 54.5% were women. However, as noted above, the findings from our FGDs and BIs suggested that households were more likely to title land in the man's name (as the household/family head). It appeared then that many households first titled the plot they lived on in the man's name, but in a second step also applied for a housing plot in the woman's name – as the law allows every individual Mongolian citizen to have their own plot. Some households put both the husband's and the wife's name on the initial housing plot certificate, but some participants in our FGDs and BIs claimed that this was a bad strategy, as it would prevent the wife from later getting her own separate housing plot in line with the law. On the other hand, participants in one FGD expressed a real fear that since there was no more land left to be allocated by the soum government in fulfilment of the law,

women were actually now losing out in terms of land ownership and certification, as they would be unable to get their own housing plot – or at least to be given a plot in the location they wanted. This meant that getting their names registered on a jointly titled household plot might be the only way to ensure their land tenure security in the longer term.

Seventy-seven per cent (86) of the randomly sampled households in our baseline survey reported that they owned one or more housing plots – anywhere in Mongolia, not necessarily just Bornuur. Sixty-nine households owned one housing plot and 17 households owned two, equating to 103 housing plots owned by all 111 randomly sampled households, as Table 12 shows.

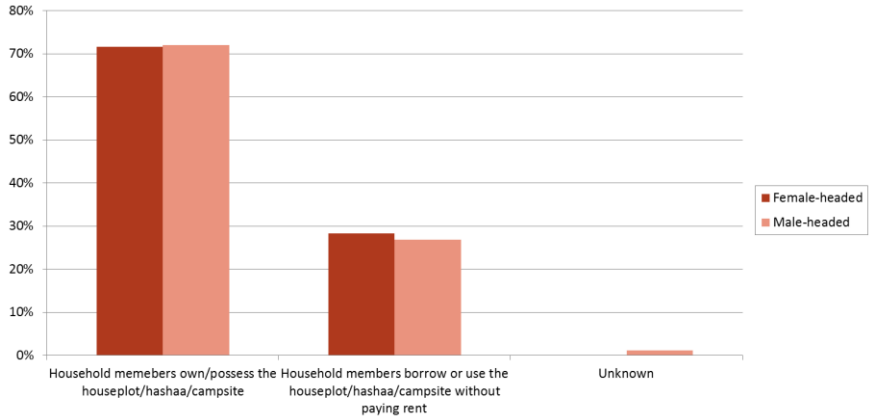
Table 12. Housing plot ownership/possession among randomly sampled households, Bornuur

	Number of households not owning a plot	Number of households with 1 plot	Number of households with 2 plots	Did not respond	Total number of plots owned by all 111 randomly sampled households
Number of households	24	69	17	1	103

Source: WOLTS Mongolia baseline survey, 2016. N = 111.

Sixty-nine per cent (77) of the randomly sampled households in our baseline survey reported that household members owned or possessed the household's main housing plot, khashaa or campsite in Bornuur, i.e. the place where the majority of household members usually lived, while 29% (32 households) reported that household members borrowed or used the main housing plot, khashaa or campsite without paying any rent. Two households did not respond. Ownership and possession was more common in Mandal, the newest settlement, and lowest in rural Nart. There was almost no difference by gender of household head, as Figure 13 shows.

Figure 13. Means of access to main housing plot by all surveyed households, Bornuur



WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

With respect to the main housing plot, khashaa or campsite of the 111 randomly sampled households in our baseline survey, 82% were reported to be solely owned (for 91 households) and 17% were reported to be jointly owned (for 19 households); one household did not respond. In some cases where households in our baseline survey reported sole ownership of the main housing plot where they lived, this was not in the name of either the female or the male household head, but in the name of employers, relatives or friends. In five male-headed households reporting sole ownership of the main housing plot, ownership was registered in the name of the wife. These results tally well with the findings from our FGDs and BIs, where we encountered many different living arrangements and much variety in land certification, and when households held several housing plots, these were often divided (under sole ownership) between husband and wife.

The highest proportion of joint ownership of households' main housing plots (i.e. of land documents recording more than one name for the owner) was seen in Uguumur, where 21% of randomly sampled households (7 of 33) reported that the housing plot they lived on was jointly owned. This

was also the bagh where the biggest gender differences were seen, with 35% of female-headed households in Uguumur occupying a jointly owned housing plot compared to 19% of male-headed households, as Table 13 below shows. We elicited two contributing factors to this distinctive situation in Uguumur. First, people in the soum centre appeared to be more informed about laws and regulations and less likely to make decisions based on traditional gendered norms and customs – thus joint certification of husband and wife might be more common. Second, our FGDs and BIs revealed that female-headed households often included the names of their children, particularly sons, on their land titles, and thus not all cases of joint ownership were between spouses. Although on the death of a spouse, land was usually inherited by the widow or widower, there were cases where, in line with the Mongolian Civil Code, it was inherited jointly by a widow and her children and titled as such, or sometimes even just titled in the names of the children.

Table 13. Ownership status of main housing plots occupied by all surveyed households, Bornuur

	Occupying a jointly owned housing plot		Occupying a solely owned housing plot	
	Percentage of all female-headed households in the bagh	Percentage of all male-headed households in the bagh	Percentage of all female-headed households in the bagh	Percentage of all male-headed households in the bagh
Bichigt	11	19	89	81
Mandal	10	18	90	82
Nart	13	9	88	91
Uguumur	35	19	65	81

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households as well as those randomly sampled. N = 19 for female-headed households in Bichigt. N = 16 for male-headed households in Bichigt. N = 10 for female-headed households in Mandal. N = 22 for male-headed households in Mandal. N = 8 for female-headed households in Nart. N = 22 for male-headed households in Nart. N = 23 for female-headed households in Uguumur. N = 21 for male-headed households in Uguumur. One male-headed household did not respond.

Eighty-three of the randomly sampled households in our baseline survey reported that they had documents for at least some of their land. In total, 177 documents were reported to be held by members of these households, as detailed in Table 14.

Table 14. Types of land documentation found among 111 randomly sampled households, Bornuur

Type of Document	Apartment	Hay field	House	Spring camp	Vegetable and farming plot	Vegetable plot	Winter camp	Total documents
Ownership certificate	-	-	73	-	-	-	-	73
Possession certificate	-	1	7	1	1	59	16	85
Purchased document	1	-	-	-	-	-	-	1
Rights document	-	1	-	-	-	-	-	1
Use certificate	-	6	-	-	-	-	-	6
Use right document	-	6	-	-	-	-	-	6
Use right permission	-	5	-	-	-	-	-	5
Total documents	1	19	80	1	1	59	16	177

Source: WOLTS Mongolia baseline survey, 2016.

The types of documents recorded in Table 14 were as told to us by respondents during the baseline survey. By far the most common were ownership certificates for housing plots and possession certificates for vegetable plots and winter camps. The table shows particular variety in the description given to documents for hay fields, which, as we discuss further below, were recorded in the soum's cadastre map but had not been formally certificated (being all located in the pastureland). The reported documents included items such as tax receipts and copies of records from the cadastre map; some were use contracts and others seemed to be possession certificates that should not have been issued by law. The variety depended on the year of issue and the official who had issued them, and some documents were no longer even valid.

Many participants in our FGDs and BIs complained about what they perceived as a lack of competition and the high cost involved in hiring the surveying company approved by the soum government to produce cadastral maps of their land, with fees reported to have risen rapidly from MNT 10,000 (USD 5) to MNT 40,000 (USD 18). Concerns were expressed that if another company were used, the resulting map would not be deemed valid, but that even with a valid cadastral map, the processing of ownership and possession titles could still be subject to delays. As noted above, the general perception was that insufficient importance was given to the needs of poor people and the processing of their applications was not carried out as quickly as it might have been. However, there were also many problems for local officials to resolve to ensure correct processing of applications, particularly in the soum centre where different households would sometimes claim the same piece of land with cadastral maps that overlapped. Furthermore, according to the Soum Land Officer, early attempts to organise cadastre mapping had not been profitable for the company involved, which had then left, so people had turned to a company that had not been authorised by the aimag; yet cadastre mapping must be approved and follow certain standards if it is to securely underpin land certification in a fair and uniform way.

> "We had this housing plot cadastre done and submitted our application for titling but our neighbour is also claiming this plot as his…We have tried to talk it over so many times and never succeeded. We have so many children and would like to get land for each one of them. We also applied for a vegetable plot and the bagh governor and land officer both said they don't have any to give to us…Our only wish now is to get a certificate for this housing plot as ours…All poor people in this soum are unable to get land." (BI7, married middle-aged male miner)

Vegetable and fodder plots

In total some 70% (78) of the randomly sampled households in our baseline survey reported that they had land for non-residential purposes in Bornuur, under either ownership, possession or use rights. Fifty-five per cent of this land was located in the bagh the household lived in while the remaining 45% was located in a different bagh within the soum. Thus, no-one in our baseline survey reported having any land for non-residential purposes anywhere else in Mongolia. In 95% of the households with non-residential land in Bornuur (74 of 78), the land had been obtained by application to the government; two households said that they had bought land, while the means of access was unknown in the case of two further households.

In addition to land for housing, local people in Bornuur were allowed to apply to the soum government to be allocated up to 5 ha of farmland for household purposes, to be held under a possession licence for 60 years (long-term lease), and up to 100 ha for commercial purposes, to be held under a use contract (short-term lease). At the time of our 2016 fieldwork the annual fee was MNT 1,000 (US cents 46) per ha in the rain-fed area and MNT 2,000 MNT (US cents 92) per ha in the irrigated farm area. Companies could get access to this land for commercial crop farming on a tender basis, whereas individual households could just apply.

As with housing plots, certificates for vegetable and fodder plots were usually issued in the (male) household head's name. Again, while most women and men did not identify this as a problem in our FGDs and BIs, since the cash income from the plots was seen to benefit the whole household, potential problems could arise for women's tenure security over this land upon divorce or widowhood, not least because commercial crop farming tended to be a male-led activity, as noted above.

Many participants in our FGDs and BIs felt that outsiders and companies held much larger tracts of land than individual local households were able to access, as they had greater resources with which to bid for land at government auctions, and that it was therefore difficult in practice for locals to get more than 2 ha for crop farming. Fifty-six of the 78 randomly sampled households in our baseline survey with non-residential land were those who reported that they were cultivating land – the

vegetable and fodder crop-farming households discussed further above; the remaining 22 households were not cultivating their non-agricultural land at the time of our baseline survey. The total area of non-residential land recorded among these 22 households was 214 ha – an area greater than the 182 ha cultivated by the 56 crop-farming households. According to local government regulations in line with the general provisions of the 2002 Land Law that land should be put to efficient and rational use, if a vegetable plot (held under possession licence for household use) is not used for two to three years, it should be reallocated by the soum government. Yet, as noted above, people told us that many large landholders leave parts of their land fallow or rent out their vegetable plots in the irrigated area, for which they charge up to MNT 150,000 (USD 69) per ha per year. We also detected many cases of smaller landholders with unused vegetable plots, some of whom lent them to relatives or rented them out to foreigners. Many poorer households, as well as people engaged in artisanal mining, were hoping to get access to their own vegetable plot, as they thought that this could improve their lives and provide a good source of cash income. However, most of the former collective irrigated area had already been allocated, as noted above, and the process to get a vegetable or fodder plot elsewhere in the soum was considered as equally time-consuming and difficult as for housing plots.

"This housing plot is my mother's and we don't have the certificate yet. Three years ago we applied to get the certificate and had cadastre mapping done but still we could not get it. Five out of my 13 siblings are not married and live with my mother still. None of them have any land and are all alcohol-addicted people aged between 27 and 40…My husband passed away in 2007 when he was 27 years old. He used to do artisanal mining. That day he was at the soum centre and got drunk and on the way back home he was frozen to death…I think my life will get better if I get a vegetable plot and plant vegetables on it. It would be nice to get an irrigated vegetable plot…In the last three years I have applied for a vegetable plot each year but had no success yet. When I ask the land officer about it, he says that I have to apply twice in a year. So I am planning to apply twice next year." (BI8, middle-aged widow)

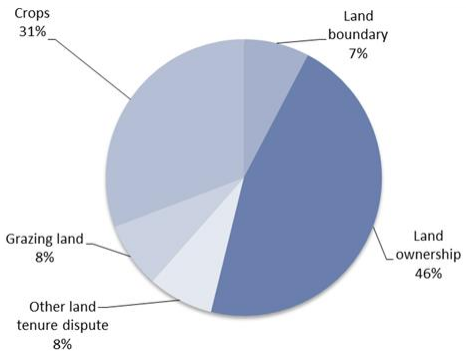
"Some people rent vegetable plots because there are none left to allocate. The rent fee for 1 ha for one summer season is MNT 250,000 (USD 115). No care is given to the vegetable plot that is leased. Those who are renting over-use chemicals in the soil and the soil structure of the vegetable plots is getting worse. There was a study that found the quality of the irrigated area is worse than the quality of the non-irrigated area. The amount of nitrogen in the soil was very high in the irrigated area." (FGD5, women miners)

"If you have a vegetable plot title you can sell or rent out your plot. Many people rent out their irrigated vegetable plots in Nogoo Tasag." (FGD8, young unmarried men)

Land disputes

Eighteen per cent of all female-headed households in our baseline survey (11 of 60) reported that their household had been involved in a land or property dispute in the previous 12 months, compared to only 11% of all male-headed households (9 of 82). In total, 13 out of the 111 randomly sampled households reported land disputes, with the range of dispute types illustrated in Figure 14.

Figure 14. Types of land disputes reported by randomly sampled households, Bornuur



Source: WOLTS baseline survey 2016. N = 13.

Typical land ownership disputes recorded in our baseline survey included delays in applications for housing plot certification; typical disputes about cropland centred on issues in the land allocation process for vegetable plots and hay fields. A handful of disputes had involved violence or physical fights, while some also involved mistakes in land allocation processes that had resulted in incorrect recording of land boundaries or household land ownership details in the soum cadastre map. Table 15 describes all reported disputes during our baseline survey in Bornuur, including from the random sample and the additional female-headed households.

Table 15. Land and property disputes between August 2015 and August 2016, Bornuur

Bagh	Type of dispute	Type of household	Resolution	Details of the dispute
Disputes recorded in the baseline survey in the randomly-sampled households				
Bichigt	Land ownership	MHH	No	The Land Office was not careful so the household's address was incorrectly recorded. They are trying to resolve this.
Nart	Land ownership	MHH	No	The household applied for a summer campsite but the Aimag Land Office refused. Reasons given included that it was election time.
Uguumur	Land ownership	MHH	No	The household has applied twice since 2014 to get an ownership certificate for the housing plot and has not yet received it.
Uguumur	Land ownership	FHH	No	When the household tried to get a certificate from the Aimag Land Office for a housing plot, they sent them back saying the Soum resolution is wrong.
Uguumur	Land ownership	FHH	No	No response from Land Office to request/application letter for a housing plot.
Uguumur	Land ownership	MHH	No	No response from Land Office to request/application letter for a housing plot.
Bichigt	Crops	MHH	No	Applied to get a certificate for a haymaking field and still pending.
Bichigt	Crops	MHH	No	There was a physical fight over this dispute over a haymaking field.
Uguumur	Crops	FHH	No	Since 2008, the household has been applying for a vegetable plot and has never got one. This year they applied again and no change still. The household thinks it is due to bureaucracy.
Uguumur	Crops	MHH	No	Applied for an irrigated vegetable plot and cannot get one.
Bichigt	Land boundary	MHH	No	The addressing and labelling was not done correctly on the cadastre map at the Land Office, so certificate issuing is not possible.
Bichigt	Grazing land	MHH	No	Aimag authority rejected herders' complaint.
Bichigt	Other	FHH	Yes	The household have applied for a vegetable plot under the female head's brother's name and the Land Office gave a notice that they would not give permission. Instead the Land Office gave the land they had requested to another individual.
Disputes recorded in the baseline survey in the additional female-headed households				
Bichigt	Land ownership	FHH	No	No response from Land Office to request/application letter for a housing plot.
Nart	Land ownership	FHH	No	The household submitted a land title application to the Land Office in 2000 and since have submitted the request and complaint letter multiple times.
Uguumur	Land ownership	FHH	No	The Land Office has been making the household head run around for one year with the single reason that some materials are missing. The certificate is not yet issued.
Bichigt	Crops	FHH	No	Due to incorrect cadastre mapping, X company is planting vegetables on this household's land. They have permission from the Land Office, so it is hard to have a dispute with the company and resolve it.
Mandal	Crops	FHH	No	No response from Land Office to request/application letter for a housing plot.
Nart	Water resources	FHH	Yes	No details given.
Nart	Other	FHH	No	Was beaten up and informed the police; no resolution yet.

Source: WOLTS Baseline survey 2016. N = 142.

In our FGDs and BIs, the allocation of large areas of pastureland for vegetable farms and fodder plantations also emerged as a cause of many conflicts between herders and farmers, as livestock trespassed onto the allocated land. This can be seen clearly in Table 16 below, whereby 70% of all female respondents (62 of 88) and 76% of all male respondents (41 of 54) felt that disputes between crop farmers and herders were a problem in their community, and a much greater problem than disputes with either miners or investors. Table 16 also provides our data on people's confidence in the local justice system to resolve land and natural resource disputes, with almost half of all male and female respondents agreeing that it was not easy to get a just resolution.

Table 16. Perceptions about local natural resource disputes by gender of respondent, Bornuur

	True (as percentage of respondents by gender)		False (as percentage of respondents by gender)		Don't know (as percentage of respondents by gender)	
	F	M	F	M	F	M
In your community disputes between miners and community members are not a problem.	24	39	44	43	32	19
In your community disputes between investors and community members are not a problem.	24	44	32	28	44	28
In your community disputes between crop farmers and herders are not a problem.	19	20	70	76	10	4
In your community it is not easy to get a just resolution to your land and natural resource disputes.	49	48	24	37	27	15

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households as well as those randomly sampled. N = 88 for female respondents. N = 54 for male respondents.

> "For housing plot disputes and cadastre map overlaps, whoever has more power will win the dispute…No-one cares if you complain. It's just a waste of time and money. If you are poor and receive your salary or pension from the government, then it's better not even to complain." (FGD14, non-married women living with their partners)

Pastureland management

As noted above, only 33% of randomly sampled households in our baseline survey reported herding as their top source of cash income in the 12 months prior to the survey. Twenty per cent of all female-headed households and 38% of all male-headed households identified herding as their top source of cash income, reflecting a clear gender difference. However, 92% of all female respondents (81 of 88) and 98% of all male respondents (53 of 54) in our baseline survey agreed with the statement that: "The majority of people in this community depend on herding livestock for their survival", as Table 17 below shows. This can partly be explained by the fact that most households seemed to own at least some livestock, as we saw above, even if it was not their main source of cash income – or indeed providing any cash income – and because herding still seemed to provide a very strong sense of cultural identity for many people in the soum. The loss of pastureland was therefore a major worry, with 64% of all female respondents (56 of 88) and 80% of all male respondents in our baseline survey (43 of 54) agreeing with the statement: "In your community there are issues around access to grazing lands", as Table 17 also shows.

Table 17. Perceptions about pastoralism by gender of respondent, Bornuur

	True (as percentage of respondents by gender)		False (as percentage of respondents by gender)		Don't know (as percentage of respondents by gender)	
	M	F	M	F	M	F
The majority of people in this community depend on herding livestock for their survival.	98	92	2	7	0	1
In your community there are issues around access to grazing lands.	80	64	19	15	2	22

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households as well as those randomly sampled. N = 88 for female respondents. N = 54 for male respondents.

Access to winter and summer camps and grazing areas

According to the Soum Land Officer, there were 69,000 ha of pastureland available in Bornuur where winter and summer camps could be set up. 260 households had a possession certificate for their winter camps at the time of our 2016 fieldwork, covering the campsite and immediately adjacent pastures, and usually registered in the name of the (male) household head. The application procedure was similar to that for housing plots, with a cadastral map first needing to be drawn up at the herders' own expense.

However, participants in our FGDs and BIs claimed that in practice it was very difficult to acquire new winter camps, as there were no more unallocated areas available, leading to many young married couples having to stay in their parents' winter camps. It also appeared that while most older people had winter campsites that were recorded in the soum cadastre map, many did not actually have a possession certificate. This was seen as problematic because without formal documentation of their rights, their winter camps could be officially re-allocated to someone else.

> "Most of us have winter camps but no certificates. We have to run after our certificates for so many years. People with money and power just come to the soum and plant large fodder plantations, taking up the pasture area." (FGD4, male herders)
>
> "The local herders have a problem because they often do not have property or possession titles to their land. They just have the cadastre map with their name and think that this is enough to protect their rights. But a cadastre map means nothing, since any project can just be done on their land…Two years ago some people came from Ulaanbaatar to do measurements for a big new road linking China and Russia, they called it the Silk Road. They told me the road will go right through our khashaa but I phoned the citizen advice line and they said if we have a possession title then no harm will be done to our land." (BI6, wealthy married female herder)

At the time of our fieldwork in 2016, people needed to vacate winter pastures on May 1 each year and move to summer pastures until October 15, by edict of the soum government. Although in former years, herders had also moved to spring camps, the main movements now were between summer and winter camps only, and the distances covered were reported to be relatively small compared to the past. Participants in our FGDs and BIs mentioned that the furthest they might now move between winter and summer camps was 40 km, more exceptionally, while the closest distance, more commonly, was just 5 km (or less). Transport was also no longer provided by the soum government to help people move, as had been the case in socialist times. Summer camps were not recorded on the soum cadastre map and there were no possession certificates issued for them at all. Instead, we were told that most people set up their summer camp in the same place each year, so that they had a customary use right in that area. Neighbouring households usually shared pastureland, with any newcomers needing to negotiate with those already there in order to set up a new summer camp.

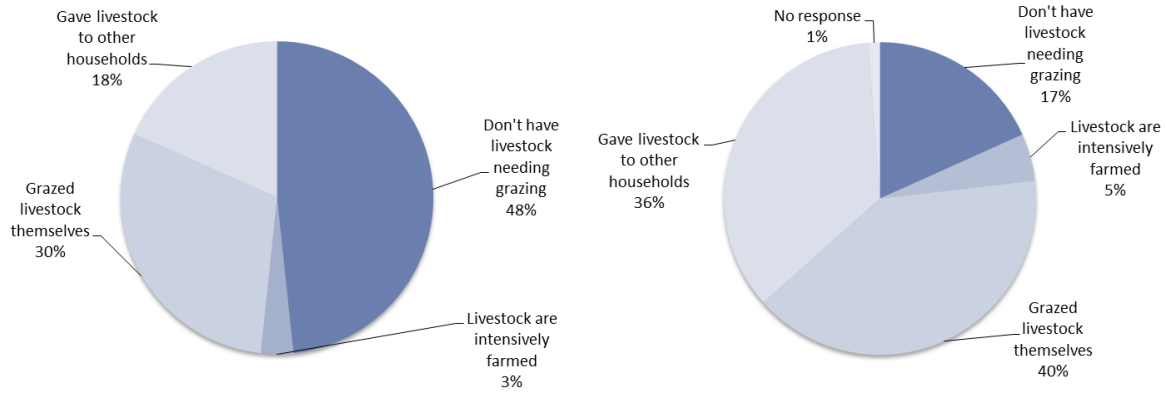
> "Our pasture is more than 10 km away. We stay in a summer camp near the tourist camps in Nart but we do not have our own campsite there so we have to use someone else's campsite to put up our ger and that can cause disputes. People from the same bagh usually use the same summer camps and the same pasture. They just accept each other. But overgrazing in the summer creates problems for people who come in winter. Even in summer, pasture is degraded. If someone from another bagh comes to someone else's summer camp they chase them away." (BI5, married female herder)

We were also told that many herders no longer moved the animals to pasture themselves, but instead some hired paid assistants to do this, for MNT 1,000 (US cents 46) per animal per month; more often they left some of their livestock with relatives to be grazed in either Bornuur or other soums. Generally, the herders who did not move with their livestock were those who had the fewest animals, as it was more cost-effective for them not to move and instead make arrangements to give their few livestock to relatives or friends; sometimes this would involve cash payments, but more often it would be for reciprocal favours such as letting them keep any young born to their animals, or letting a relative's child stay with them in the soum centre to go to school.

> "We pay my brother to look after our goats and sheep in western Mongolia. We pay him MNT 100,000 (USD 46) and a share from the cashmere sales. We also gave him a few animals." (BI5, married female herder)
>
> "We usually send our goats and sheep away with someone in summer, or sometimes relatives come to stay with us and help. We pay them one sheep or MNT 1,000 (US cents 46) per month, that is the going rate." (FGD7, married female herders)

These trends were reflected in our baseline survey data set out in Figure 15 below, which shows that 18% of all female-headed households (11 of 60) reported for their main mode of grazing that they gave livestock to other households, as did 36% of all male-headed households (30 of 82).

Figure 15. Grazing patterns in female- (left) and male- (right) headed households, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 60 for female-headed households. N = 82 for male-headed households.

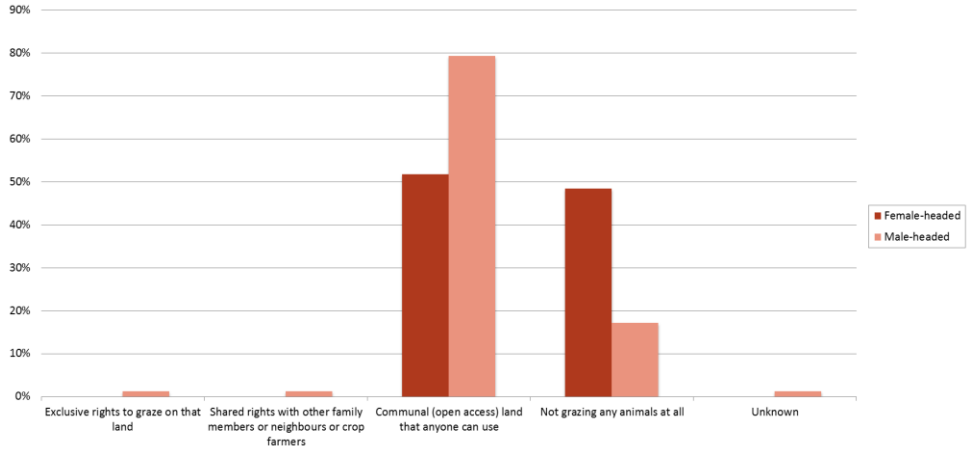
The low level of reported intensive livestock farming (zero-grazing) indicated in Figure 15 also tallies with what we were told, i.e. that intensive livestock farming, although promoted by government policy, was still very small-scale compared to traditional herding; semi-intensive livestock farming, however, appeared to be more common. Increasing sedentarisation and reduced mobility of herders in Bornuur was thus a definite issue that emerged during our 2016 fieldwork, linked to both the adoption of semi-intensive livestock farming practices and the 'farming-out' of animals to other households for grazing just noted above. It was also linked to changing family arrangements and livelihoods. The diversity in household livelihoods we saw earlier, including with formal employment, crop farming and mining, militated against seasonal household movement, even for herders. At the same time, in order to facilitate children's education, it seemed that many Bornuur herders – or at

least members of herding households – lived in houses in the soum centre throughout the school year and only moved to their summer camp during school holidays. Thus we saw above that 33% of all randomly sampled households had at least one member not living permanently in their household's main residence – i.e., one third of all the randomly sampled households in our survey in Bornuur were living as split families, which we discuss in more detail with our Dalanjargalan findings below. On the other hand, semi-intensive and intensive livestock farmers in Bornuur tended to stay in their winter camps the whole year round, keeping their livestock within their khashaa and feeding them fodder and hay. We observed that some of these livestock farmers had very well developed farmhouses, including milking units within their khashaa.

> "We own 80 cows and 40 to 50 sheep. In summer we go to pasture, but in winter we give them fodder. The summer camp is quite far, but we have workers who help us. However, it is quite problematic, because we have very high quality cows. We use artificial breeding for 22 cows so when they go to pasture they can mix with other cows. Currently, we are doing semi-intensive farming, but from next year we want to stop going to pasture to keep the good quality of our livestock. We have three different plots for fodder plantations under possession title – 10 ha, 14 ha and 25 ha." (BI6, wealthy married female herder)

Seventy-three per cent (81) of the randomly sampled households in our baseline survey reported their primary means of access to grazing land as through communal (open access) land that anyone could use. However, there was also one household using a crop farmer's land for grazing their animals, thus with shared private rights, and one household using their own land around their housing plot for grazing, with exclusive private rights. Twenty-four per cent (27) of the randomly sampled households reported that they were not grazing (and did not have) any animals at all. As can be seen clearly in Figure 16 below, 48% (29) of all 60 female-headed households in our baseline survey were not grazing any animals at all, compared to just 17% of all 82 male-headed households. This again underscores the strong gender difference with respect to herding, with proportionately fewer female-headed than male-headed herder households in Bornuur.

Figure 16. Main means of access to grazing land by all surveyed households, Bornuur



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households as well as those randomly selected. N = 60 for female-headed households. N = 82 for male-headed households.

Haymaking areas

Hay is of crucial importance to herders in order to feed their animals in winter. Participants in our FGDs and BIs reported that haymaking and pasture areas used to be the same and that anybody who wanted to use pastureland to make hay could do so, but that increases in both human and livestock populations, as well as the perceived degradation of pasture, put pressures on the soum's haymaking areas that have led to the increased privatisation of hay fields in Bornuur. We were told that Bornuur herders' livestock were counted in 2009 and a soum governor's resolution was issued

with regard to how many hectares of hay fields should be allocated to each herder household; more than 80% of Bornuur's herder households received haymaking areas for which they then had to pay MNT 800 (US cents 37) per ha to the soum. No certificates were issued for these haymaking areas – as the law does not allow land certification of pastureland – but, according to the Soum Land Officer, if those allocated the land did cadastre mapping then their area was formally recorded in the soum's cadastre map, giving them a 'soft' right to the land. By the time of our fieldwork in 2016, some families were unable to manage with their allocated areas as their herd sizes had increased in the meantime. Moreover, the quality of grass in the haymaking areas was perceived to be decreasing as well, due to perceived pastureland degradation. We also heard complaints from people who had moved to the soum since 2009, and had therefore missed out on being allocated a hay field, that the original (2009) allocation had not been fair, and that some well-connected individuals had obtained larger hay fields and were selling their hay to poorer, local herders. Newcomers and young people were also reported to be unable to obtain any hay fields and therefore had to buy in hay, often from people in other soums.

Despite the soum government's efforts to resolve conflicts over haymaking areas through the 2009 allocation of designated areas to different Bornuur herder households, we heard reports of continuing disputes and even physical fights. Solutions to these problems were usually negotiated between individual families, and one of our FGDs revealed that female-headed households who had no male support were particularly likely to lose their hay fields, as their female household heads were often not taken seriously in discussions with male herders. The fact that many haymaking areas were not fenced also created problems: some people said that other families could lay claim to their hay fields or even set up their winter camps in haymaking areas, and theft of fresh hay was a further concern. Others said that shamanists from other soums came to the main haymaking area in Bichigt forest to carry out rituals, leaving local people too scared to use their hay fields. Participants in one of our FGDs also revealed that disputes have taken place from time to time in the hay making areas in the southern part of Bornuur soum with herders from neighbouring Batsumber soum. Due to all these various issues, it seemed that some people in Bornuur were starting to fence their hay fields in order to prevent outsiders from entering them – putting yet more pressure on the remaining common pastureland in the soum, particularly if people fenced a larger area than they had been allocated, as seemed sometimes also to be the case.

"Hayfields and pasture used to be the same thing. If somebody wanted to use pastureland to make hay, it was up to him, but now people want to privatise hayfields as well. Every type of land now needs a property title or certificate. I don't think that development is good…privatisation of everything is not good…I have 200 sheep and goats and five cows. I am too old to have many animals and I do not move because there is no chance to move. All land is developed and huge fields belong to someone. In 2008 I received 3 ha as a haymaking area. Back then I had 70 sheep and goats, now I have 200, so there is never enough hay. Every year I have to buy a lot of extra hay. I would like to have a larger field, but there is no place left…Getting access to housing and vegetable plots is easy for women. But for pastureland and hay fields it is easier for men because they are in charge of herding." (BI3, elderly married male herder)

"Sometimes people who come early prepare hay from someone else's area. So some households hire someone to look after their hay field for the summer. They pay MNT 200,000 (USD 92) for one year for the family guard. Some years are better and some years are worse. Disputes are resolved just by talking to neighbours, sometimes it goes well and other times there is a big fight." (FGD5, women miners)

"Local herders with 1,000 livestock can get a haymaking area of 20-50 ha. But the allocation of haymaking areas is not fair. Citizens of Ulaanbaatar have the rights for so many hectares of haymaking land in our soum and they sell their prepared hay to local people. But this could be because of local people who have rights to land for haymaking and lease their hay fields instead of using them themselves…Our soum doesn't have a designated otor area so we herders only have the option to feed our livestock with fodder. We don't have land to plant fodder so we have to buy it if there is not enough pasture in the summer. Then in winter we have to buy hay." (FGD9, male herders)

Difficulties faced by female-headed herder households

As discussed above, the fact that traditional herding was perceived as a male activity tended to make it difficult for widowed, divorced, separated or single women to continue herding on their own. While women were in charge of milking the animals and making milk products, these tasks took place within the confines of the khashaa, whereas the actual herding (i.e. taking the animals to pasture), as well as slaughtering animals and making hay for winter, were all outdoor tasks done by men. Winter camp maintenance was also seen as a man's job – with herding in winter generally much more difficult as all the outside work was done in extreme sub-zero temperatures (up to minus 35°C).

Because of this, access to pasture and haymaking areas was generally discussed and agreed upon by men, and disputes over pasture resolved between them, and female-headed households reported that they found it difficult to negotiate in this male-dominated environment. During our FGDs and BIs, a few women mentioned that the rights of single women to pasture and haymaking areas were often not respected, which is in line with findings from other research on gender equality in Mongolia – the perception of herding as a male activity creating the difficulty for female household heads that, even if they wanted to continue herding, they would not be taken as seriously as male herders in disputes over access to pasture. On top of the difficulties around access to land, most of the female household heads we interviewed in our fieldwork in 2016 also mentioned that they could not cope with the heavy workload involved in herding animals alone and had therefore ended up selling all their animals, and often their farmland too – for reasons both of time constraints and financial difficulties.

Compared to the situation with regards to formal registration and certification of housing plots and crop farms, where participants in our FGDs and BIs did not perceive there to be significant gender discrimination, we therefore found that women did face real discrimination with regards to access to land for pasture and summer camps, for which formal certification was not available. Instead, pastureland, summer camps and haymaking areas in Bornuur remained under longstanding tenure practices and arrangements that were largely still under the control of male herders.

> "In 2005, my husband passed away. That time we had a winter camp and in 2010 I got the winter camp certificate in my name. As I was left alone, it was hard for me to carry on herding and I was not even able to make hay. I sold my hayfield and winter camp for MNT 8 million (USD 3,670). I spent most of that money on my children's housing. Then I spent the rest to help my youngest daughter become a shaman. When my husband passed away we had over 1,000 livestock and my husband was a soum champion herder. My children went to the city to live and I was not so healthy to herd livestock. Year by year, I reduced the number of my livestock…I do not possess any land and currently live in a friend's khashaa. I have applied for a housing plot but my legs are not so well and I am unable to run after my application." (BI4, elderly widow)

All these various factors combined to make herding more difficult for female-headed households. It seemed from our 2016 fieldwork that they could carry on as herding households only if they had brothers or other male relatives close by who would help them. This also helps to explain our observations, in line with other research from across Mongolia, that some herder households send their daughters to school in the soum centre while keeping their sons at home to take up herding. This contributes to the gender disparities in education noted above and creates subsequent difficulties for male herders in finding wives. The social implications of these trends have yet to become fully clear; however, what did seem clear was that improvements in access to grazing land for women herders and female-headed households who want to continue to herd must be part of any efforts to support gender equality and balance this situation for the better.

Conclusions from Bornuur

Our 2016 fieldwork in Bornuur revealed many conflicts over land and natural resources in the soum, including a general increase in conflicts over different land uses since the former socialist times. These conflicts arose from the interplay of different changes taking place in the soum. Immigration into Bornuur was perceived to have contributed to land pressures, including land scarcity, land concentration, the development of a land market in non-residential land, and environmental degradation. The rapid socio-economic and environmental changes taking place in Bornuur against the backdrop of these pressures seemed to have had a bigger and more negative effect on poorer and more vulnerable people, including female-headed households and the young and unemployed, as they faced the most difficulties in accessing land and participating in local land management.

While mining has created new opportunities for people in the soum since the 1990s, artisanal mining remains tarnished by illegality and problems around health and alcoholism. At the same time, the interactions between local citizens and large mining companies have been very poor, with local people often seeming to be uninformed about companies' operations in the soum. Mining activities and the growing tourism industry in Bornuur have also had negative effects on water quality and quantity, which was a particular worry for herders. While for some herders life has improved in the last decades as they have been able to establish permanent houses and become semi-intensive or intensive livestock and crop farmers, for the majority relying on traditional nomadic pastoralism life overall has become more difficult. The increasing privatisation of different types of land has led to fences springing up all over the soum's pastureland, challenging longstanding patterns of communal and shared use, and the remaining pastureland was perceived to have become heavily degraded at the same time as human and livestock populations have increased. All of these developments, as well as the pull of urban life, have caused young people to become disillusioned with herding and seek employment in the capital city, leaving older adults behind in the countryside.

Both internal and external threats thus appear to combine to make herders' livelihoods very precarious in Bornuur today. On one hand, government policy did not seem to promote pastoralist lifestyles, preferring intensive livestock and crop farming instead, and large tracts of land in Bornuur appeared to have been allocated for farming, tourism and mining investments. On the other hand, the perception was that these largely outsider-driven investments have negatively affected the quality and quantity of pastureland, water and forest resources in the soum, as well as the health of the local population.

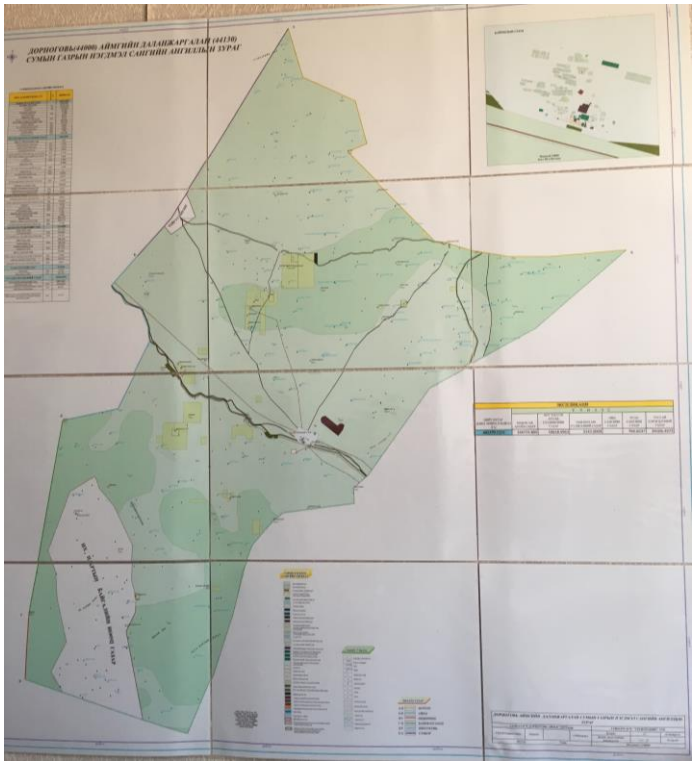
While in a well-functioning herder household women's and men's roles were seen to complement each other and women seemed to hold relatively important powers over household decision-making and finances, we found several cases of women in Bornuur descending into tenure insecurity and poverty on widowhood. Although divorce was uncommon, it might also pose problems for women, given the prevalence of land certification in the sole name of the (male) household head. Both women and men did not perceive there to be any discrimination by gender with regard to formal land allocation processes, only by wealth/poverty, and many women reported owning housing plots (and, to a lesser extent, small vegetable plots). However, access to pastureland was still traditionally negotiated by men and female-headed households often struggled to maintain their access rights to pastures, summer camps and hay fields, and often lost out in disputes with other households; the rights of widows to these types of land were notably not well-respected. Furthermore, female-headed households were unable to shoulder the heavy workload and/or were unwilling to take on 'male' tasks in the presence of strong social norms that positioned herding as an activity for traditional male-headed family units. All these difficulties for female-headed households were exacerbated in the current context of high male mortality and morbidity as a result of mining, as well as the increasing overall land scarcity, concentration and degradation.

Dalanjargalan Soum

Location and population

Dalanjargalan soum is located in Dornogovi aimag, in the Gobi Desert, 288 km south-southeast of Ulaanbaatar. Its total land area is 404,590 ha, which is mainly desert-steppe pastureland. As at 6 April 2016, 90 mining licences had been granted in the soum – 42 for production and 48 for exploration. Dalanjargalan's main mineral resources are coal, fluorspar, construction materials and iron, along with semi-precious stones (chalcedony). Dalanjargalan soum consists of five baghs, two of them physically smaller and more urbanised (Tsomog and Olon-Ovoo) and three much larger and more rural (Eldev, Ungut and Bichigt).

Map 5. Dalanjargalan



Source: Dalanjargalan soum office.

The total population of the soum as at 28 July 2016 was 2,641 people living in 916 households. This was the population of officially registered soum citizens only, i.e. households based permanently in Dalanjargalan. It excluded mining workers living in dormitories at various mining company sites in the soum whose numbers fluctuated according to the operational level of the different companies at any given time. It also excluded an unknown number of unregistered temporary migrants in some areas, including illegal artisanal miners in Bichigt and Olon-Ovoo (for fluorspar) and Ungut (for semi-precious stones), as well as herders on otor migration from neighbouring soums.

The distribution of officially registered households across Dalanjargalan's five baghs is given in Table 18 below. Average population density for the soum as a whole was 0.007 people per ha, substantially lower than the 0.04 people per ha in Bornuur. It was not possible to calculate the individual population densities of each bagh due to lack of data on their areas.

Table 18. Number of households in each bagh, Dalanjargalan

Bagh	Number of households
Bichigt	145
Tsomog	231
Olon-Ovoo	234
Ungut	176
Eldev	130
Total in Dalanjargalan	916

Source: Official data from Dalanjargalan Soum Government, as at 28 July 2016.

The most frequent number of households per khot ail among those interviewed during our baseline survey was one (in the case of 30 out of 74 randomly sampled households), and we found some households living in winter camps as far as 20 km apart from their nearest neighbour, but two households in the two more urbanised baghs, one in Olon-Ovoo and one in Tsomog, were in a khot ail (a gudamj – street) of 20 households each.

A total of 36 female-headed households were included in our baseline survey, of which 17 fell within the 74 randomly sampled households, equivalent to 23% of the random sample. Extrapolating to the soum as a whole suggests that some 211 households in Dalanjargalan were female-headed at the time of our survey. The average size of the randomly sampled households in Dalanjargalan was 3.68 people. The average size of all 36 female-headed households was 3.75; the average size of all 57 male-headed households was 3.63. There were a total of 267 people (127 females and 140 males) living in the randomly sampled households, with their age breakdown as summarised in Table 19.

Table 19. Age distribution of people living in 74 randomly sampled Dalanjargalan households

Age (in years)	Number of people	Percentage of total people in each age group
5 or under	32	12%
6 to 12	34	13%
13 to 18	30	11%
18-24	27	10%
25-34	29	11%
35-44	47	18%
45-54	24	9%
55-64	23	9%
65-74	17	6%
75 and over	4	1%
Total	267	100%

Source: WOLTS Mongolia baseline survey, 2016. N = 267.

The data in Table 19 suggest by extrapolation that 36% of Dalanjargalan's official population were children (aged 18 or under), 8% of the population were elderly (aged 65 or older), and 56% of the population were working-age adults (aged 18 to 64).

The ethnic and religious mix was almost identical to that in Bornuur. The population of Dalanjargalan is largely Khalkha – the ethnic group of 95% (70) of the heads of randomly sampled households in our baseline survey – and Buddhism is the predominant religion – attributed to 66% (49) of the heads of randomly sampled households. Twenty-eight per cent (21) of the heads of randomly sampled households were reported to have no religion; the remainder were reported in equal numbers to be either Christian or Shamanist. Other ethnic groups found in the soum included Bayad, Buriat and Myangad.

Dalanjargalan's five baghs

Dalanjargalan's two more urban baghs are Tsomog, the soum centre, and Olon-Ovoo, an industrial and railway offshoot to the north of the soum centre that first developed as a small centre around the Mongolian state railway's stone crushing factory. Tsomog contains the local government building, school, kindergarten, hospital, bank and Tsomog railway station, which lies on the route of

the Trans-Siberian Railway and is used as a transit stop by trains travelling between Ulaanbaatar and the Mongolian border with China at Zamiin-Uud. A unit of Mongolia's Border Guards is also based in Tsomog. Olon-Ovoo only received its administrative status as a bagh in 2008; before that it was part of Tsomog. Olon-Ovoo has a primary school, kindergarten, bank, cultural centre and a few shops. It also has its own railway station, with several railway lines to China, and there are processing factories for coal, fluorspar and cement in Olon-Ovoo too.

Tsomog and Olon-Ovoo are both mainly inhabited by government employees, railway and factory employees, many of whom live in apartments provided by their employers, and people running small businesses such as shops or vehicle repair workshops. Tsomog also contains some absentee herders – these are relatively common in Gobi soums, where they are people who live in a soum or aimag centre and ask their friends or relatives to herd their livestock in the countryside. Even more noticeably, Tsomog contains houses of many 'split families', in which, usually, the wife and children live during the school year while the husband remains in the family's winter camp herding livestock, and which we discuss further below.

Bichigt bagh is located in the western part of the soum, south of the main tarmac road between Ulaanbaatar and the Chinese border; Tsomog and Olon-Ovoo both straddle this road. Part of the Ikh Nart Nature Reserve is located in Bichigt; it consists of rocky outcrops surrounded by dry grassland and semi-desert steppe and is one of the few places in which the rare argali wild sheep can be found. There are also several springs, health spas and tourist camps in the Reserve, including a ger camp and permanent research station in Bichigt. There are some fluorspar mining areas outside the Reserve, which were mostly not operating at the time of our fieldwork in 2016, as mining was down from the national economic crisis. Most people living in Bichigt are herders, and there is a dried-up salt lake and fodder area in Bichigt, which herders from other baghs and other soums also use for their livestock.

Ungut bagh, in the north-east of Dalanjargalan, and Eldev bagh, in the north-west, are both also mainly inhabited by herders. Eldev contains two fluorspar mines and four coal mines, of which the largest, Mongol Alt Corporation's Eldev Coal Mine, built a small bagh centre building with electricity and a 100-person capacity meeting hall for Eldev citizens in 2016, next to its offices and staff dormitories, approximately 30 km from Dalanjargalan soum centre. In Ungut there are both current fluorspar mines and ruins from former fluorspar mining, as well as iron ore mining and semi-precious stones (chalcedony) lying across large swathes of the bagh's territory. There is also a derelict former sanatorium and health spa at Dalanturuun springs in Ungut, around which are dotted several sheep monuments celebrating local herding achievements from socialist times. Several families were growing vegetables on small plots and in greenhouses around Ungut's bagh centre at the time of our fieldwork in 2016.

Recent history of economic and population change

Participants in our FGDs and BIs reported that there was only very limited mining in Dalanjargalan during socialist times. There was also no crop farming in the soum; all land was used for pasture, as the Gobi was regarded as the most suitable place in Mongolia for sheep and goat farming from that time, because of its favourable vegetation and weather. Herders in Dalanjargalan, which was called Ikh Jargalan soum in those days, carried out their activities as private households until the start of the negdel (collective) movement in the late 1950s. Then, from the 1960s, after all livestock in Mongolia had been brought under state ownership, herders in Dalanjargalan, like other herders across Mongolia, began to receive regular salaries from the government for their work looking after the negdel herds.

> "I got married when I was 24 and this place was called Ikh Jargalan soum then. Before 1959 livestock husbandry was private and everybody was a herder. We had lots of livestock and we had 500 horses as well as other animals. We mainly had horses and sheep but we had all five different types of livestock – cattle, sheep, goats, horses and camels...In 1956 there was a movement called Negdeljikh. Everyone got into the negdel, state owned collective livestock husbandry. But some rich herders who had over 1000 livestock did not want to join the negdel. One man was punished for refusing to join. Me, I herded negdel livestock and if I increased the livestock I would give them to the negdel." (BI17, elderly widower)

At that time, as elsewhere in Mongolia, pastureland regulation and management came under the overall responsibility of the state administration for collectives and was organised by the relevant soum administrative officers. The soum government in Dalanjargalan was responsible for providing transportation for seasonal movement of herders, as well as for water supplies, veterinary services and auxiliary labour. Seasonal movement was very organised and households from one area collectively moved to their summer camps on 1st June each year and processed their milk together before moving back to their winter camps again collectively as well.

During our FGDs and BIs, some elderly people in Dalanjargalan nostalgically expressed their recollection that nature had then been in a very good condition, like a Gobi oasis, with a much better variety of pastureland plants than they perceived there to be nowadays.

> "Usually, herders move from winter camp to spring camp at the beginning of March and come back to their winter camp in August. There is no other movement. In the socialist time it was very organised and households collectively moved to their summer camp on 1st June and processed their milk together. They would move back to their winter camp collectively as well." (FGD18, married male herders)
>
> "Dalanjargalan used to have open water sources everywhere and it even used to rain a lot! There were different spas and small springs on every slope." (FGD20, married male herders)

After 1990 the state collectives disintegrated and livestock were privatised across Mongolia. In Dalanjargalan this major transformation from collective to private ownership, along with the sudden decrease in the free services that had previously been provided by the state, brought not only increasing poverty among herders and a growth in the gap between rich and poor herders, but was also perceived by participants in our FGDs and BIs to have contributed to land degradation. In particular, the ending of free transportation for seasonal movement has been one factor in herders in Dalanjargalan – who, as noted above, lived very far apart – starting to stay permanently near water points and thus contributing to localised overgrazing – issues we explore further below.

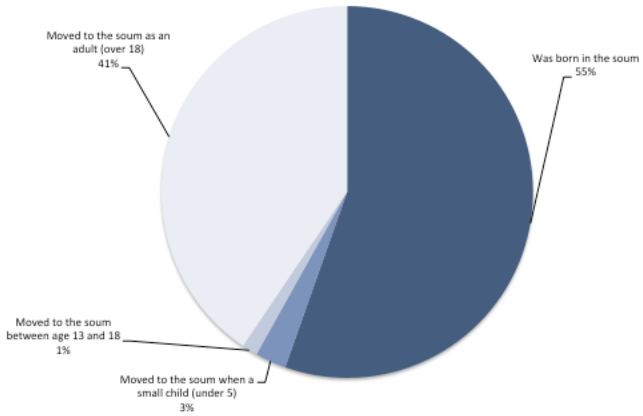
Those Dalanjargalan herders who had belonged to the negdel did not pay anything for the livestock they received during privatisation. However, the privatisation process also led to an initial increase in the number of young and inexperienced herders, who were unused to seasonal movement and associated pastureland management practices and were therefore perceived to have contributed further to land degradation in the soum (cf. Narangerel 2010; Sandagsuren & McCarthy 2016). These new herders were often the children of parents who had been negdel herders but who had abandoned herding for work in the cities during the socialist times, and who sought to move back to the countryside to take up herding after losing their jobs when state-owned factories and businesses closed down in the general economic chaos that immediately followed the democratic transition. The exception was the state-owned stone crushing factory in Olon-Ovoo, which was built in 1956 to service the national railways and remains the sole factory of its kind in the country, having survived the transition and celebrated its 60th year of operation during our fieldwork in 2016.

"My parents were both originally from this soum and both were herders. I spent my childhood like other children, helping my parents. I joined the army in 1977. Then I became a construction worker in the aimag centre and then I came back here in 1982 to work as a heating stove guard. In 1992 I became a herder again. My mother was still alive then and she got some livestock during the privatisation and encouraged me to get some too. I lost most of my animals in the dzud in 2000 but now I have 300 animals again." (BI15, elderly married male herder)

There was only limited mining of fluorspar in Dalanjargalan in socialist times, and mining only really started in the mid-1990s, around 1996, as local people turned to illegal artisanal fluorspar mining to help make ends meet. At first only a few artisanal miners mined fluorspar and sold it to Chinese traders; however, the number reached several thousand as unemployed people from all over Mongolia were drawn by this income-earning opportunity to Dalanjargalan. Small and medium-sized companies started coming to start mining in Dalanjargalan from around 1997 and, in 1998, as mining took off, the large-scale Mongolian mining company, Mongol Alt Corporation (MAK), began its coal mining operations in the soum.

Figure 17 below shows that 55% (41) of the heads of all randomly sampled households in our baseline survey were born in Dalanjargalan and only 41% (30) of them had moved to the soum as adults. Among all 36 female-headed households in our survey, 69% of them had household heads who were born in the soum, compared to 59% of all 57 male-headed households. The main reasons given for moving to Dalanjargalan as adults included moving with their family, getting married or for work at the railway, in the army, or in one of the soum's factories. The highest proportions of households whose heads had moved to Dalanjargalan as adults were found in the soum's two urban baghs. Fifty-eight per cent of randomly sampled households in Olon-Ovoo (11 of 19) had heads that had moved to Dalanjargalan as adults, as did 72% of randomly sampled households in Tsomog (13 of 18). In contrast, only 18% (2 of 11) and 27% (4 of 15) of the heads of randomly sampled households in Bichigt and Ungut, respectively, had moved to Dalanjargalan as adults, and 100% (11) of those in Eldev were born in the soum.

Figure 17. Age of household head when they moved to Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. N = 74.

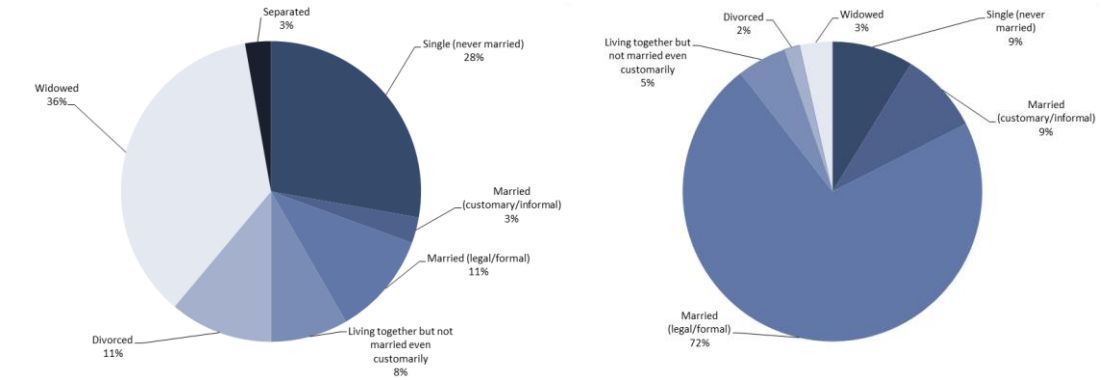
Livelihoods and gender relations

Marriage and family situation

Among the 74 randomly sampled households included in our baseline survey in Dalanjargalan, 61% (45) of their household heads were legally married; a further 8% (6) were reported to be married but only customarily or informally, of whom only one was a female-headed household. There were also four female-headed households, all randomly sampled, for whom respondents reported that they

were headed by a legally married woman; this equates to 11% of all 36 surveyed female-headed households being headed by a legally married woman, compared to 72% of all 57 male-headed households who reported being headed by a legally married man, as Figure 18 shows.

Figure 18. Marriage status of female- (left) and male- (right) headed households, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Female chart includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

Fourteen per cent (10) of the heads of the randomly sampled households were single and never married and the remaining eight randomly sampled households had heads who were either divorced or separated, or who were reported to be living with a partner but not married even customarily. All the household heads that fell into this last category were living in Olon-Ovoo, from 21% (4 of 19) of the randomly sampled households in that bagh; three of them were male-headed, one was female-headed. Two further female-headed households from among those additionally surveyed had heads who were reported to be living with a partner but not married; one of these was from Eldev but the other was also from Olon-Ovoo.

At the same time, divorce rates in Dalanjargalan appeared to be low, due to traditional norms that meant that official re-marriage was not very well regarded, so couples tended either to stay married or, for those who did separate or divorce, to take up more casual living arrangements with new partners. Just 4% (3) of the randomly sampled households reported to have divorced household heads, of whom two were female-headed households, and one other randomly sampled female-headed household reported to have a separated head; there were also two further cases of divorce among the female-headed households that were additionally surveyed.

Just 7% of randomly sampled households in Dalanjargalan were headed by a widow (three households) or a widower (two households), yet the most common marital status among the heads of all 36 female-headed households in our baseline survey was that they were widowed – the marital status of 36%. Given that 28% of all 36 female-headed households were headed by women who were single and had never married, the remaining 36% were therefore headed by women who were either officially divorced or separated, or living together informally with a partner or claiming to be customarily married, or, most notably, a legally married spouse from families with a 'fake' divorce, i.e. where a husband and wife have registered as citizens in two different soums in order to get more land, a practice we discuss further below. Given also that we observed that 'fake' divorce was not unusual in Dalanjargalan, it cannot be assumed that none of the male-headed households in our baseline survey fell into this category as well.

Nineteen per cent (14) of the randomly sampled households in our baseline survey reported having at least one disabled member. Eighteen per cent of all male-headed households reported having a disabled member, and 22% of all female-headed households. There was just one orphan found in the randomly sampled households in Dalanjargalan; this household was male-headed.

At the time of our survey, 27% of randomly sampled households (20 of 74) had at least one other person living in the house with them who was not part of their household; these were largely

grandchildren who were visiting their grandparents for the summer holidays. On the other hand, from among the 267 members of the randomly sampled households, just 76% (203 people) were reported to live at the household's main residence for the majority of their time. Forty-seven people (18%) were reported to often live elsewhere (temporarily for the year), and a further 11 people (4%) were reported to usually live elsewhere in the medium to longer term. These 58 people who were not living permanently in their household's main residence were distributed across 35 households (47% of all randomly sampled households). The vast majority of these people were children of the household head, largely away for education but a few for work, including in the army and in mining. There was also one household head who went away for nine months every year to study at university and two spouses of household heads – possible 'fake' divorce cases – who were reported not to be permanently living with the rest of their household.

The bagh with the lowest proportion of people living in their household's main residence for the majority of the time was Bichigt, where that was the case for just 65% of all members of randomly sampled households. This compared to Eldev, where 84% of all members of randomly sampled households were reported to live at the household's main residence for the majority of the time. This tallies with our general observations during our 2016 fieldwork, whereby it seemed that most families in Eldev either stayed in their winter camps year round, or moved only very nearby (less than 5 km away), in order to guard their pasture from herders from neighbouring soums – an issue on which we elaborate further below.

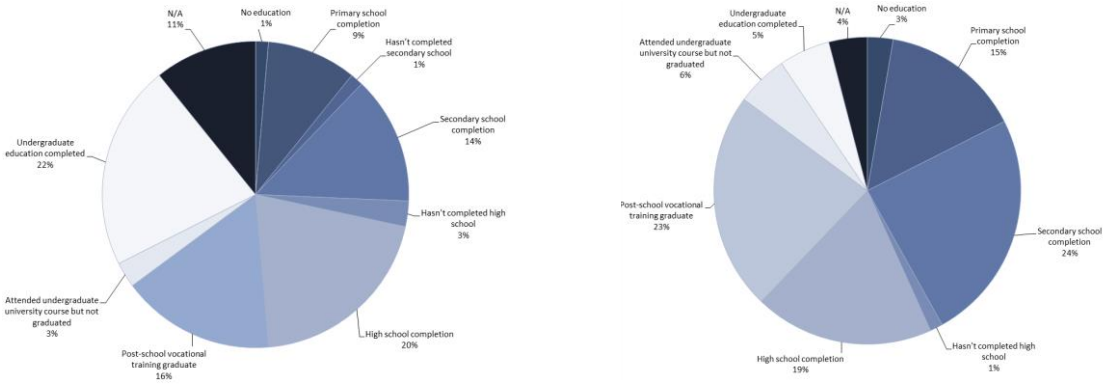
Separately, concerning seasonal movement with livestock, just six (2%) of all 267 members of randomly sampled households in our baseline survey were reported to sometimes live elsewhere (temporarily for a season) – including people from households in all baghs except Bichigt. One was a household head, although the reason was not reported; the others were all children and extended family members who were away on otor migration with their livestock. Our baseline survey took place during the summer, when some entire families were away on otor migration and were therefore unable to be surveyed. Only two of the households on our initial sampling list could not knowingly be surveyed for that reason, which was much fewer than we had expected to be the case. However, the extent of temporary seasonal migration by households whose main residence was in Dalanjargalan could have been much higher, as in both Bichigt and Ungut there were many households on our initial sampling lists that were difficult to find, and later in Ungut, during our fieldwork in the winter, we struggled to find women for an FGD who were born in the soum and had not been on otor migration during the summer baseline. On the other hand, participants in our FGDs and BIs in the winter, including some of those who had been away on otor migration during the summer, explained that traditional nomadic patterns of seasonal movement for grazing livestock have become less common among households in Dalanjargalan today, for reasons we explore further below.

> "When I was a child we used to move four times a year, now due to pastureland degradation people move only twice a year at most." (BI12, middle-aged disabled woman)

Education

As illustrated in Figure 19 below, only 10% (7) of all randomly sampled households in our baseline survey in Dalanjargalan did not have at least one female adult member whose education had progressed to secondary school or beyond, and 41% (30) of the randomly sampled households had at least one female adult member who had progressed beyond high school into some form of tertiary education (vocational training or university). In contrast, 18% (13) of all randomly sampled households in our baseline survey in Dalanjargalan did not have at least one male adult member whose education had progressed to secondary school or beyond, while only 34% (25) of the randomly sampled households had at least one adult male member who had progressed beyond high school to some form of tertiary education.

Figure 19. Highest education level of adult females (left) and adult males (right) in Dalanjargalan households



Source: WOLTS Mongolia baseline survey, 2016. N = 74. N/A = no adults of that gender in the household.

As Figure 19 shows, for female adult members across all randomly sampled households, the top three most common responses for highest level of education were 'undergraduate education completed' (22%), 'high school completion' (20%), and 'post-school vocational training graduate' (16%). For male adult household members the top three were 'secondary school completion' (24%), 'post-school vocational training graduate' (23%) and 'high school completion' (19%). Taken together, some 38% of randomly sampled households in our survey contained at least one adult female who was either a 'post-school vocational training graduate' or had completed undergraduate education, compared with only 28% of households where adult males had reached the same educational level.

Overall, the highest levels of education among our randomly sampled households were found in Olon-Ovoo, Tsomog and Ungut baghs. In Ungut, 53% of randomly sampled households (8 of 15) had adult male members and 87% (13) had adult female members who had at least completed high school. In Olon-Ovoo, 63% of randomly sampled households (12 of 19) had adult male members and 84% (16) had adult female members who had achieved this level of education or more. In Tsomog, the soum centre, 83% of randomly sampled households (15 of 18) had both male and female adult members who had at least completed high school. However, in rural Eldev only 27% of randomly sampled households (3 of 11) had adult male members who had at least completed high school, and there were no male university graduates in Eldev, Ungut or Bichigt; in Bichigt there were also no female university graduates. Given that Ungut, Eldev and Bichigt were the most strongly herding baghs in Dalanjargalan, as we discuss further below, these findings from our baseline survey lend particular support to national data on the relatively low levels of education among male herders in the countryside. The longer-term social implications of this were brought up by some of the young male herders in our FGDs and BIs, who expressed concerns that, with so many young women moving to Mongolia's big cities nowadays in order to get an education, it was becoming increasingly difficult for young men still living in the countryside to find a wife.

Relative wealth and poverty

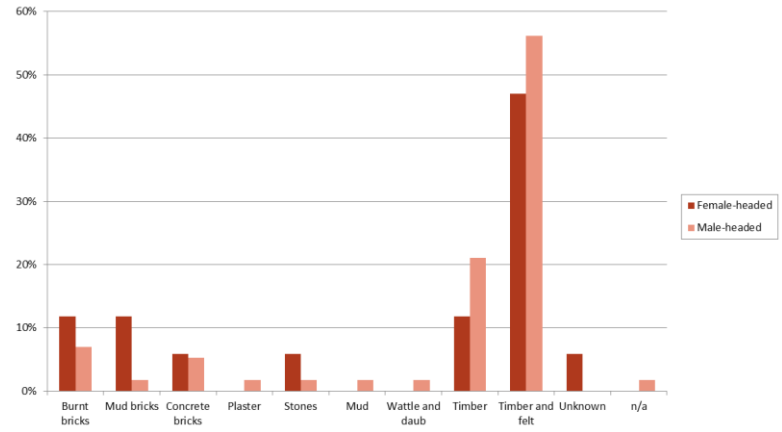
Housing

Forty-nine per cent (36) of the randomly sampled households in Dalanjargalan had a ger, 39% (29) had a house, and 11% (8) had both. One household had none and was sharing a place to live. Of the households that had a ger, the average number was 1.3; one male-headed household in Ungut had three. Four- and five-wall gers were equally common for our randomly sampled households' primary gers, with 48% of primary gers (21 of 44) having four walls and a further 48% (21) having five walls. Rather than necessarily being an indication of relative poverty, the high proportion of randomly sampled households in our baseline survey in Dalanjargalan who had only a ger (49%, as compared to Bornuur, where just 30% of our randomly sampled households had only a ger) appeared to reflect

the prevalence of traditional pastoralist lifestyles in Dalanjargalan, as well as that there is less timber available in the Gobi regions of Mongolia for building houses with.

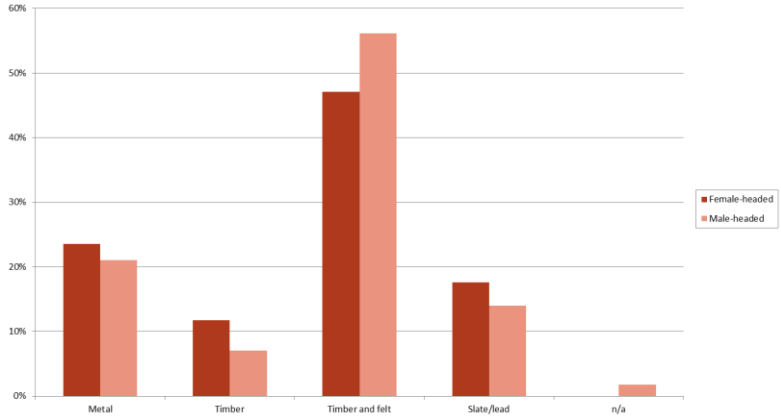
Figure 20 and Figure 21 illustrate our data on housing type and materials, where we recorded the highest-order wall and roof materials of each surveyed household's main residence.

Figure 20. Percentage of female- and male-headed households with different wall materials, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

Figure 21. Percentage of female- and male-headed households with different roof materials, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

As these two figures show, timber and felt was by far the most common housing material for both female- and male-headed households in our baseline survey, followed by timber. Interestingly, female-headed households were proportionately slightly more likely than male-headed households to have walls and roofs made from among the higher order construction materials, such as burnt brick walls and slate/lead roofs, suggesting that they were also slightly more likely to have a house than a ger as their main residence; this reflects the lesser involvement of female-headed households in herding that we discuss further below, and that there seemed to be relatively more female-headed households living in the two urban baghs than in the rural baghs during our fieldwork in 2016.

Overall, 55% (40) of the randomly sampled households in our baseline survey reported timber and felt as the highest order wall construction material of their house and/or ger. Timber and felt was the most common highest order housing material found for both walls and roofs among randomly sampled households in all baghs, apart from Olon-Ovoo and Tsomog, where timber was the most common highest order housing material for walls and some burnt brick, concrete, mud, mud brick, plaster and stone walled-houses were also found. Likewise, Olon-Ovoo and Tsomog were the only

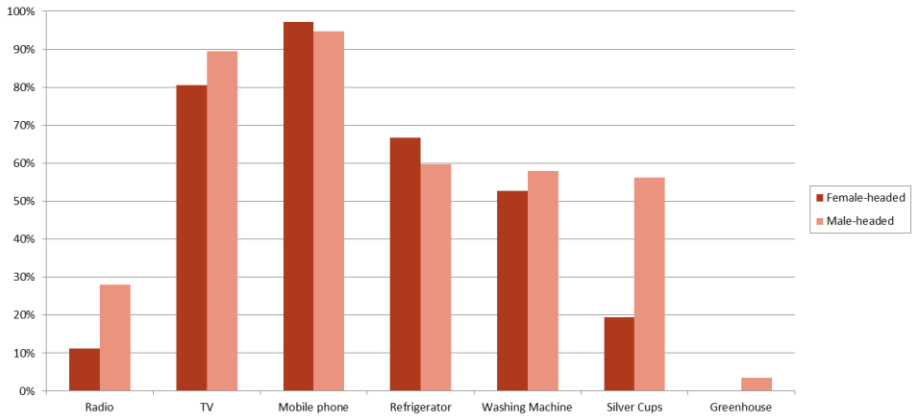
baghs in which any slate/lead roofs, and the majority of metal and timber roofs, were found among surveyed households' main residences. In contrast, 100% of randomly sampled households in Bichigt were living in a ger. We also observed that there was actually a higher proportion of houses than gers in Olon-Ovoo bagh centre than the soum centre, Tsomog, and with higher order construction materials too. However, not all of Olon-Ovoo's population lived right in the bagh centre; some were living in its rural surrounds. This suggests that the people living in houses and apartments in the Olon-Ovoo bagh centre were relatively wealthier than the people living in the soum centre itself, where there were more gers, given that construction costs (for home owners) and rents (for those renting) were also higher for houses than for gers.

Forty-nine per cent (36) of the randomly sampled households in Dalanjargalan had a ger, 39% (29) had a house, and 11% (8) had both. One household had none and was sharing a place to live. Of the households that had a ger, the average number was 1.3; one male-headed household in Ungut had three. Four- and five-wall gers were equally common for our randomly sampled households' primary gers, with 48% of primary gers (21 of 44) having four walls and a further 48% (21) having five walls.

Possessions

The vast majority of our surveyed households in Dalanjargalan had mobile phones and televisions; refrigerators, washing machines and silver cups were also very common in this more traditionally pastoralist soum. As in Bornuur, there was little difference between the possessions of female-headed and male-headed households with the exception of the silver cups, which a higher proportion of male-headed than female-headed households reported having, as Figure 22 below illustrates. As discussed above for Bornuur, since silver cups are mainly held by herders as a traditional store of wealth, this difference points to lesser involvement of female-headed households in herding and/or relative poverty of female-headed herder households compared to male-headed herder households.

Figure 22. Percentage of female- and male-headed households with different possessions, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

Electricity, water and sanitation

Ninety-two per cent (68) of the randomly sampled households in our baseline survey in Dalanjargalan had electricity, with no major differences between male- and female-headed households. Of these households, 45 had mains electricity and 23 relied on portable solar panels. All the households with solar power were found in Bichigt, Eldev and Ungut, including 82% of randomly sampled households in Bichigt. The same three baghs were where the least amount of mains electricity was found, with 33% of randomly sampled households in Ungut connected to the mains and just two households each in Bichigt and Eldev. This contrasts with Tsomog and Olon-Ovoo, where 100% and 95% of randomly sampled households, respectively, had mains electricity.

As we discuss further below, water scarcity through groundwater contamination and shrinking of the water table linked to mining came up in our 2016 fieldwork as a major concern of people in Dalanjargalan, and we found that, in response, some herders had started to build their own private wells. Table 20 gives the numbers and percentages of randomly sampled households in our baseline survey who accessed water from wells in different ways across all seasons, showing that the most common way to access water was through paid-for access to privately owned open deep wells; some households accessed water in multiple ways.

Table 20. Number and percentage of randomly sampled households using wells, Dalanjargalan

Means of access	Open deep well	Open shallow well
Private	4 (5%)	6 (8%)
Nearby - Communal/shared	16 (22%)	5-6 (7-8%)
Nearby – Paid-for access	32-33 (43-45%)	1 (1%)

Source: WOLTS Mongolia baseline survey, 2016. N = 74.

There was no mains water supply at all anywhere in Dalanjargalan soum, and an open deep well nearby (paid-for access) was the most common source of water for both male- and female-headed households in our baseline survey. Across winter, spring and summer, 56% (20) of all female-headed households and 40-42% (23-24) of all male-headed households used this water source. Springs were only used by male-headed households – 14-18% (8 to 10) of all male-headed households accessed water from springs, depending on the season, but no female-headed households did so at all. Most of the households using springs lived in Ungut, where the former sanatorium and the vegetable growing area were located, and within those households, although both men and women would go to get water from a spring, men would generally use springs more as they were mainly the ones watering livestock. Other water sources were more rarely used: one male-headed and one female-headed household accessed water from a river in spring and summer, while one male-headed household obtained water from water kiosks or traders in spring and summer.

Concerning sanitation, only 36% of the randomly sampled households in our baseline survey in Dalanjargalan had an exterior toilet without a flush tank (a long-drop), while 15% did not have a toilet at all. This compares to 78% with an exterior non-flush toilet (long-drop) and only 4% with no toilet at all in Bornuur, which clearly shows the relatively higher state of basic infrastructure development in Bornuur compared to Dalanjargalan, in line with the national pattern given that Dalanjargalan was a generally more rural soum. There was notably little disparity, however, between male- and female-headed households with regard to their access to different sanitation facilities.

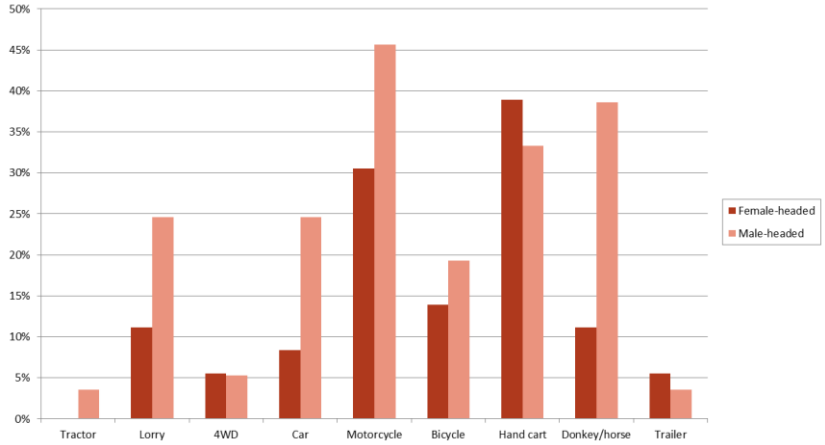
Transportation

The most common form of motorised transport in Dalanjargalan was the motorcycle, which 43% (32) of the randomly sampled households in our baseline survey reported using. Twenty-two per cent (16) of the randomly sampled households used two-wheel drive cars, 22% (16) used lorries, 32% (24) used hand carts, and 34% (25) used horses for transport.

Across all modes of transport – lorries, tractors, four-wheel drive cars, two-wheel drive cars, motorcycles, bicycles, hand carts, horses and trailers – more male-headed households reported having them than female-headed households, as Figure 23 below, where respondents reported all modes of transport that they had access to, shows. For example, 46% (26) of all male-headed households reported having a motorcycle, compared to only 31% (11) of all female-headed households. Likewise, 25% (14) of all male-headed households reported having a two-wheel drive car, compared to just 8% (3) of all female-headed households. As in Bornuur, given the importance of access to transport in herding communities, and given also the greater proportion of male-headed households with horses (the most culturally and historically significant form of transport in herding communities) that Figure 23 also shows, the apparent inequality between male- and female-headed

households with respect to transportation points both to the relative poverty of female-headed households and to the relative difficulties female-headed herder households face.

Figure 23. Percentage of female- and male-headed households with different modes of transport, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

Overall, our WOLTS baseline survey data on housing type and materials, ownership of certain possessions, and access to electricity, water, sanitation and transportation provided some indications of relatively higher poverty rates among female-headed households in Dalanjargalan, and suggestions of potential areas of vulnerability, particularly for female-headed herder households. This was supported by the findings from our participatory fieldwork phase, which revealed particular challenges for women, as we discuss further below. Our baseline survey data on relative wealth and poverty also confirmed some notable, and not unexpected, differences between our two WOLTS study communities, with our randomly sampled households in Dalanjargalan seeming to be relatively poorer overall than our randomly sampled households in Bornuur.

Main livelihoods

The two major livelihood groups in Dalanjargalan to emerge from our baseline survey were 'herders herding own livestock' and 'people with formal employment', who were reported to be included within 43% (32) and 45% (33) of the 74 randomly sampled households, respectively. Forty-six per cent of male-headed households (22 of 57) reported that their household included 'herders herding own livestock' and 42% (24) that they included 'people with formal employment', compared to just 33% of female-headed households reporting both these occupations (12 of 36). Yet compared to Bornuur, what was particularly interesting was that the proportion of both male- and female-headed households including 'herders herding own livestock' was substantially lower in Dalanjargalan, while the proportion of both male- and female-headed households including 'people in formal employment' was substantially higher in Dalanjargalan – the inverse of what we had initially expected to find. With regard to formal employment, the presence of the railway station and several factories, as well as the much greater extent of mining in Dalanjargalan, all help to explain our baseline survey findings. Dalanjargalan seemed to be a soum of very scattered, remote-living herders spread across a physically much larger area than Bornuur, with two established urban centres, whereas people and livelihoods in Bornuur were more integrated. Furthermore, although Dalanjargalan seemed also to be very much a soum whose identity was still grounded in traditional pastoralist lifestyles, as we discuss further below, it was too remote from the huge meat and milk market of Ulaanbaatar to attract the number of herders that we found in Bornuur.

Overall, 26% (19) of the randomly sampled households in our baseline survey had relied on only one source of cash income in the previous 12 months, 31% (23) had relied on two sources, 23% (17) on

three sources, 12% (9) on four sources, 5% (4) on at least five sources of cash income and 3% (2) had no sources of cash income. There were no large differences between male- and female-headed households, as Table 21 below shows, although there were proportionately more female-headed households relying on fewer sources of cash income and proportionately more male-headed households relying on a greater number of different sources of cash income.

Table 21. Number of sources of cash income among all surveyed households, Dalanjargalan

Number of income sources	None	1	2	3	4	5 or more	Total
Female-headed households	2 (6%)	11 (31%)	13 (36%)	7 (19%)	3 (8%)	0	36 (100%)
Male-headed households	2 (4%)	14 (25%)	18 (32%)	13 (23%)	6 (11%)	4 (7%)	57 (100%)

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

The full range in cash incomes earned from individual sources was reported to be from just MNT 19,160 (USD 9), for wool sales for one female-headed household, to MNT 20,000,000 (USD 9,174) earned from meat sales by the highest earning household in our survey overall.

In line with the apparent significance of both herding and formal employment to household livelihoods noted above, we found that both herding and government employment predominated as the top source of cash income in the previous 12 months among the randomly sampled households in our baseline survey. Twenty-six per cent (19) of randomly surveyed households in Dalanjargalan reported herding as their top source of cash income in the last 12 months and 30% (22) reported government employment as their top source. Table 22 provides the gender breakdown in top source of cash income reported by all our surveyed households.

Table 22. Top source of cash income for all surveyed households, Dalanjargalan

Top cash income source	Female-headed households	Male-headed households
Government employment	10 (28%)	17 (30%)
Herding	9 (25%)	15 (26%)
Pension	6 (7%)	11 (19%)
Mining	3 (8%)	3 (5%)
Disability allowance	-	4 (7%)
Child allowance	2 (6%)	1 (2%)
Salary from private company	2 (6%)	-
No cash income	-	2 (4%)
NGO/Association	1 (3%)	1 (2%)
Crop farming	1 (3%)	-
Income from health spa	1 (3%)	-
Assistant cook	1 (3%)	-
Private small building block company	-	1 (2%)
Cleaner in mining company	-	1 (2%)
Totals	36 (100%)	57 (100%)

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

As Table 22 shows, there were very few differences in the proportions of female-headed and male-headed households who reported both government employment and herding as their top source of cash income in the previous 12 months. Among just the 17 female-headed households in our randomly sampled group, four households (24%), one from each bagh except Olon-Ovoo, reported herding and five households (29%), from Tsomog (3) and Olon-Ovoo (2), reported government employment as their top source of cash income, which contrasts with the more pronounced gender differences we noted for Bornuur above.

As these data suggest, livelihoods in general also varied quite a lot by bagh. In the soum centre, Tsomog, for example, 72% of randomly sampled households (13 of 18) reported government employment and just 6% (1) reported herding as their top source of cash income in the 12 months prior to our baseline. In Olon-Ovoo, 47% of randomly sampled households (9 of 19) reported

government employment as their top source of cash income in the previous 12 months, compared to just 16% (3) who reported mining and 5% (1) who reported herding as top sources of cash income. In contrast, 46% of all randomly sampled households across the three rural baghs (Ungut, Eldev and Bichigt) reported herding as their top source of cash income in the previous 12 months (17 of 37). During our FGDs and BIs, we also detected that herding was really the key source of cash income for many families in these more rural parts of Dalanjargalan.

Furthermore, of the 30 randomly sampled households whose household head had moved to the soum as an adult, 53% (16 households) reported government employment as their top source of cash income in the 12 months prior to our baseline survey and just 13% (3) reported herding as their top source of cash income. Conversely, of the 41 randomly sampled households whose household head was born in the soum, 34% (14) reported herding as their top source of cash income in the previous 12 months and only 12% (4) reported government employment as their top source of cash income. This suggests a distinct axis of socio-economic differentiation within Dalanjargalan's population between original or longstanding citizens with strong traditional pastoralist roots and newer arrivals who were more connected to the wider economy through formal government employment in the public sector. Further, while only 17% of the 26% of all randomly sampled households in Dalanjargalan reporting herding as their top source of cash income had moved to the soum as an adult, in Bornuur 41% of the 33% of all randomly sampled households reporting herding as their top source of cash income had moved to the soum as an adult.

Among all surveyed households, the five receiving the lowest total cash incomes (from up to four different sources) in the previous 12 months were all female-headed, earning between MNT 150,000 (USD 69) and MNT 819,160 (USD 376); one was from our randomly sampled group and four were additional female-headed households. The lowest earning household overall, headed by a legally married woman from Bichigt, reported to have received their MNT 150,000 (USD 69) from artisanal fluorspar mining, as two different sources of income; both she and her husband reported to have each separately received money from this activity.

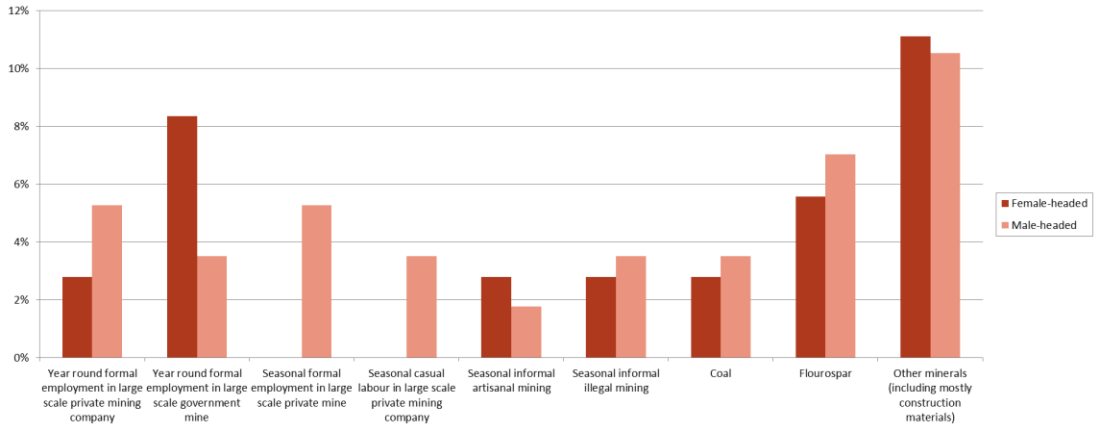
In contrast, four of the five households receiving the highest cash incomes in the previous 12 months were male-headed, receiving between MNT 15,760,000 (USD 7,229) and MNT 27,850,000 (USD 12,775); one of these households, the highest earning household overall during the 12 months prior to our survey, had at least five sources of cash income. This latter household, from Ungut, reported their single biggest source of cash income to have been the MNT 20,000,000 (USD 9,174) from meat sales mentioned above; this was received jointly by both the male head of the household and his wife. This household also reported to have earned a further MNT 7,850,000 (USD 3,601) from cashmere, milk and wool sales. The fifth highest cash income earning household in the previous 12 months was female-headed, from our randomly sampled group; this household earned MNT 15,760,000 (USD 7,299) from three difference sources of cash income.

Only four of the randomly sampled households in our baseline survey reported to have received any cash income at all from mining in the previous 12 months, and for all of them it was their top source of cash income. The highest amount of cash income reported to have been earned from mining was found in a male-headed household where the wife and husband had jointly earned MNT 5,000,000 (USD 2,294) through artisanal fluorspar mining. One female-headed household reported to have earned MNT 500,000 (USD 229) in the previous 12 months from the widowed household head's involvement in artisanal fluorspar mining plus a further MNT 4,050,000 (USD 1,858) from her son's work as a mining company guard. Another male-headed household reported to have earned MNT 1,000,000 (USD 459) from artisanal mining of semi-precious stones. The fourth household reporting to have received any cash income from mining in the previous 12 months was our lowest earning household overall, headed by the legally married woman from Bichigt mentioned above. At the top end, cash incomes reported from mining in Dalanjargalan were generally higher than those reported from mining in Bornuur, but it seemed that a lower proportion of households in Dalanjargalan reported receiving any income from mining in the first place.

These very few cases of reported earnings from mining were despite the presence of the numerous mining companies in Dalanjargalan that we discuss further below. However, as in Bornuur, our FGDs and BIs revealed that involvement in mining – and particularly illegal artisanal mining – was much more common. Furthermore, 21% of all female respondents in our baseline survey (19 of 54) and 35% of all male respondents (8 of 39) said they agreed with the statement that: "The majority of people in this community depend on mining for their survival". The mining sector was generally down across Mongolia at the time of our fieldwork in 2016, and this was particularly commented on by participants in our FGDs and BIs, many of whom had formerly engaged in artisanal mining even if they were not still doing so at the time that we met them. The low level of reporting of cash incomes from mining during our baseline survey must therefore be considered in this wider context of lack of activity and employment opportunities in the mining companies still operating in the soum, as we discuss further below, yet was almost certainly also linked for some people to a reluctance to speak about mining because of the illegal nature of their involvement and because, compared to Bornuur, people in Dalanjargalan seemed to be much more attached to the traditional herding lifestyle.

As Figure 24 below shows, where households reported all that applied, the types of involvement in mining recorded during our baseline survey in Dalanjargalan differed from those in Bornuur, where artisanal mining predominated; in Dalanjargalan our surveyed households were more likely to have members involved in work at large-scale mines, which also tended to be more formal in nature, although both male- and female-headed households were involved in smaller-scale seasonal informal mining too; among them, illegal artisanal mining was slightly more common in male-headed households, and both men and women took part in the actual mining work itself, as we discuss further below.

Figure 24. Types of involvement in mining by all surveyed households, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households

For those households who were involved in mining in Dalanjargalan, it undoubtedly made an important contribution to household income, even if mining itself has also contributed to serious environmental and social issues for the soum, as we elaborate further below. Moreover, the high level of reporting of cash incomes from both formal employment and, more significantly, herding, suggests that households in Dalanjargalan at least had those alternative income sources to fall back on when the mining economy was down.

Herding

Table 23 below sets out the different types of cash incomes from herding received by all 29 households within our random sample who reported receiving money from these activities within their top five cash income sources in the 12 months prior to our baseline survey; many of them reported multiple sources of cash income from herding. Among this 39% of randomly sampled households who received some form of cash income from herding in the previous 12 months, 93%

(27) sold cashmere, 69% (20) sold meat, and 45% (13) sold wool. This contrasts with the 56% of randomly sampled households in Bornuur who had received cash income from herding and intensive and semi-intensive livestock farming combined, of whom 76% sold milk, 52% sold cashmere and just 29% sold meat.

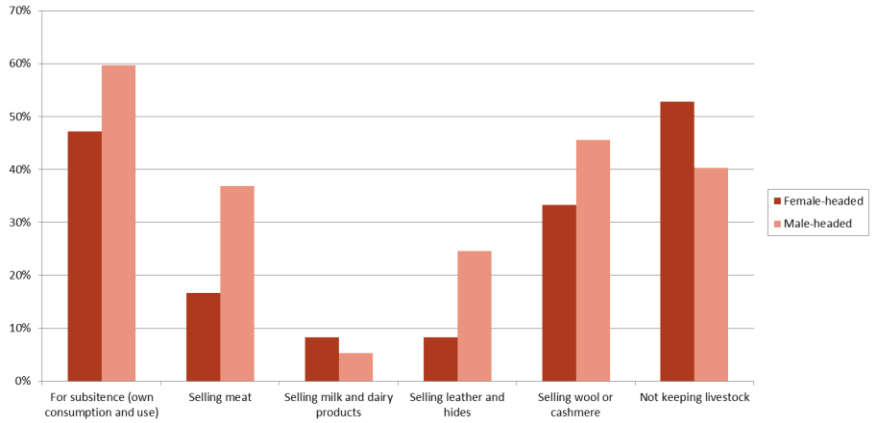
Table 23. Cash income from herding among randomly sampled households, Dalanjargalan

Source of cash income	Number of households	As percentage of households receiving any cash income from keeping animals
Herding - cashmere	27	93%
Herding - meat	20	69%
Herding - wool	13	45%
Herding - milk	2	7%
Herding - unknown	2	7%

Source: WOLTS Mongolia baseline survey, 2016. N= 29.

Fewer households in Dalanjargalan than in Bornuur were involved in keeping animals for their own consumption but had not generated any cash income from this activity in the previous year. Some, such as those absentee herders in the soum centre who left a few animals with their relatives or other people in the countryside, did not really even consider themselves herders, and subsistence-only use of livestock appeared to be relatively more important to older people too. Across Dalanjargalan just 55% (41) of the randomly sampled households reported that they were using livestock and other animals for subsistence at the time our baseline survey was carried out, compared to 41% (30) that reported using livestock for wool and/or cashmere sales, 30% (22) that reported selling meat, 19% (14) that reported selling leather and/or hide, and just 7% (5) that reported using livestock for milk and dairy sales at that time. The data are broken down by gender in Figure 25 where respondents reported all uses of their livestock that applied.

Figure 25. Use of livestock and other animals by all surveyed households, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

It is notable from Figure 25 that a higher proportion of male-headed than female-headed households appeared to be reliant on livestock for their livelihoods across all categories with the exception of selling milk and dairy products and that female-headed households were proportionately more likely to not be keeping animals at all. The low reporting of milk and dairy product sales in Dalanjargalan was linked to the impracticalities of selling milk in the heat of the Gobi, due to storage and refrigeration issues. In addition, levels of milk production from the goats and sheep that are the main animals kept by people in the Gobi are low, the milk being instead thick and rich, and consequently local people tended to produce only curd rather than a wider range of dairy products.

The most common type of livestock kept by people in Dalanjargalan was sheep, which 47% (35) of the randomly sampled households in our baseline survey kept, and 54% (19) of them had more than

50 sheep. Goats and cattle were also relatively common, kept by 45% and 43% of randomly sampled households (33 and 32 households), respectively. The largest single herd we came across in Dalanjargalan belonged to a male-headed household from Ungut that reported to have between 1000–2000 sheep. As in Bornuur, patterns of herding also reflected the characteristics of the different parts of the soum, as shown in Table 24, with the more urbanised Olon-Ovoo and Tsomog baghs containing far fewer households keeping any kind of livestock across the board; relatedly, we observed that very few households in the soum centre were keeping any animals on their khashaas either. Generally, herd sizes were also much bigger than in Bornuur, with 44% of all randomly sampled households in Dalanjargalan having over 100 head of livestock, and 12% having over 500.

Table 24. Number and percentage of randomly sampled households keeping animals, Dalanjargalan

Bagh	Cattle		Sheep		Goats		Horses		Camels	
	Number of households	As % of bagh	Number of households	As % of bagh	Number of households	As % of bagh	Number of households	As % of bagh	Number of households	As % of bagh
Bichigt	5	45%	10	91%	9	82%	7	64%	-	-
Eldev	8	73%	9	82%	9	82%	6	55%	2	18%
Olon-Ovoo	5	26%	3	16%	3	16%	4	21%	-	-
Tsomog	3	17%	4	22%	3	17%	2	11%	-	-
Ungut	11	73%	9	60%	9	60%	8	53%	4	27%

Source: WOLTS Mongolia baseline survey, 2016. N = 11 for Bichigt. N = 11 for Eldev. N = 19 for Olon-Ovoo. N = 18 for Tsomog. N =15 for Ungut.

Only two male-headed households in our baseline survey (one whose head was born in Dalanjargalan and one whose head moved there as an adult) reported that they were large-scale herders who paid other people to herd livestock and carry out other livestock-related activities for them. A further two households, one female-headed (from among those additionally surveyed) and one male-headed, both from Ungut and both of whose heads were born in the soum, reported that members of their households were herding livestock belonging to other households or carrying out other livestock-related activities for them without any cash payment for their work. No households reported any members doing this kind of work for cash. This all gives the very strong impression of herding as a self-contained family/household activity for those households who were involved in herding at the time of our fieldwork in 2016. We did not specifically ask how many households relied on non-household members to help them with herding without cash payment (i.e. in kind or as part of reciprocal labour arrangements or extended family or friendship obligations), but in 16% (12) of all randomly sampled households it was reported that non-household members were somehow involved in herding large animals.

> "Sometimes herders hire a goat combing person in the spring time. One goat combing is MNT 4000-5000 (USD 1.83-2.29) and one person combs about 10 goats a day on average." (FGD20, married male herders)

Our baseline survey also produced some specific data on the division of tasks between men and women in herding. In 32% (24) of all randomly sampled households women were involved in milking, whereas men were involved in milking in just 5% (4). Likewise, for processing and preparing milk products, these activities were done by women in 30% (22) of all randomly sampled households and by men in just 4% (3). Men were involved in the herding of large animals in 32% (24) of all households and women were involved in 14% (10). As discussed earlier, men were also generally the ones watering livestock at springs or wells. Children, particularly boys, helped with herding tasks when not at school, and outsourcing took place too, as just noted above. Slaughtering animals was done by men in 32% of households (24 households). As in Bornuur, no women at all were reported to slaughter animals in our baseline survey due to traditional social norms that prohibit women from so doing; those women who sold meat or used animals for domestic food consumption either asked a male neighbour to carry out the slaughtering or sold their animals live. The main market for meat sales in Dalanjargalan was local, to other soum citizens within the soum centre and to workers living in dormitories at mining company sites. Male herders living in Eldev sold meat directly to the mining

companies, while their wives in split families were well positioned to sell the households' meat products in the soum centre markets and shops. In fact we observed that women living in the soum's two urban baghs seemed to have become much more involved in livestock trading through their more ready access to marketing opportunities in the soum centre than would have traditionally been the case for female herders.

> "I have not yet decided whether I would like to make my grandchildren herders…Traditional nomadic livestock herding is best suited here, not the intensive livestock farming." (BI17, elderly widower)

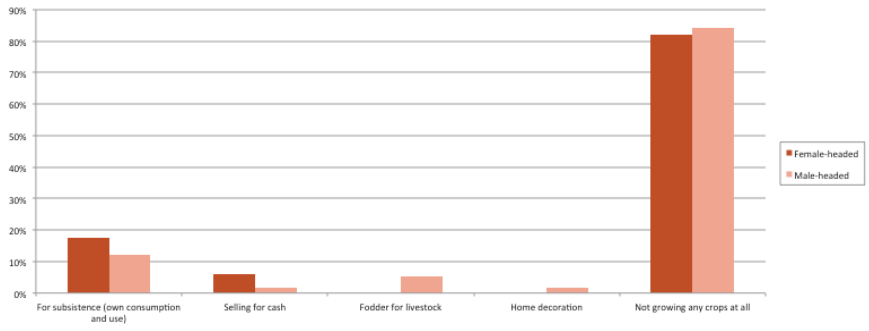
Crop farming

At the time of our fieldwork in 2016, crop farming seemed to be of limited significance to local livelihoods in Dalanjargalan. Eighty-four per cent (62) of the randomly sampled households in our baseline survey were not growing any crops at all at the time our survey was carried out, and 14% (10) were growing crops for their subsistence; one further household was growing flowers to decorate their house, and no information about crop growing was provided by the last randomly sampled household. Of the 11 households in total who were growing crops, eight were farming on agricultural land, while three were using their house plot or khashaa.

The eight households with agricultural land in Dalanjargalan had a total of 3.75 ha under cultivation at the time of our survey; the average size of their cultivated land was 0.23 ha. Seven of these households lived in Ungut, all with small vegetable plots and/or small greenhouses near the Dalanturuun spa at Ungut bagh centre, along the River Spar from neighbouring Darhan soum, which was known as a good place for planting fruit and vegetables in the spring; the eighth household, which reported farming a tiny plot of just 0.0011 ha, just for potatoes, lived in Bichigt. None of our surveyed households were therefore renting land for crop farming in Dalanjargalan, unlike in Bornuur. All seven crop-farming households with agricultural land in Ungut were growing onions and potatoes, six were growing turnips, and four each were growing beetroot and carrots. Other crops grown by just one or two households in Ungut were cabbage, tomatoes, bell peppers, cucumber, squash, green vegetables, chilli, ginger, sunflowers, sea buckthorn, maize, fodder and trees. The three households farming without designated agricultural land were growing onions, sunflowers, trees and flowers on their housing plots/khashaas in the soum centre, Tsomog.

Overall, a slightly higher proportion of female-headed than male-headed households were crop farming in Dalanjargalan, as Figure 26, where respondents reported all uses of their crops that applied, shows.

Figure 26. Use of agricultural crops by all surveyed households, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly selected. N = 36 for female-headed households. N = 57 for male-headed households.

Just two households, one female-headed and one male-headed, both from our random sample, reported to have received a cash income from selling vegetables in the 12 months prior to our baseline survey, in addition to using their vegetables for their own consumption, and only one of

them reported that crop farming was their primary source of cash income in the previous 12 months. Three male-headed households were growing fodder for livestock in addition to crops for their own consumption.

As for herding products, the main market for the vegetables grown by the crop farmers in Dalanjargalan appeared to be the workers living in dormitories at mining company sites. However, we also learned that traditional diets are starting to change in the Gobi, with local people starting to eat more vegetables as well. Locally grown vegetables which required less water or which could be efficiently irrigated were considered to be particularly tasty due to the nutritious (mineral-rich) soil, and appealed also to the local market of soum citizens. To that end, local government officials in Dalanjargalan told us that they were keen to encourage more vegetable growing, indicating that it had the potential to add greater diversity to household cash income sources in future, and therefore help to further balance people's economic fortunes in times when mining was down, or herding was affected by dzuds or by general pastureland degradation. Participants in our FGDs and BIs reported that one NGO project had already set up a 1.5 ha vegetable farm close to Dalanjargalan soum centre, in 2009, and trained people from 23 poor households in vegetable planting and processing; nine households were said to be continuing to farm on 1 ha of this farm by the time of our 2016 fieldwork.

Our baseline data also suggested that at least some crop farmers in Dalanjargalan took on both paid and unpaid assistants from other households to help them farm. Just two of the randomly sampled households in our baseline survey (3%) reported that their household included 'people farming for other households or enterprises without being paid in cash', of whom one was male-headed and one was female-headed, and both of whose heads were born in the soum. Five of the randomly sampled households in our baseline survey (7%) reported that their household included 'people farming for other households or enterprises for cash', of whom three were male-headed and two were female-headed; one further household from among our additionally surveyed female-headed households also reported this, and five of these six had heads who were born in the soum. Combined with our evidence on the use of labour in herding discussed above, this suggests at least some kind of reciprocal economic arrangements among long-term residents of Dalanjargalan, supporting other local households either in farming or herding, including looking after the herds of absentee herders, and for payment either in cash or in kind.

Gender relations

As in Bornuur, participants in our FGDs and BIs in Dalanjargalan perceived the division of labour within herding households to be naturally regulated, with men in charge of outdoor activities such as fixing fences, herding livestock, watering them, preparing firewood, slaughtering livestock for winter, and other physically strenuous tasks, and women taking care of the work inside the house or ger, working mainly within the confines of the khashaa, cooking, cleaning, washing clothes, milking, processing dairy products, etc. As well as the specific data from our baseline survey on divisions of labour in herding discussed above, our survey also revealed, for housework, that women did the cooking in 81% (60) of all randomly sampled households, whereas men did this in just 39% (29) of all households. Likewise, women washed clothes in 80% (59) of all randomly sampled households, whereas men did this in just 42% (31). However, according to the seasonal workload exercises done by both men and women separately during our FGDs in Dalanjargalan, it seemed that much of the men's work was shared by women as well. For instance, watering and herding livestock were sometimes done by women, and men in split families with wives and children in the soum centre were doing a lot more housework through the winter, such as cooking for themselves.

In the seasonal workload exercises the role of children also came out strongly. Participants in our FGDs informed us that children particularly helped their parents with herding, cleaning the house and taking care of young siblings. Furthermore, each spring, in accordance with the Ministry of Education's national policy, 14-21 day school holidays take place to specifically enable children to

help their parents when new livestock are being born, with exact dates confirmed locally by bagh governors.

During one FGD with men, they shared that women in Dalanjargalan spoke up without being shy and that they were generally expressive. Several participants in our FGDs and BIs also mentioned that women were more active than men in participating in social meetings organised by soum officials and that they freely voiced their opinions and comments; they also regularly took part in bagh meetings.

In more traditional herding families in Dalanjargalan, and as in Bornuur, women were also looking after household finances; however, when purchasing real estate or trading livestock, men would often intervene in the financial matters of the household even when living apart. On the other hand, women often looked after the formalities around land title applications, which was related to the fact that many women lived in the soum centre during the school term. Overall, women were reported to be actively engaged in household decision-making, although intra-family discussions about access to land and water sources (i.e. about management of the common pastureland) were generally held only among men, as we discuss further below. That these traditional divisions of labour made it very difficult for women to engage in herding without male support has already been discussed with respect to Bornuur.

> "During meetings both men and women ask questions and voice complaints. But lately women are getting more informed and more active because they bring their children to the soum centre and stay with them all autumn, winter and spring. They get more information than their husbands who stay out in the countryside all year round." (BI12, middle-aged disabled woman)
>
> "Women are more in charge of finances. But the main property and cash matters are in men's hand. Men usually give direction to the women about what to spend and how to spend it. All couples have one main account. In the city this must be different. Generally men do herding work but they do not have so many duties. Men make decisions about migration as they herd the livestock. They have the herding knowledge." (FGD19, married women)
>
> "Women always look after the work of getting land titles and other such activities. Men have more control over the bigger jobs, such as selling livestock and doing property deals etc." (FGD23, women involved in community groups)
>
> "Household members discuss amongst themselves about household income and expenses. The wife controls small expenses and the husband has control over big matters, such as selling livestock and other big trades." (FGD21, married women)

This issue of split families is key to understanding gender relations in Dalanjargalan, as it seemed to be having a major impact on household composition, structure and family relations, the full effects of which were not yet clear. Participants in our FGDs and BIs told us that the root cause was the big distance between the scattered winter camps of herder households and the soum centre school. During socialist times the soum's school used to have a dormitory with decent study space and facilities and good food, where children would be taken care of, but this was no longer the case. We learned that local people believed that children who were with one of their parents in the soum centre would do better at their studies than children who stayed with relatives or in someone else's home. Given that the more traditional nomadic herding families were keen for their children to get a better education than many of them had had themselves, this meant that in almost every two-parent herding household, the wife and husband were living separately during the whole school year so that mothers could stay in the soum centre to look after their children while they attended school, with fathers staying in the countryside to take care of animals and wives only sometimes returning to the rural home on weekends through the long cold Mongolian winters. The soum government allowed these families to obtain housing plots in the soum centre to accommodate this split family arrangement, as we note further below. Most of the family's food came from the rural home, although some women took up income-earning activities in the soum centre too, such as

formal employment or running small businesses. This not only meant that men in these households were having to deal with housework during the winter by themselves, but that women also had the opportunity to become more economically independent. For example, and as noted above, women were more likely now to engage in traditionally male-controlled livestock trading, even if still consulting with their husbands about it. According to some participants in our FGDs and BIs, this whole phenomenon of split families was thus opening up new opportunities for women, and women were becoming relatively more powerful as a result.

However, participants in our FGDs and BIs also hinted that divorce rates were starting to increase due to this practice, as some women were staying with their children in the soum centre even through the teenage years. That would mean living in a split family arrangement for more than 10 years, and the pressures this put on those families, and the broader consequences for them, were not yet clear. For example, in one of our FGDs with male herders, participants reported that men's workloads got busier each winter by 40% more than women's, because women and children were away in the soum centre, while women's workloads got busier by 30% more than men's in the summer, when they returned to the rural areas for school holidays. There may also be further downsides to women's increased independence within split families, such as increased gender-based violence, although this did not arise directly in any discussions during our fieldwork, and only one (male) participant in a BI raised it at all.

> "I usually go out for herding and my wife takes care of the inside work, like cooking and cleaning. When we buy something we usually discuss it with each other. But lately I feel that women have more power at home and decide everything. I know one family where the wife decides everything, about income, livestock purchases etc. But it depends. Human life is short. We have to respect and love and care for each other." (BI15, elderly married male herder)
>
> "There is a trend now that the husband lives in the countryside with the livestock and the wife comes to the soum centre because of school for their kids. And usually in our soum, the wife gets a car and drives around doing some trading business. They are getting more powerful and informed. And, like my wife, they usually go to the meetings in the soum centre." (BI22, male miner)
>
> "Today life is good! Women and men are so equal now! A woman can even become head of the government soon. People know their rights so well and do not want to hear about their responsibilities…During the socialist time, everyone knew their rights and responsibilities. Nowadays everyone is talking about their rights only! Life is better now and everyone has a vehicle. But people are not caring for nature…Women engage in all sorts of work in the house. They do sewing, even make deel. Men only know how to herd their livestock. Women cook and look after the children. There is a Mongolian saying that "people enter the ger by a man's name, but they leave the ger by a woman's name". I think it is a wrong policy to start school at 6 for herders' children. Women who go to the soum centre start wearing a costume [official suit]. I think this is such a wrong thing. I would not want to lose my daughter-in-law like that…Men and women decide equally on what the money is spent. Men do not know all the details of what is needed for the family. I had a good wife and I would bring all my money to her. My wife would spend it properly…Women are treated equally for access to land. But the main issue for women is domestic violence. The woman does not complain first time because she cares for her husband. Then the next time, she will not speak out again. Then it goes further and further. As head of the household, men tend to be overactive." (BI17, elderly widower)

Another interesting phenomenon in Dalanjargalan was that of 'fake' divorces, which was reported to be the result of increasing pasture scarcity in the soum. We were told that some married couples with large numbers of livestock would get divorced so that one of them could officially register as a citizen of another (usually neighbouring) soum and be given a winter camp there. It seemed that these 'fake' divorces were becoming common practice, particularly for households who lived near Dalanjargalan's border with Bor-Undur soum. According to Mongolian law, as outlined above, winter and spring camps could be possessed under either the husband's or the wife's name but one household could not have more than one winter camp. The rationale for 'fake' divorces was therefore to be able to get two different winter camps (and surrounding pasture) between which the

family and its livestock could move freely. While this practice may be beneficial to women, since it would allow them to own winter camps in their own name, there seemed to be a real risk that 'fake' divorce would lead to the real break-up up of these herder households, as it put strains on the family from the pressures of having to live separately to protect their rights to the two winter camps and pasture areas, as we discuss further below.

In general, an increase in divorce would mean more women having to survive in the soum centre without male support if they lost access to their winter camps in the rural area, since these were mostly held under men's names, as we discuss further below. Yet we were also told that life was not easy in the soum centre, as general living expenses were much higher than in the rural areas, which posed particular problems for female-headed households without any male support, as we also discuss below.

Mining companies and artisanal mining

Mining in Dalanjargalan includes large-, medium- and small-scale coal and fluorspar production, plus iron and construction materials mining, illegal artisanal fluorspar and semi-precious stone mining, and a cement factory, fluorspar processing factory and more. The last two decades have seen a huge mining boom in Dalanjargalan and we were initially told that over 70% of the soum's territory was held under some 100 mining licences and that the soum hosted 48 active mining companies, with operations in all baghs except Tsomog, as well as many more companies involved in exploration. However, the official data from MRAM that were shared with us by the Soum Environmental Inspector record a total of just 90 mining licences in Dalanjargalan, 42 for production and 48 for exploration. Analysis of these data, as set out in Table 25, suggests that the total area held under mining licences was some 75,597 ha, or just 19% of Dalanjargalan's total territory.

Table 25. Smallest and largest areas (hectares) under individual mining licence, Dalanjargalan

	Smallest area	Largest area	Total area
Exploration	39.75	9,299.79	64,256.85
Production	19.07	1,430.55	11,339.76
All licences			75,596.61

Source: Official data from Dalanjargalan Soum Government, as at 6 April 2016.

The largest area of land held under a single mining licence in Dalanjargalan was a 9,300 ha foreign joint entity exploration licence held by Blue Sky Horse. The owner of the largest production licence, of 1,431 ha, was Mongol Alt MAK, which also owned the smallest holding in Dalanjargalan, of 19 ha, as well as two other production licences; MAK Cement owned a further three mining production licences. In total there were 70 separate legal entities listed in the MRAM data as holders of the 90 mining licences in Dalanjargalan soum.

All the mining production licences were issued for 30 years, and end dates ranged from 2025 up to 2044; the oldest licence, i.e. the first to be issued in the soum, was to Mongol Alt MAK for one of its coal mines in Eldev. The oldest exploration licence was issued in 2002, and all the exploration licences were due to expire by 2017.

As Table 26 below shows, the most commonly mined commodity in the soum – as measured by the number of mining production licences attributed to each – was fluorspar (13 licences), followed closely by construction materials such as stone, gravel and sand (12 licences), and coal (11 licences). However, considering instead the combined area of land used to mine certain commodities, coal was the most heavily mined commodity, with operations covering 4,721 ha, compared to 4,121 ha for construction materials. Iron mining covered an area of just 1,284 ha, and fluorspar mining just 1,214 ha.

Table 26. Area data for different minerals held under mining production licences, Dalanjargalan

	Coal	Construction materials	Fluorspar	Iron
Number of licences	11	12	13	6
Smallest area (ha)	19.07	22.62	24.93	55.91
Largest area (ha)	1,430.55	1,240.71	354.67	907.49
Total area (ha)	4,721.15	4,120.98	1,214.09	1,283.54

Source: Official data from Dalanjargalan Soum Government, as at 6 April 2016.

The MRAM data indicate that, with the exception of licences for iron mining, the majority of all mining production licences were held by national (Mongolian) entities, as Table 27 shows.

Table 27. Type of investment for different minerals held under mining production licences, Dalanjargalan

	100% Foreign Investment			Foreign Joint Entity			National Entity		
	Construction Materials	Fluorspar	Iron	Coal	Construction Materials	Fluorspar	Coal	Construction Materials	Fluorspar
Number of licences	1	3	6	2	1	1	9	10	9
Smallest area (ha)	1240.71	28.22	55.91	28.17	22.62	29.84	19.07	87.57	24.93
Largest area (ha)	1240.71	354.67	907.49	238.73	22.62	29.84	1430.55	611.91	254.36
Total area (ha)	1240.71	421.08	1283.54	266.9	22.62	29.84	4454.25	2857.65	763.17

Source: Official data from Dalanjargalan Soum Government, as at 6 April 2016.

As the data in Table 27 show, some 2,945 ha under 10 separate licences, or 26% of the total 11,340 ha held under mining production licences in Dalanjargalan at the time of our fieldwork in 2016, were held by 100% foreign investments; a further 291 ha, or 3% of the total, were held by foreign joint entities under four separate licences. This means that, contrary to the popularly expressed concerns about foreigners (outsiders) taking over parts of the soum for mining during our 2016 fieldwork, the major investors in mining in Dalanjargalan appeared to all be Mongolian national entities, holding 8,075 ha, or 71% of the total area licensed for mining production, under 28 different licences. The story was similar for exploration licences in Dalanjargalan, of which 81% were recorded in the official data as being owned by national entities (39 of 48), six were 100% foreign owned, and three were held by foreign joint entities.

During our FGDs and BIs, it became clear that local people in Dalanjargalan had much more limited information and awareness about mining in their soum, and there seemed to be a lot of confusion, particularly about smaller operations and mining exploration. Participants in our FGDs and BIs shared that the three biggest mining companies that they were aware of operating at the time of our 2016 fieldwork were the 100% privately-owned Mongol Alt Corporation (MAK), established in 1993, Chingissiin Khar Alt, listed as a foreign joint entity in the MRAM data, and Kasman Fluorspar Mine, whose name does not even appear in the MRAM data.

MAK had two different operations in the soum. The biggest mine in Dalanjargalan, in terms of both resources and facilities, was MAK's Eldev coal mine, which, after almost 20 years in operation, had already planned its closing phase to begin within two to three years of our fieldwork. The coal from this mine was marketed domestically to large-scale Mongolian enterprises such as Erdenet Mining Corporation, Khutul Cement and Lime Plant, Darkhan Power Station, Darkhan Metallurgical Plant and Ulaanbaatar Railway Systems, etc. MAK had also more recently established the Khukh Tsav cement factory in Olon-Ovoo, with a production capacity of 1 million tonnes per year, using materials from the local Gobi area, of which the company estimated to have reserves that would last 192 years.

Chingissiin Khar Alt's coal mine and the Kasman Fluorspar Mine, which people told us was owned by MONROS LLC, the leading fluorspar mining company in Mongolia, also operated in Eldev. Kasman

started operations in 2006 and was supposed to have stopped three years ago, but local herders claimed that it was still operating at the time of our fieldwork in 2016. However, no official information about either of these mines was available locally in Dalanjargalan, nor on the companies' official websites, and MONROS LLC was also not listed as a licence holder in the MRAM data either.

Participants in our FGDs and BIs also said that there were small- and medium-sized fluorspar mining companies run by Chinese people in Dalanjargalan, but about which they likewise had limited information. It appeared that various local families had also established small- to medium-sized family-run fluorspar mining businesses, which hired artisanal miners but which were not so active at the time of our fieldwork in 2016 due to limited marketing opportunities – because the mining economy, as noted above, was down. These local businesses were mostly illegal and there were reported to be many conflicts between them and the bigger mining companies in the soum, as we discuss further below. As discussed above, it was also very difficult in Dalanjargalan to work out approximate numbers of people engaged in mining, but during our FGDs and BIs people variously reported that almost everyone had engaged somehow in artisanal mining, or that everyone in certain areas had done so.

Mining companies

Investment procedures

Evidence from our baseline survey confirmed the general lack of awareness about mining companies that we detected in our FGDs and BIs, particularly in relation to land. Thirty per cent (16) of all 54 female respondents and 28% (11) of all 39 male respondents in our survey agreed to the statement that: "In your community, companies have been able to come in and take people's land without consulting ordinary people." Yet, at the same time, just 28% (15) of all female respondents and 26% (19) of all male respondents agreed that: "In your community all people are involved and consulted in decisions about community land management." This apparent contradiction in perceptions was difficult to explain, unless we interpret the responses to the first statement as a sign that formal consultation processes were adhered to, and the responses to the second statement as a sign that people nevertheless did not feel genuinely consulted and involved – and it seemed from our FGDs and BIs that this was indeed the case. Local people appeared to have a weak understanding of the formal procedures mining companies were supposed to follow, yet they were aware that soum and bagh meetings were sometimes held to discuss mining licence applications. As the process was explained to us by participants in our 2016 fieldwork, mining companies need a licence issued by MRAM in order to start mining somewhere. Once a company's licence application is accepted by MRAM, and in line with the law as discussed above, a letter is sent to the soum khural, which then has 30 days to call a meeting of all citizens of the affected bagh (a bagh khural), to inform them where the proposed mining activities will take place and enable them to decide whether or not to accept the licence application. If all bagh members who will be affected by the licence refuse to have the mining operation in their area – and, we were told, particularly the household heads (i.e. usually men) – then the company cannot start operating as its licence will not be approved.

However, according to the majority of participants in our FGDs and BIs, in many cases these formal meetings to decide about mining activities in the soum were not called, with the result that people perceived mining companies to just come and run their activities without informing the local people. Furthermore, FGD participants mentioned that, in their understanding, the initial mining licence was supposed to be given only for a five-year period, for exploration work, and during this time the bagh citizen khural was supposed to have an important role in overseeing the company's activities and ensuring it conducted proper environmental impact assessment and paid taxes. However, FGD participants told us that it did not always work like that in practice, and that follow-up of mining company activities was often limited. For example, mining companies were supposed to provide an

independent environmental impact report to the soum governor once every two years, but most people we spoke with during our 2016 fieldwork had not seen such reports nor were they aware of any follow-up, nor even of them having been prepared (i.e. through having witnessed site inspections in their areas). Relatedly, some participants in our FGDs and BIs claimed that companies were very secretive and had refused to show their mining licences to local herders as proof that they were legally allowed to be there.

> "Fluorspar companies never inform the citizens before they start their operation. Only after their operation starts, then the bagh khural makes an announcement about their arrival…I wish that herders could attend a training in legal information and awareness. I don't know where to find information. I think bagh governors and state agencies are responsible for providing information." (BI14, elderly married female herder)
>
> "It is unclear how, when and from whom these mining companies received a licence. Herders do not have any information about it. All of a sudden mining companies come to the area and start working. All of these mining companies have security guards. They never let herders in when they approach them to know more about these companies. They only interact with the soum government." (FGD17, male herders)
>
> "South of Olon-Ovoo bagh, a Chinese company got a licence for 400 ha for fluorspar mining…This big company came in without informing the households. At least 6 to 7 households are losing their pasture due to the company's operations. And we don't even know what the name of this company is." (FGD27, female miners)

Further, we were told that some mining companies counted the 30-day period in which to hold the bagh khural from the time they submitted their licence application to MRAM, rather than the time the soum received the letter about it; if the meeting had not taken place by this time, the companies were said to ignore any decision made by the bagh khural and just go ahead and mine anyway – something which also seemed to be a much wider problem with the functioning of the relevant national mining legislation and regulations across Mongolia. Thus, even when decisions were taken against allowing a new mining licence within the time frame (i.e. the 30 days from the time of the soum being informed of the application), participants in our FGDs and BIs expressed concerns that they could not trust companies to respect their decisions. One recent example we were told about was a request by two mining companies to open new mines in Eldev, neither of which were supported by the local people as they would have covered the areas of nine winter camps, which were considered to have the most nutritious and good quality pasture.

> "Two mining companies came to ask permission from bagh citizens. But the people who were at the meeting said NO. But we never know, they might come and start their business anyway. Because mining is beneficial to the people who have power in the soum government and it is not beneficial for ordinary people. For us we lose pasture and eventually our livelihood instead." (BI13, married middle-aged male herder)
>
> "Lately, there was an information dissemination meeting about two mines. Requests for new licences are coming to our bagh and they are asking our permission. The bagh khural decided not to permit them. But they said that they would go higher up and they will not talk to us again. Except in this case, existing mining companies all started without letting us know." (BI18, married middle-aged female herder)

Other issues around mining investment procedures that came up during our fieldwork in Dalanjargalan in 2016 were linked to the strong perception that many people seemed to have of foreign, and especially Chinese, ownership of mines, noted above. We were told by participants in our FGDs and BIs, for example, that Chinese people operating through (officially) domestic (Mongolian) companies, and running small and medium-sized fluorspar mining companies would obtain large licensed areas under the category of "widespread mineral resources" (i.e. for construction materials such as gravel and sand) and then take over sites used by artisanal fluorspar miners. People explained that artisanal miners with many years of experience would know whether an area had rich fluorspar or not just by its smell, so these companies would look to see where the artisanal miners were working, wave their official documents at them and then chase them away;

some participants in our 2016 fieldwork considered this to be a very common strategy of larger fluorspar mining companies – their own form of mineral exploration.

The perception about Chinese ownership was also linked to reports of illegal buying and selling of mining licences, of which there have also been many other reports from across Mongolia, making it impossible to know how many of the 42 officially-recorded mining production licences in Dalanjargalan were still legitimately held; other licence holders were also reported to lease their areas to different artisanal miners, dividing them up into small pieces.

> "The process of granting fluorspar exploration licences is temporarily on hold until 2017. So Chinese companies are taking licences under the category "widespread mineral resources" for construction materials, but they carry on mining fluorspar. They are taking huge areas of 200 ha and more and keep on mining fluorspar only. My small nukhurlul wanted to possess the land for fluorspar. We submitted all the documents to the soum government but it kept delaying. Later, the soum government gave our area to the Chinese under the category of "widespread mineral resources mining". Basically, it was a robbery. The licence for "widespread mineral resources" is for 30 years and can be extended for some years after that. The bribe for this licence is about MNT 200-300 million (USD 91,743-137,615). My nukhurlul cannot afford that…but then we registered with the Soum Governor and got allocated a small parcel of land to mine. We don't have any certificate yet. We applied for it but we are still waiting. (BI21, married male miner)

On the other hand, from the corporate side, it was necessary to distinguish between 'good' and 'bad' companies, and to recognise that even the 'good' companies – such as MAK, which was credited by participants in our FGDs and BIs as being the most responsible mining company operating in Dalanjargalan – sometimes struggled with investment procedures. For example, MAK staff that we met during our fieldwork in 2016 explained how they often felt stuck in the middle, between local people and the government, when they observed at bagh and soum meetings that many local people appeared not to be aware of the relevant laws and procedures and, therefore, of what all parties' rights and responsibilities were.

> "The community doesn't have the knowledge to engage with businesses and deal with local politics. Even when we try to hold community consultations, the community doesn't know how to engage with us…The Environment Ministry and the Mining Ministry have procedures for community consultations but no-one is training people in how to do it. There are international standards on how to engage in community consultations and companies take time to make a strategic plan for rehabilitation and community support. We try to engage but people don't believe we are sincere! The local government at soum and aimag level need to be trained to support this process too." (Mongol MAK Social Responsibility Manager)

Employment and CSR

Two further issues that came up frequently in our fieldwork in 2016 with respect to large and medium-sized mining companies in Dalanjargalan were those of employment and corporate social responsibility (CSR). Mining companies were perceived to have created employment for some, yet most people we spoke with felt that they had done little for the community as a whole and instead just created many problems.

> "Mining companies are not beneficial to local people. This country's resources are sent to China and we are left with empty holes." (BI19, middle-aged widow)

While we could not get any official data on employment, the perception seemed to be that mining companies in Dalanjargalan hired only very few local people, and mainly in the more menial jobs. According to MAK staff, MAK's coal mine in Eldev only had about 30 workers at the time of our 2016 fieldwork, but it had employed many more in the past, some of whom were local people, including for cleaning and heating services. At the cement factory in Olon-Ovoo, MAK had employed around 500 Chinese construction workers, but these were temporary workers and the company anticipated

taking on more local people once the factory become fully operational and construction was complete. However, concerns were also raised about problems that sometimes arose with local employees, including alcohol-related absenteeism and other issues, particularly around pay day.

During our FGDs and BIs, people in Dalanjargalan said that mining companies often did not pay social insurance for their employees, and that because a lot of work in mining requires heavy labour, many companies preferred to hire men. Various people also complained about unhealthy working conditions, especially due to dust. On the other hand, there clearly were work opportunities for local people in Dalanjargalan from mining, even if some of these were more informal and casual. Some of the Chinese fluorspar companies mentioned above, for example, were said to hire local people on a casual basis to sort out the fluorspar that was already on the ground, at the rate of MNT 250,000 (USD 115) per tonne.

> "Chinese people are working on the construction of the MAK cement plant. Mongolians are not hired to work. We also heard that even when they start their operation, they would hire experts from elsewhere, not from this soum. It would be nice if they hired young unemployed people of the soum. There are so many young unemployed people in this soum". (FGD28, male factory workers)
>
> "Mining companies do not pay social insurance for local people if they employ them. In case of injuries and accidents, the mining companies only cover the one-off hospital treatment costs." (FGD24, female household heads)
>
> "Women do not get employment in mining companies easily, even if they are qualified. I am a mining engineer and it took me five years to get employed by a mining company. There are possibilities for local people to get employed as physical labourers and women could work as cooks or cleaners. But as a professional, I would not want to do that labour. " (BI20, young married woman)
>
> "One Chinese company hires some Mongolians as cooks, but in fact, they make employees do everything from cleaning the toilet to loading the trucks. This is heavy work for women." (FGD27, female miners)

With the exception of MAK, as noted above, most participants in our FGDs and BIs were also very concerned about what they perceived to be an overall lack of CSR from large and medium-sized mining companies in Dalanjargalan. MAK was contrasted favourably with many other companies because it was seen to carry out environmental rehabilitation work, both during and after its mining operations. We were told by some of the participants in our 2016 fieldwork that consultations on MAK's environmental plans had been carried out in the bagh khural (in Eldev), although others said that they did not actually know any details about the plans. On a site visit to MAK's Eldev coal mine in November 2016, however, we observed that 50 ha of land had already been rehabilitated through planting with sea buckthorn trees. At the same time, as MAK staff pointed out, as the biggest Mongolian mining company MAK tended to use the latest, and least-environmentally damaging, technologies, so as to set a benchmark for other mining companies in Mongolia against international standards.

As part of its CSR efforts, MAK had also built a 120-child capacity fully furnished and equipped kindergarten in Dalanjargalan soum centre, as well as the bagh centre in Eldev described earlier. MAK staff informed us that the company had invested MNT 65,000,000 (USD 29,817) in community support initiatives across Dornogovi aimag between 2013 and 2015, but they were not able to tell us how much of that went to Dalanjargalan soum. However, the company's website lists a wide range of CSR activities through its MAK Foundation, and the company was proud of its record compared to other companies in the soum. As well as its building and renovation work on community facilities, it had also supported vulnerable groups such as female-headed households, elderly people living alone, and poor households with many young children, by helping them with their winter preparations, such as stacking up coal and fuel wood. Different participants in our fieldwork had different views about this kind of help, saying that some CSR efforts were too small and unsustainable, and that generally more should be done. However, MAK staff reported that they had

not received any serious complaints from herders in Dalanjargalan, so it was difficult to know the extent to which people were really distinguishing between the CSR efforts of different companies, or were just unhappy with mining companies in general.

> "There are a number of coal mines here and not one of them sells coal to local people with a discount. In fact, it only happened in 2014 for one year, where every household could purchase 5 tonnes of coal for MNT 20,000 per tonne (USD 9/tonne)." (BI20, young married woman)
>
> "It would be good if mining companies shared their profit with the local government…The soum government should decide and plan how to spend the investment made by the companies." (BI16, middle-aged single woman)
>
> "Local people would support mining if the soum government ensured that mining companies are doing their rehabilitation and doing something beneficial for local people…The soum government is weak and does not know how to ensure mining companies are beneficial to the people and the land. Mining companies should have an information centre or a mechanism for complaints. They should have an open communication with local people." (BI20, young married woman)
>
> "MAK promised to build a sports hall in Olon-Ovoo and they still have not done anything yet. They renovated the bagh cultural centre and turned it into apartments. Now there is no entertainment place in the bagh. People are drinking more as they don't have a place to spend their free time." (BI21, married male miner)
>
> "MAK promised to give a bath tub for livestock washing and never did. In the first year, MAK gave 2 tonnes of coal to each household near their mine. But they never gave it again." (FGD18, married male herders)

People's awareness of the tax rules around mining also seemed to be very limited, with participants in our FGDs and BIs often complaining that companies were not paying taxes to the soum, when in fact taxes were supposed to go to the national government who would then allocate its budget among the aimags (and then on down to the soums) in line with overall national policies. However, some of the smaller mining companies active in Dalanjargalan were reported by participants in our FGDs and BIs to provide direct financial support for local development, although neither the mechanisms for this nor the amounts involved seemed clear. We were also told that in some cases no compensation had been given to people who lost livestock due to the activities of mining companies in the soum. For example, an FGD participant from Eldev bagh shared that his cow was killed by a mining company truck and he could not get any compensation from them.

Artisanal mining

At the time of our fieldwork in 2016, artisanal miners in Dalanjargalan engaged in both small-scale fluorspar mining and the mining, or, more usually, collection of different-coloured semi-precious stones (chalcedony), which were sold to markets in China for use in making jewellery and decorating buildings. Fluorspar mining entails either going down into the big deep holes left behind in old mines or digging new holes between 10 and 60 metres deep in the ground and going underground, and is thus more risky and environmentally destructive, while semi-precious stones are usually found on or just beneath the surface of the land.

It was difficult to get much detailed information about the origins and early days of artisanal fluorspar mining in Dalanjargalan. As noted above, it started in the mid-1990s, with people coming from all over the country to work in Eldev and Olon-Ovoo baghs. We could not find any official data on the numbers of artisanal miners in the soum during the late 1990s to 2000s, but, according to participants in our FGDs and BIs, there were several thousand by 2010. All these artisanal miners were operating illegally and they included women, men and students on their summer holidays. Former miners from this time told us that they had relied on very basic techniques and equipment, such as using a shovel to dig holes by hand. However, others were reluctant to talk about their experiences both because they had been operating illegally and because they did not have many

good memories to share; most had not substantially improved their livelihoods through artisanal mining and some had even got sick.

> "I became an artisanal miner in 2005. I did it with my wife and my children who were studying in high school. We used to collect fluorspar and load it onto the truck and sell it in the soum centre. The main buyer was Shivee Gobi LLC. We used to sell it twice a month. I stopped working as an artisanal miner in 2008 because I got sick. I broke my back and I lost my eldest son. My wife and I went to the monk and he said we have to stop digging the land where we were born. So we left mining from then on. Mining did help our family to have an income but it is not sustainable." (BI22, male miner)

It seemed clear that since 2010 the number of artisanal fluorspar miners had reduced considerably, first, because reserves were becoming exhausted, and second, because people had come to understand that artisanal fluorspar mining was dangerous work, because of both the dusty working environment and the risk of injury or death from earth walls collapsing while miners were underground. A third reason for the reduction in artisanal fluorspar mining in Dalanjargalan related to increased issuance of mining licences to companies, which reduced the area left available for artisanal miners to operate in, especially when the companies fenced and patrolled their land. Nonetheless, our FGDs and BIs revealed continuing involvement by local people, with one FGD with women miners suggesting, for example, that about 50 to 60 households in Olon-Ovoo were engaged in artisanal fluorspar mining at the time of our 2016 fieldwork.

Artisanal fluorspar miners in Dalanjargalan were mostly organised in small family and community groups (nukhurlul). A few groups were now registered with the soum government and had legal rights to mine their allocated parcel of land, but the majority were still operating illegally; several participants in our FGDs and BIs said that as they had attempted to get a licence for artisanal fluorspar mining but could not get one, they had just continued mining illegally themselves (cf. Cane et al. 2015; Navch et al. 2006). We learned that many artisanal miners in Dalanjargalan would like to create legal artisanal mining partnerships with the support of the local government and be formally allocated land. As in Bornuur, participants in our FGDs and BIs said that those engaged in artisanal mining were doing so out of necessity rather than choice, but they were aware of the various risks and would have preferred artisanal mining to be a safer and more legitimate livelihood option.

> "We would not be involved in mining if there was a working place in the soum. Women who are 18-35 years old have the opportunity to be employed. When they reach 36, they have no chance to be employed in the soum, because they are considered as elderly people already. The only opportunity for women over 36 is to get involved in artisanal mining." (FGD27, female miners)
>
> "It is very difficult to get a licence for fluorspar mining so artisanal miners simply mine illegally themselves. People who have many years' experience simply know an area by smelling. It is difficult to be safe. People are not so careful and often lose their lives. Particularly in spring, there is more risk of soil erosion. People are mining for money all year round, some people make 40 to 50 metre holes and mine there. There is a safer type of fluorspar mining. It is an open pit. The person with the open pit can hire someone with a truck to do the digging and load the earth on the ground and then they sort the fluorspar out of that. The fee depends on the fluorspar content. Even Chinese people take fluorspar from holes they have dug. But they look after their safety well. They make mounting and bracing well. Chinese people do not let Mongolians go into the holes, they go in themselves." (FGD28, male factory workers)

We were also told that the Dalanjargalan soum government did not yet have any internal rules or by-laws, like those for artisanal miners' partnerships in other areas of the country, and the artisanal miners did thus not yet feel fully supported. Two reasons were offered for this lack of progress with legalising artisanal mining in the soum – first, due to fears of the social impacts of another rapid expansion in the number of artisanal miners (including adverse health impacts, increasing violence and alcoholism, as in Bornuur), and second, due to a preference for allocating mining areas to fewer larger and medium-sized mining companies rather than to lots of small artisanal mining groups.

However, the difficulties around formal registration were becoming more pressing for Dalanjargalan's artisanal fluorspar miners by the time of our fieldwork in 2016 because of the disputes that were arising through their illegal status, both between different artisanal mining groups and between them and larger companies.

> "We as illegal artisanal miners applied to the soum government to become a legal artisanal mining community group. We heard about this opportunity from the Deever Kholboo Association that is supported by SDC. But at the moment, the soum government is not approving our application. The soum citizen khural stands against this process." (FGD27, female miners)
>
> "I would like to make this artisanal mining a more legally secure activity. My legitimate rights as an artisanal miner should be recognised and secured. Mining work is very risky and I always fear about my employees' accidents, drinking issues, stealing fluorspar etc." (BI21, married male miner)

Artisanal fluorspar mining groups usually consisted of four to ten members and some were women-only; some worked underground but others worked on the remains (tailings) of larger fluorspar mines. As with the artisanal gold mining in Bornuur, it was mostly men who dug holes and went down them, but some women also did. Some of the family-based groups were run like small businesses, i.e. hiring people to go down the holes and collect the ore, marketing their fluorspar etc., with women very involved in both the mining itself and on the business/sales side. Fluorspar mining usually took place in the summer and the proceeds were sold in the autumn. However, individual artisanal fluorspar miners we spoke with said that they were involved in mining only for their daily food and that it would be hard to find someone who had got rich from this work.

> "I do all the management part of the fluorspar mining, such as getting the fluorspar ore, managing and hiring people etc. My wife does all the sales work, financial management and purchasing food items for our workers. My wife also does all the housework. She manages all the finances of our home and businesses. I drink sometimes so I don't want to look after this." (BI21, married male miner)
>
> "Everyone in this bagh has some experience of fluorspar mining. 1 tonne of fluorspar costs between MNT 180,000-240,000 (USD 83-110) depending on the content and density. In 14 days, 10 tonnes of fluorspar could be mined. Artisanal miners sell it to the middlemen who sell it to Chinese traders. Some of the family-run businesses also sell directly to Russians. Some middlemen, or those who have land for fluorspar, they hire local people to mine for them and pay them. But sometimes local people mine themselves and sell to the middlemen." (FGD25, male miners)
>
> "Recently a guy from South Gobi was working at the artisanal fluorspar mining site. He was in the hole to take the ore out and he passed away when the earth walls collapsed. He was hired on a daily basis for MNT 20,000 (USD 9) a day…Even some women work in the holes. This is extremely dangerous work…Lots of men in this area are alcoholics. They usually drink vodka and women do the work. Nowadays many outsiders are coming here and drinking too." (FGD27, female miners)

In contrast to the case of fluorspar, miners of semi-precious stones were all mining illegally and were more likely to work as individuals, although in some cases husbands and wives worked together. This type of artisanal mining was much more recent in Dalanjargalan; it was reported to have only got going in the previous few years as Chinese traders started to buy the stones from local people. Participants in our FGDs and BIs told us that most illegal miners of semi-precious stones were women, particularly in Ungut, because the work of collecting stones was very easy. Some soum and bagh officials told us they had been threatened with violence by some of these women when they had asked them to cease their mining activities, and much of their work seemed now to take place at night. We also heard of at least one case where a group of four to five people came by truck from a different soum to collect semi-precious stones in Dalanjargalan, and that other people have come from South Gobi and Selenge aimags. Once they have picked up all the stones that are visible on the ground, they start digging holes of up to 15 metres deep in search of more; this destroys both top

soil and vegetation and has contributed to conflicts between the artisanal stone miners and local herders.

Effects of mining

During our baseline survey, 54% (40) of the 74 randomly sampled households in Dalanjargalan reported that mining had affected their household in some way or other in the previous two years, ranging from 82% of randomly sampled households in Eldev to 33% of randomly sampled households in Tsomog, the soum centre, as Table 28 below shows. This compares to just 5% (4) and 15% (11) of the randomly sampled households across Dalanjargalan overall reporting that national parks and large-scale land acquisitions, respectively, had affected their household in the previous two years – and despite the presence of the Ikh Nart Nature Reserve in the soum, which we discuss below. It also contrasts with Bornuur, where just 28% of randomly sampled households reported that mining had affected their household in the previous two years. Fifty-seven per cent of all female respondents (31 of 54) reported that mining had affected their household, compared to 46% of all male respondents (18 of 39).

Table 28. Effects of mining on households in different baghs, Dalanjargalan

Bagh	% of households reporting effects from mining
Bichigt	64%
Eldev	82%
Olon-Ovoo	47%
Tsomog	33%
Ungut	60%
Dalanjargalan overall	54%

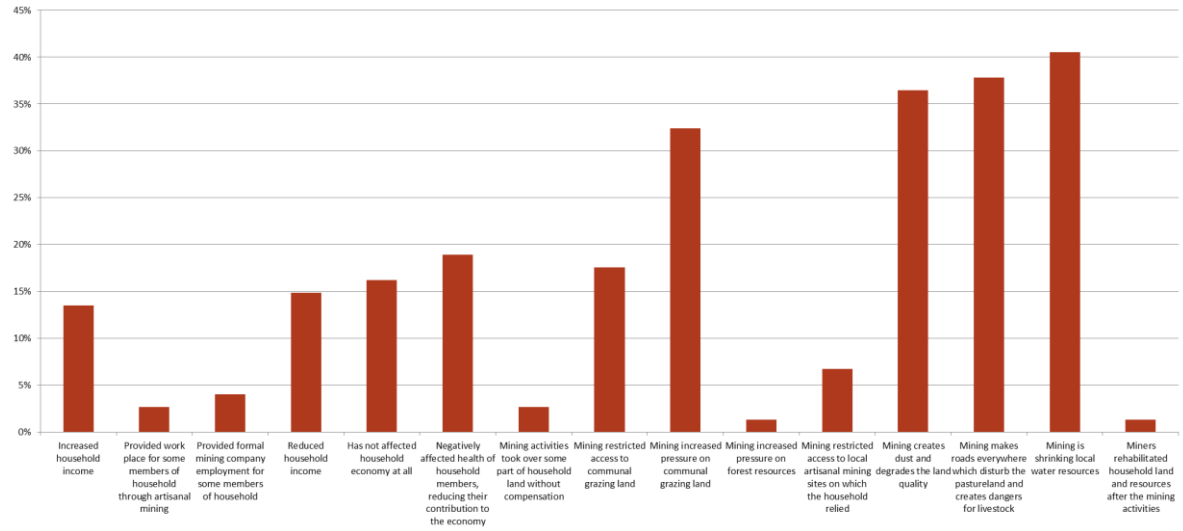
Source: WOLTS Mongolia baseline survey 2016. N = 11 for Bichigt. N = 11 for Eldev. N = 19 for Olon-Ovoo. N = 18 for Tsomog. N =15 for Ungut. N = 74 for Dalanjargalan overall.

The data in Table 28 were interesting because, first, although the highest proportion of households reporting any effects of mining on their household lived in Eldev, where the most and biggest mining sites were located, no-one at all in that bagh reported involvement in mining in our baseline survey, and only a few participants in FGDs mentioned having been employed at the MAK coal mine there, and second, the lowest proportions of households reporting any effects of mining on their household were in the urban baghs where more of the company and factory employees lived. This suggests that respondents in our baseline survey had interpreted our opening questions about effects of mining as meaning negative effects, even though we asked a general question about effects first, before going in detail through all different types of possible positive and negative effects for both the household's economic situation and its local land and natural resources.

There were also interesting differences in reported types of effects from households living in the different baghs. For example, 55% of the randomly sampled households in Eldev reported that mining had reduced their household income, whereas 26% of the randomly sampled households in Olon-Ovoo reported that mining had increased their household income. This seemed likely to be due to the (largely negative) impacts of mining on the livelihoods of traditional herders in the first case, and to the (largely positive) impacts of mining on the livelihoods of mining company and factory employees in the second case. Two randomly sampled households in our baseline survey in Bichigt reported that mining activities had taken over some part of their household's land without compensation, ten households across the three rural baghs of Eldev, Ungut and Bichigt reported that 'mining restricted access to communal grazing land' and 17 households in those same three baghs reported that 'mining increased pressure on communal grazing land'. Land and natural resource-related effects of mining were also reported much more in Dalanjargalan than in Bornuur, which we had expected to be the case given the much greater scale of mining and the larger overall total land areas affected by it in Dalanjargalan than in Bornuur.

Across Dalanjargalan as a whole, as Figure 27 shows, the biggest reported effects of mining were negative effects related to land and natural resources. However, a number of households also reported positive economic effects – 14% (10) of the randomly sampled households in Dalanjargalan reported that mining had increased their household income, for example through creating markets for meat and customers for local shops and services, 3% (2) reported that mining had provided work for some members of the household through artisanal mining, and 4% (3) reported that it had 'provided formal mining company employment' for some members of the household. On the other hand, as Figure 27 also shows, 15% (11) reported that mining had 'reduced household income' and 19% (14) reported that mining had 'negatively affected health of household members'.

Figure 27. Reported effects of mining on randomly sampled households, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. N = 74.

The four most common effects of mining on land and natural resources reported by respondents in randomly sampled households in our baseline survey in Dalanjargalan, as Figure 27 also shows, were that 'mining is shrinking local water resources' (reported by 41% (30) of the randomly sampled households), that 'mining makes roads everywhere which disturb the pastureland and creates dangers for livestock' (reported by 38% (28)), that 'mining makes dust and degrades the land quality' (reported by 36% (27)), and that 'mining increased pressure on communal grazing land (reported by 32% (24)). This is a major difference to Bornuur, where these four responses were reported by only 12%, 9%, 11% and 12%, respectively.

Most of the participants in our FGDs and BIs also commented on the huge impacts on the environment, mainly on the pastureland and water resources on which herders' livelihoods depended, as well as on the health effects for both people and livestock. Four sets of interconnected concerns were particularly highlighted by a majority of participants. First, mining was reported to create many uncontrolled roads. Instead of maintaining their roads, companies were said to just create new ones, making a lot of dust, and pastureland was considered to have been degraded due to this creation of unmanaged roads (cf. CPR & SSS 2014a; CPR & SSS 2014b). Furthermore, at night the companies' trucks were reported to often run over livestock, with no compensation paid to herders. Second, both surface and underground water levels were reported to have reduced considerably, making it difficult for herders to access water for their livestock. In addition, water used by mining companies was said to be poured away on the ground, affecting the quality of the surface and underground water (cf. USAID no date). The Gobi has only a few surface water channels and participants in our 2016 fieldwork complained that most of them had dried up already due to the activities of big mining activities in this soum. Third, according to participants in our FGDs and BIs, the deep holes made by mining operations have become the main cause of livestock death, and

because most mining companies have not rehabilitated their land, there were reportedly many unfilled holes all over the soum (cf. Cane et al. 2015). Finally, we were told that the dust and smoke created by the mining companies causes health problems among herders, such as asthma, and it also affects the quality of the livestock, within whose lungs and stomach linings herders had found dust (cf. Sukhgerel 2014, cited in Cane et al. 2015).

> "Due to this mining, the water level is reducing and heavy vehicles create dust. Through the wind, this dust reaches the herders and we suffer from asthma and allergies". (FGD23, women involved in community groups)
>
> "The mining impact is huge, due to blasting; the area becomes too dusty, rivers are shrinking and our water resources are reducing. Mining creates a lot of empty holes and livestock fall in and die. Also that pond is filled with hazardous water and the animals drink it. When we slaughter our livestock, we notice that their internal organs are damaged and we think it is due to mining dust." (BI13, married middle-aged male herder)
>
> "Mines make lots of wells and herders' water resources are going down because of them. Most of the small rivers and springs have shrunk now and some of the herders' wells have no water…Mining companies make a waste soil that they burn openly and it creates a toxic smoke that comes to households living nearby. Fluorspar companies don't rehabilitate their mines, so our soum's land has many holes in it now…Dogs of the fluorspar mining companies attack our livestock. There was an incident where 16 livestock were killed and another 20 were injured by mining company dogs. The owner of the dogs was not found and herders were not compensated. There are many unleashed dogs around fluorspar mines." (FGD17, male herders)
>
> "Mining companies make a coal waste that they burn with soil. This creates very bad smoke and damages the lungs of our livestock. When we slaughter livestock, their lungs are always ill and hard, so we don't eat them anymore. We just throw away the inner organs of the livestock." (FGD18, married male herders)
>
> "It is very unfortunate that mining rehabilitation is not being done. Pasture is being destroyed and holes are made. 20-30 animals fell to death in this area." (BI17, elderly widower)
>
> "Mining companies never do rehabilitation work. They do not water their roads. The lungs of livestock are being damaged by dust and the animals cough. The companies' trucks run over livestock and no compensation is given to herders. They do not realize that livestock is the main property and livelihood source of local herders." (FGD19, married women)

Some participants in our FGDs and BIs said that the effects of mining were felt mostly by men, since they were the ones to work in the mines and thus suffered the worst health effects. They also argued that the main effects of mining were on herders, who were traditionally men. However, in most of our FGDs, both female and male participants complained equally about the adverse effects of mining on all their household members. This was quite different to Bornuur, where mining was concentrated in one bagh only (Bichigt) and some people had not been affected by mining at all.

Because artisanal mining in Dalanjargalan was smaller in scale, its impact on the environment was considered to be less than that of the large and medium-sized mining companies in the soum. For example, it was the bigger mines that were associated with the issue of making roads across the pastureland, and of creating more dust, whereas for artisanal mining, the main complaints raised were about the miners not tidying up areas after they have used them, and of leaving big holes behind – particularly from fluorspar mining, up to 60 metres deep. We were told that this last issue was a major cause of conflicts between herders and artisanal miners as a result of livestock falling to their deaths in the holes. Yet it also applied to larger mines. In Ungut, the Sain Gashuun company had ceased operating at the time of our 2016 fieldwork but its mine had very deep holes and this was regarded as a grave danger to free-roaming livestock. On the other hand, artisanal mining of semi-precious stones was considered to have the least impact on the local environment, because it generally took place in smaller areas and also used less environmentally harmful techniques.

The full extent of people's perceptions about environmental degradation linked to mining came out strongly in our baseline survey, as Table 29 below shows. Fully 72% (39) of all female respondents

and 69% (27) of all male respondents felt that there were issues around environmental degradation of natural resources in their community at the time of our survey, while 63% (34) of all female respondents and 44% (17) of all male respondents felt that there were issues around water pollution and contamination.

Table 29. Perceptions about the local environment by gender of respondent, Dalanjargalan

	True (as percentage of respondents by gender)		False (as percentage of respondents by gender)		Don't know (as percentage of respondents by gender)	
	F	M	F	M	F	M
In your community there are issues around environmental degradation of natural resources.	72	69	15	21	13	10
In your community there are issues around water pollution.	63	44	24	38	13	18

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 54 for female respondents. N = 39 for male respondents.

What also emerged during our fieldwork in 2016 was that people in Dalanjargalan had been attempting to address some of the various issues that arose around mining in various ways. As discussed above, applications for mining licences by two companies in Ungut had quite recently been challenged in bagh meetings, and some individuals had raised formal complaints on different issues. However, we were told that the mining companies in Dalanjargalan had no authorised staff to receive complaints from the local citizens, and we detected a general feeling that issues and complaints were not always satisfactorily resolved.

> "Mining did not and will not bring anything good to us. I always complain and say my opinion to the soum governors. The mining companies do not organise meetings with the herders. They just take whatever they want from our area." (BI15, elderly married male herder)

During our baseline survey we came across three specific cases of disputes with mining companies from the 12 months prior to the survey being carried out, of which only one had been resolved by that time. This was the case of a household in Olon-Ovoo, where the household head's wife was a member of a community group whose land overlapped with land held under licence by a Chinese mining company which then claimed that area; the head of the community group had to pay MNT 500,000 (USD 229) in compensation to the company in order to negotiate a settlement and retain the group's access to the land.

A second case arose in relation to the sacred Ikh Khongor mountain in Bichigt, where Chinese and Korean fluorspar mining companies were reported to have been mining in recent years. We were told that local people filed a formal complaint about this, but that the companies were continuing to mine and no action had yet been taken as the aimag government had not reported any decision. The third case we encountered was reported by a household in Ungut. Members of this household said that they had sent a letter to the State Inspection Agency and citizens' representative khural at aimag level about the dust created by mining companies' trucks, but again had yet to receive a response. We were told that the aimag officer in charge of transportation had come to study the area, to explore the possibility of constructing a paved road to reduce dust, but nothing had yet happened. In the meantime, big mining trucks were continuing to pass through the family's winter camp, stirring up huge amounts of dust.

Box 1. Special environmental, health and social impacts of mining in Olon-Ovoo

Compared to other baghs in Dalanjargalan, Olon-Ovoo has experienced a bigger environmental impact from mining. People from this bagh work for the Mongolian Railway's stone-crushing factory that was established in 1956. When it first started few people were employed, but now it is getting bigger every year with a greater demand for stone. This is the railway's only stone-crushing factory in the entire country and it has to feed the whole railway for the next decade. More than 100 people work there and they come from different parts of the country. Due to the working conditions, the factory hires mostly men. Air pollution is very bad in the soum centre because of this factory and the new MAK cement factory that has been built right next to it. There is also a 100 km road being built to the Olon-Ovoo railway station to transport iron ore from Bayanjargalan soum of Dundgobi aimag to China. Local people fear that once they start transporting the iron ore, it will create huge amounts of dust, making Olon-Ovoo uninhabitable. Already lung disease is common among the stone-crushing factory workers due to the dust and hazardous chemicals around the factory.

In addition, next to the railway station a fluorspar processing plant was built. Olon-Ovoo bagh citizens were against it from the beginning but could not do anything to stop it. People felt that the community meetings about it were not participatory, but more like information meetings, where they had no opportunity to influence the decision-making process itself.

On the other hand, people in Olon-Ovoo who work for the stone-crushing factory get benefits such as housing and medical checkups. The bagh's primary school was also built by the factory, and retired factory workers get an allowance of MNT 50 000 (USD 23) from the factory to buy coal for winter.

Other medium-scale fluorspar mining companies active in Olon-Ovoo have reportedly not contributed towards local development at all. One mining company started building a sports complex but it was only half completed and it was not clear when it might be finished and ready for people to use.

Land allocation processes

The main types of land subject to formal land allocation processes in Dalanjargalan were housing plots, under ownership rights, for those living in the two urban baghs, and winter and spring camps, under possession rights, for those living in the three rural baghs. As in Bornuur, and as noted above, it was women who tended to run around preparing the required documents and meeting with local government officials to apply for land and obtain land ownership titles and possession certificates. In the case of herder households in the rural areas, this was partly because they were nowadays living in the soum centre for most of the year, and hence were physically closer to the soum administrative offices and more easily able to attend meetings and follow up applications. However, some participants in our FGDs and BIs also hinted about the possibility that young and attractive women might be able to get favourable treatment in land applications and that that was why women were so prominent in the application process.

At the same time, and despite women doing most of the work involved, in most cases documents were still titled in the man's name; we came across just one exception during one of our FGDs, of a herder woman who mentioned that she had put her sole name on the winter camp possession certificate, and not her husband's, because she was the one who had run around getting the document for the household. Instead, most female participants in our FGDs and BIs expressed trust in their husbands and their belief that it did not mean land belonged just to their husbands if their names were the only ones on the documents for their household's land. However, when we asked soum and bagh officials what would happen in cases of divorce, we were told that the couple could either decide to go to court, or, if they did not go to court, then the person whose name was on the certificate would keep the land.

"Women look after the work of going to the soum government and submitting applications. Women have more initiative and they usually know most of what's involved in the household work. But it does not mean that they would want to title land in their name. They look after the matter, but the land is titled in the husband's name." (BI20, young married woman)

"If I would want my name on the title, my husband would think that I would like to get divorced in the future. And I fully trust my husband…My husband is a very good herder. We have over 1000 livestock. I decide what money is spent on mostly, but as a man he decides on the bigger expenses. Mostly we discuss and decide together." (BI18, married middle-aged female herder)

"I don't know what kind of rights women have…I wish we could get some training on how to get a land title…My husband is sick and recently I went to get a certificate for my father-in-law's winter camp in my husband's name but personally I never applied to get land. I heard it is a tough process. Many people have to run after it many times…I would like to get a winter camp title in my son's name. He lives next to us and herds our livestock with his own." (BI14, elderly married female herder)

"I don't know what my land rights are." (BI16, middle-aged single woman)

"We all have land titles for our housing plots but they are all either in our former husbands' names or in another household members' name. They are not in our names." (FGD24, female household heads)

It also seemed clear from our fieldwork in 2016 that people in Dalanjargalan did not all have an adequate understanding of the relevant Mongolian laws, as Table 30 below shows. For example, just 70% of all female respondents (38 of 54) and 64% of all male respondents (25 of 39) in our baseline survey correctly knew that women were allowed to own land. Seventy-six per cent (41) of all female respondents and 85% (33) of all male respondents correctly knew that discrimination between men and women as regards land ownership was illegal. However, 46% (25) of all female respondents and 26% (10) of all male respondents believed, incorrectly, that having rights to the land also meant having the rights to the minerals under the land; a further 33% (31) of all 93 respondents did not know whether that was the case or not. Moreover, 20% (11) of all female respondents and 13% (5) of all male respondents thought that according to Mongolian law men's rights to land took precedence over women's rights.

Table 30. Perceptions about Mongolian land laws by gender of respondent, Dalanjargalan

	True (as percentage of respondents by gender)		False (as percentage of respondents by gender)		Don't know (as percentage of respondents by gender)	
	F	M	F	M	F	M
In your country the law does not allow women to own land.	4	0	70	64	26	36
In your country the law says that men's rights to land take precedence over women's and that husband's rights to land take precedence over their wives'.	20	13	59	56	20	31
In your country it is illegal to discriminate between men and women as regards land ownership.	76	85	11	3	13	13
In your country if you have the rights to the land you also have the rights to the mineral resources on or under the land.	46	26	22	38	31	36
In your community women play a big role in decision-making about natural resources.	15	21	52	41	33	38

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 54 for female respondents. N = 39 for male respondents.

Relatedly, as Table 30 also shows, only 21% (8) of all male respondents in our baseline survey and 15% (8) of all female respondents thought that women played a big role in decision-making about natural resources in Dalanjargalan.

Housing plots

For housing plot applications in Dalanjargalan's soum centre, cadastre mapping was carried out by a company in accordance with the soum's annual land use plan. In the institutional mapping and stakeholder analysis exercises we carried out in our FGDs, participants shared that, in practice, the process of applying for housing plots was both tedious and unclear, and, as in Bornuur, they expressed concerns about the overall length of the land application process. Some people said that they were not well informed about the process for registering their housing land; others felt that not everyone was treated equally when applying for land.

> "Getting land and running after this issue is difficult. I inherited a housing plot from my father but I had to run for four years to get my father's land titled in my name. Even now, I still could not get the title, only the cadastre mapping has been done…The soum government treats wealthy people better. They don't treat poor and vulnerable people well. They value money, relatives and good looks. Everyone should be treated equally." (BI16, middle-aged single woman)
>
> "Only a few people in Olon-Ovoo have registered their khashaa. It is complicated for individuals to get their land registered. Only one elderly man who has lived in this bagh for over ten years has his plot registered in his name. It took him a long time to get it registered. The bagh governor does not inform us how to get our land registered." (FGD25, male miners)
>
> "We have one khashaa in my wife's name. It was hers when we got married. And there is another khashaa in the soum centre and it belongs to my mother. I will register that land in my name." (BI22, male miner)
>
> "My parents bought our winter camp off someone. Both parties made an application to transfer the possession certificate to each other and submitted it to the Land Officer. They paid taxes and the winter camp title was successfully transferred. This title is for 60 years." (FGD26, young unmarried men)

As in Bornuur, several participants in our FGDs and BIs also mentioned that no more land was being allocated in the soum centre for housing plots and that instead people were being allocated land in areas designated for new settlements but which lacked infrastructure such as roads. There were also concerns expressed that Dalanjargalan soum centre was now being considered as an urban area for land allocation purposes, meaning that instead of being allocated 0.07 ha, which was the amount allocated under possession certificates for winter camps in rural areas, ownership titles for soum centre housing plots were only for 0.05 ha.

Sixty-one per cent (45) of the randomly sampled households in our baseline survey reported that they owned one or more housing plots – anywhere in Mongolia, not necessarily just Dalanjargalan. Thirty-three households owned one housing plot, 11 households owned two, and one household owned three housing plots, equating to 58 housing plots owned by all 74 randomly sampled households, as Table 31 shows.

Table 31. Housing plot ownership/possession among randomly sampled households, Dalanjargalan

	Number of households not owning a plot	Number of households with 1 plot	Number of households with 2 plots	Number of households with 3 plots	Did not respond	Total number of plots owned by all 74 randomly sampled households
Number of households	28	33	11	1	1	58

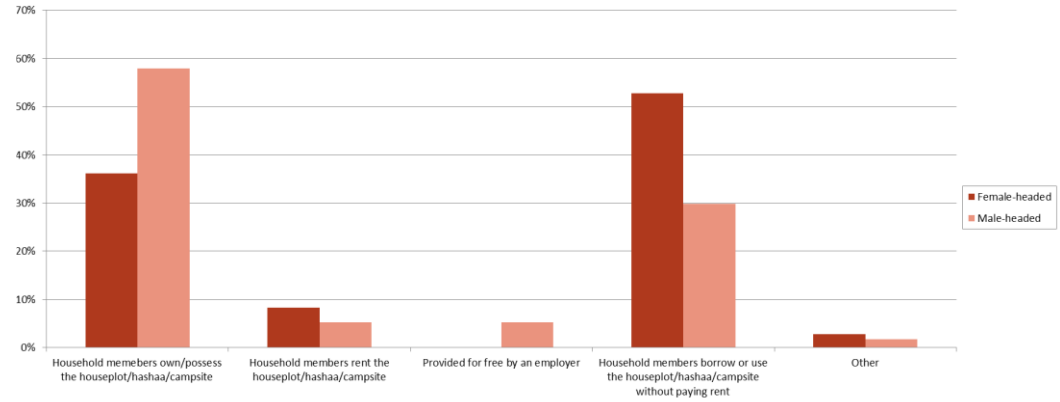
Source: WOLTS Mongolia baseline survey, 2016. N=93.

Fifty-three per cent (39) of the randomly sampled households in our baseline survey reported that household members owned or possessed the household's main housing plot, khashaa or campsite in Dalanjargalan, i.e. the place where the majority of household members usually lived, while 32% (24 households) reported that household members borrowed or used the main housing plot, khashaa or campsite without paying any rent. For those borrowing, this was usually from relatives such as parents, siblings or extended family members, particularly in the case of khashaas and winter camps. Among the remaining 11 randomly sampled households, six rented their main residence and three

had their house or apartment provided for free by an employer; the two remaining households were living in informal or temporary settlements at the time our survey was carried out. Ownership and possession of the housing plot where the majority of household members usually lived was most common in Tsomog (56%), and lowest in Olon-Ovoo (47%). The households that were renting lived in Tsomog (three households) and Eldev, Olon-Ovoo and Ungut (one household in each). The households living in housing provided free by an employer were in Olon-Ovoo (two households) and Tsomog (one household), and we particularly observed lots of female-headed households living in employment-linked accommodation in both those baghs. It was also notable that six of the households that reported owning either one or two housing plots in Mongolia were not living on those housing plots but, instead, at the time of our survey, were either renting or borrowing their main residence or were living in a house or apartment provided by an employer for free.

Unlike in Bornuur, there were quite big differences in this regard by the gender of the household head, as Figure 28 below shows. Fifty-three per cent (19) of all female-headed households rented or borrowed their main housing plot at the time of our baseline survey, compared to just 39% (17) of all male-headed households; 36% (13) of all female-headed households owned/possessed their main housing plot compared to some 58% (33) of all male-headed households.

Figure 28. Means of access to main housing plot by all surveyed households, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

With respect to the main housing plot, khashaa or campsite of the 74 randomly sampled households in our baseline survey, 85% were reported to be solely owned (for 63 households) and 14% (for 10 households) were reported to be jointly owned (i.e. with land documents recording more than one name for the owner); one household did not respond. As in Bornuur, and as implied by our observations above, in some cases where households in our baseline survey reported sole ownership of the main housing plot where they lived, this was not in the name of either the female or the male household head, but in the name of employers or relatives. However, in five male-headed households reporting sole ownership of the main housing plot, ownership was registered in the name of the wife.

The highest proportion of joint ownership of all our surveyed households' main housing plots was seen in Olon-Ovoo where 26% of randomly sampled households (5 of 19) reported that the housing plot they lived on was jointly owned. Tsomog had the highest proportion of female-headed households occupying a jointly owned housing plot, followed closely by Olon-Ovoo, as Table 32 below shows. Furthermore, none of our surveyed households in Bichigt and Eldev appeared to be occupying a jointly owned housing plot, and only one household was so doing in Ungut.

Table 32. Ownership status of main housing plots occupied by all surveyed households, Dalanjargalan

	Occupying a jointly owned housing plot		Occupying a solely owned housing plot	
	Percentage of all female-headed households in the bagh	Percentage of all male-headed households in the bagh	Percentage of all female-headed households in the bagh	Percentage of all male-headed households in the bagh
Bichigt	0%	0%	100%	100%
Eldev	0%	0%	100%	100%
Olon-Ovoo	25%	25%	75%	69%
Tsomog	36%	17%	64%	83%
Ungut	0%	8%	100%	92%

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 6 for female-headed households in Bichigt. N = 9 for male-headed households in Bichigt. N = 5 for female-headed households in Eldev. N = 8 for male-headed households in Eldev. N = 8 for female-headed households in Olon-Ovoo. N = 15 for male-headed households in Olon-Ovoo. N = 11 for female-headed households in Tsomog. N = 12 for male-headed households in Tsomog. N = 6 for female-headed households in Ungut. N = 12 for male-headed households in Ungut. One male-headed household in Olon-Ovoo did not respond.

These data all suggest that in Dalanjargalan's three rural baghs traditional norms about the man as head of the family (or, for female-headed households, perhaps a son) – and therefore as the person who should be considered as owner of the household's land – were much more deeply entrenched. The contrast with the other two baghs, where, as we saw above, households seemed to be headed by more recent arrivals to the soum, and to rely more on government employment than traditional herding for their livelihoods, was notable.

Thirty-four of the randomly sampled households in our baseline survey in Dalanjargalan reported that they had documents for at least some of their land. In total, 43 documents were reported to be held by members of these households, as detailed in Table 33.

Table 33. Types of land documentation found among 74 randomly sampled households, Dalanjargalan

Type of document	Apartment	Enterprise plot	House	Spring camp	Vegetable plot	Winter camp	Total documents
Ownership certificate	1	-	18	-	-	-	19
Possession certificate	-	2	-	4	1	16	23
Use certificate	-	-	-	-	1	-	1
Total number of documents	1	2	18	4	2	16	43

Source: WOLTS Mongolia baseline survey, 2016.

The types of documents recorded in Table 33 were as told to us by respondents during our baseline survey. By far the most common were ownership certificates for housing plots and possession certificates for winter and spring camps; just one formal use certificate was recorded for a vegetable plot, two possession certificates for an enterprise plot, and one household reported having an ownership certificate for an apartment. Unlike in Bornuur, only these three types of formal land document were recorded during our baseline survey; we recorded no documents relating to private land sales or rentals, and there were no informal land documents either. This suggests more limited land market development in Dalanjargalan than in Bornuur, in line with our findings from our FGDs and BIs.

Winter and spring camps

We were told by local government officials that herders in Dalanjargalan began to be issued possession certificates for a period of 15 years for their winter and spring camps from 2008, and that by 2013 most of those whose families had lived in the area for generations had already received their documents. Each herder household was allowed one winter camp, one spring camp, and – to accommodate split families – herder households in Dalanjargalan were permitted to have a housing plot in the soum centre as well. However, newcomers who had moved to Dalanjargalan in the early 2010s had not received winter camp possession certificates yet, as there appeared to be few sites left available in the soum.

> "According to the law, the pasture of the households is a 500 metre radius around the winter camp plot. This allows households to build winter camps next to each other. Some households with traditional rights to winter camps left them and stayed in the soum centre for a few years. When they came back, other households already possessed the camps with titles. There were a number of cases like this. The households had to apply again to get a title for their own winter camp." (FGD16, female herders)

In Bornuur, where there is a river and more water sources, herders just move between winter and summer camps. However, in Dalanjargalan, where there are no open water sources, herders move between winter, spring and summer camps – some just have winter and spring camps and stay in spring camps over the summer but others go on otor for the summer. There is a difference with respect to security of land tenure over the camps too. By law in Dalanjargalan, herders can get possession certificates for both winter and spring camps. In Bornuur, they get possession certificates for the winter camps while the summer camps are used in accordance with customary practice and arrangements and are not so formalised. As pasture is state property, herders can only have possession rights over their winter and spring camps, rather than the ownership rights granted for housing plots in the soum centre. This is a clear example of how national government procedures for managing land allocation are adapted to the particular situations in different soums, to allow for local variations in the circumstances of how different types of land are accessed – in this case the two types of residential land needed by herder households (soum centre housing and winter camps in the pastureland).

Possession certificates for winter and spring camps in Dalanjargalan were issued to individual households without them having to do their own cadastre mapping because the camps were held under customary rights. Participants in our FGDs and BIs explained that people knew each other well in the soum, and knew who had lived in different winter camps, and thus had established customary rights over them, and for how long. Both ordinary people and local government officials recognised that some herders had even been using their winter camps before the socialist times. After the collapse of socialism, some of those herders had four or five different winter and spring camps, and some families had obtained possession certificates for all of them through putting different family members' names on the documents. However, we learned that due to a new by-law that came into effect in 2013, bagh governors in Dalanjargalan could now cancel possession rights for winter camps if they were not used for three years. Participants in some of our FGDs and BIs said that they had not been aware of this change and were losing their ancestral winter camps as a result, although it was the minority with many winter camps or who had been absent from their camps for a long time that seemed to be the most affected by this.

The land allocation process was more inaccessible and complicated for winter and spring camps than for housing plots. Herders had to start by getting a reference/approval letter from their bagh governor, highlighting their customary tenure right. Then the bagh citizens' representative khural had to give its approval, after checking that the claimed area did not overlap with other areas already granted possession rights on the soum's cadastre map. Herders could then submit their application to the soum land officer, and after approval also from the soum citizens' representative khural, the application, along with all soum and bagh level approval letters, had to be taken by the herder to the aimag land office. Only then, after approval at aimag level and notification back to the soum, would the herder be able to collect formal documents from the soum land officer.

We were informed by participants in our FGDs and BIs that the process often got stuck at the stage of soum citizens' representative khural, because it only held meetings once or twice in three months; in a few cases participants claimed it had taken several years to get through this stage. The process was also reported to be particularly onerous and lengthy for herders because of lack of guidance and information. For example, the herders living most remotely were often not as friendly with soum officials as they were with their bagh governors, so they met with them less often, which made it harder to follow up their applications informally. Some herders also encountered delays

because they did not know that their land overlapped land for which someone else had already been issued with formal possession rights. While most herders seemed to have good relationships with their bagh governors, the bagh governors were not always able to immediately share information with them about their applications due both to their busy schedule and the distance of the herders from each other. Some herders commented that it could be hard to reach bagh governors who live and work in the soum centre and do not stay in the bagh centre, even if they have offices there, but bagh governors informed us that they only received limited fuel budgets from the soum government, which limited their ability to visit the most remote herders. The costs in time and fuel for herders living in remote areas to follow up their applications were likewise big problems, not least during the winter months when moving around the countryside was more difficult. All of these issues posed particular challenges for female-headed herder households, as we discuss further below.

Agricultural and commercial land

Fifteen per cent (11) of the randomly sampled households in our baseline survey reported that they had land for non-residential purposes in Dalanjargalan, under ownership, possession or use rights. Nine of these households (82% of the 11 households) had land that was located in the bagh the household lived in, one household had land that was located in a different bagh within the soum, and one household did not disclose where its land was. In 64% of the households with non-residential land in Dalanjargalan (7 of 11), the land had been obtained by application to the government; two households said that they had bought land, one household had inherited land, and the means of access was not reported in the case of the remaining household.

Eight of the 11 randomly sampled households in our baseline survey with non-residential land were those who reported that they were cultivating agricultural land, as discussed further above. The remaining households were not cultivating their non-residential land at the time of our baseline survey, and for at least two of them the land was an enterprise plot. The total area of non-residential land recorded among these three households was 214 ha – an area substantially greater than the 3.75 ha cultivated by the eight crop-farming households.

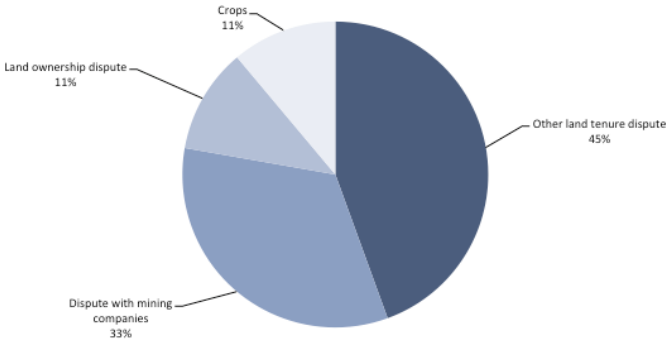
Olon-Ovoo was the only bagh where participants in our FGDs raised the issue of access to land for commercial and business purposes. They said that it was only possible to obtain an enterprise plot if the soum land officer announced a sale by tender for a particular piece of land. The tender winner would then be given a letter to take to the aimag land office for land certification approval. However, if the tender winner did not then carry out any commercial activities or develop any real estate on the plot, the possession certificate could be terminated.

Land disputes

Nine of the randomly sampled households in our baseline survey in Dalanjargalan reported that they had been involved in a land- or property-related dispute in the previous 12 months, two female-headed and seven male-headed. This represents 12% of randomly sampled households, and 12% each of all randomly sampled female- and male-headed households. None of our additionally surveyed female-headed households reported that they had been involved in any disputes in the previous 12 months.

Three of the disputes we recorded were those cases, from male-headed households, related to mining companies that we discussed above – one each in Ungut, Bichigt, and Olon-Ovoo – and the full range of dispute types was as illustrated in Figure 29.

Figure 29. Types of land disputes reported by randomly sampled households, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. N = 9.

Common types of land-related disputes mentioned by participants in our FGDs and BIs included disputes over pastureland degradation and water scarcity, which we discuss further below, as well as disputes in relation to land titling and land allocation processes. There were also some disputes reported in relation to the Ikh Nart Nature Reserve, which we discuss shortly below.

Details of specific land disputes reported during the baseline are provided in Table 34 below; three other disputes that were reported, with mining companies, have already been discussed above.

Table 34. Land and property disputes between August 2015 and August 2016, Dalanjargalan

Bagh	Type of Dispute	Type of household	Resolved?	Explanation
Disputes recorded in the baseline survey in the randomly sampled households				
Tsomog	Land ownership dispute	MHH	No	The Land Office allocated a housing plot smaller than specified so the household head could not accept the decision. She thinks that the measurement was not right. It is supposed to be 0.05 ha which is written on the possession certificate.
Bichigt	Other	MHH	No	The household head could not accept the Land Office decision and wanted to take the dispute to the next level.
Bichigt	Other	FHH	No	This household intended to build a spring camp 2 km from their neighbour in Khalzan Mountain. The neighbour did not like it so created a dispute. The bagh khural did not make any decision yet. As the neighbour knows more people, the household head is afraid that they will lose.
Ungut	Other - dispute over animal shelter	MHH	No	This household bought a winter animal shelter from a neighbour seven years ago. The purchase agreement was verbal and they paid cash. Three years ago the neighbour wanted to cancel the agreement so the household applied to the courts. The court decision was on their side. Then the neighbour appealed and the court said the soum government should make a final decision. Up to now, it has not made any decision. The household has receipts showing payment of the land tax of this place for four years.
Ungut	Other - dispute over winter camp	MHH	No	One member of this household sold a winter shelter to a neighbour for MNT 1,200,000 (USD 550). Then this household wanted to get back the shelter. The neighbour did not agree. The neighbour thinks not only the winter shelter but also the winter campsite is his. Both households applied for winter camp possession certificates to the Land Office. The Land Office did not issue anything as there was a dispute. Two courts were involved in this. The final court decision was to tell the Soum Governor to decide within his authority but they have yet to make a decision.
Ungut	Crops	FHH	Yes	Every year, there is a dispute around vegetable plots. Local people always want to increase the plot they have and do not really let newcomers into the area. Vegetable farmers formed a community group and the household head is helping to manage the situation.

Source: WOLTS Mongolia baseline survey, 2016.

Compared to some other parts of Mongolia, it seemed that disputes in Dalanjargalan were generally not violent and that people did not appear to consider land and natural resource disputes as an issue needing urgent resolution. We were told that this was because, despite all the many concerns expressed about pastureland degradation, the overall condition of the soum's pastureland was not seen as too bad, so local people tended to stay calm and not become aggressive when dealing with related disputes.

At the same time, however, it seemed that there was a lack of well-functioning community level dispute resolution mechanisms, with many issues just sorted out between the individual households concerned. As shown in Table 35 below, just 43% (23 of 54) of all female respondents and 38% (15 of 39) of all male respondents in our baseline survey in Dalanjargalan reported that they felt that disputes between miners and community members were a problem in their community, and many fewer that they felt that disputes with either investors or crop farmers were a problem. This contrasts with Bornuur, where 70% of all female respondents and 76% of all male respondents felt that disputes between crop farmers and herders were a problem in their community, and a much greater problem than disputes with either miners or investors. Table 35 also shows people's low level of confidence in the local justice system to resolve land and natural resource disputes, with half of all male and female respondents indicating that it was not easy to get a just resolution.

Table 35. Perceptions about local natural resource disputes by gender of respondent, Dalanjargalan

	True (as percentage of respondents by gender)		False (as percentage of respondents by gender)		Don't know (as percentage of respondents by gender)	
	F	M	F	M	F	M
In your community disputes between miners and community members are not a problem.	28	36	43	38	30	26
In your community disputes between investors and community members are not a problem.	26	26	26	26	48	49
In your community disputes between crop farmers and herders are not a problem.	26	26	24	15	50	59
In your community it is not easy to get a just resolution to your land and natural resource disputes.	50	49	13	18	37	33

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 54 for female respondents. N = 39 for male respondents.

Ikh Nart Nature Reserve

The Ikh Nart Nature Reserve was established as a local protected area in 1996 and covers a total area of about 66,000 ha. Around 60% of the reserve lies within Dalanjargalan soum, in Bichigt – approximately 40,000 ha, or just under a third of the bagh's total area – while the remainder lies in the neighbouring soum of Airag. Some participants in our FGDs and BIs told us that they had their winter camps inside Ikh Nart, but that they were unsure whether or not they would be able to keep those camps, where their families have stayed for many generations. However, although herders were not allowed to be allocated possession rights for winter or spring camps inside the protected area, in line with the relevant national legislation, they were allowed to continue living in Ikh Nart, graze their livestock there and hold use rights to their winter camps.

> "Ikh Nart has over 100 winter camps, but now the Ikh Nart administration wants to take all these winter camps. Herders had a 15 year possession title for their winter camps and now the soum government is saying that they don't want to renew them." (BI17, elderly widower)

There were some nature conservation community groups (nukhurluls) within the Ikh Nart Nature Reserve, which local Bichigt herders were involved in, and generally it appeared that any issues herders had were addressed in a cooperative and collaborative manner with the reserve area

administration. Participants in our FGDs and BIs shared that four nukhurluls had been established with the support of the UNDP Strengthening Protected Area Network (SPAN) project, which started in 2010 and had just completed its activities by the time of our fieldwork in 2016; the project also helped to start up the Reserve's tourism initiatives (Prentice & Dashzevge 2015). The community groups comprised mainly women and were said to still be active and working closely with the reserve area administration, which had provided various trainings for nukhurlul members, including women's leadership training; the Mongolian NGO Steps Without Borders has also worked with some women's community groups in the Ikh Nart area. One nukhurlul was established by 10 households in Airag soum, while two others, of seven and 11 households, were established in Bichigt to carry out rehabilitation of mining sites and plant vegetables, respectively. The fourth nukhurlul, in Bichigt, was a women only group. The main activities of all the groups focused on different aspects of local environmental protection as well as on small-scale income generation, such as making felted handcrafts from local wool for sale to the tourists who visited Ikh Nart every summer.

Pastureland management

As noted in our discussion about livelihoods above, only 26% of randomly sampled households in our baseline survey in Dalanjargalan reported herding as their top source of cash income in the 12 months prior to the survey being carried out. Yet 80% (43) of all female respondents and 85% (33) of all male respondents in our baseline survey agreed with the statement that: "The majority of people in this community depend on herding livestock for their survival", as Table 36 below shows. This can be explained by the fact that herding still seemed to provide a very strong sense of cultural identity for many people in the soum. The loss and/or degradation of pastureland was therefore a major worry, with 59% (32) of all female respondents and 67% (26) of all male respondents in our baseline survey agreeing with the statement that: "In your community there are issues around access to grazing lands".

Table 36. Perceptions about pastoralism by gender of respondent, Dalanjargalan

	True (as percentage of respondents by gender)		False (as percentage of respondents by gender)		Don't know (as percentage of respondents by gender)	
	F	M	F	M	F	M
The majority of people in this community depend on herding livestock for their survival.	80	85	9	5	11	10
In your community there are issues around access to grazing lands.	59	67	9	23	31	10
In your community there are issues around access to water sources.	59	64	35	26	6	10

Source: WOLTS Mongolia baseline survey, 2016. Table includes additional female-headed households, as well as those randomly sampled. N = 54 for female respondents. N = 39 for male respondents.

Likewise, as Table 36 also shows, access to water was a worry for people in Dalanjargalan, with 59% (32) of all female respondents and 64% (25) of all male respondents agreeing with the statement that: "In your community there are issues around access to water sources". Our fieldwork in 2016 indicated that water rights were becoming a growing issue for local herders, linked to the mining-related water scarcity and contamination issues discussed above. As also noted above, some herders had started to build their own private wells and either charge others for access or not allow access at all. In addition, we were told that in some places up to 20 households could be using one public (open access) well, causing disputes and increasing the workloads of herders, because watering several thousand livestock from one well requires careful management and takes a lot of time and labour. Participants in our FGDs and BIs also shared their view that pasture around such wells in Dalanjargalan was becoming increasingly degraded. Water was still an open source for common use, but the regulations did not seem clear, for example if someone repaired and maintained a public

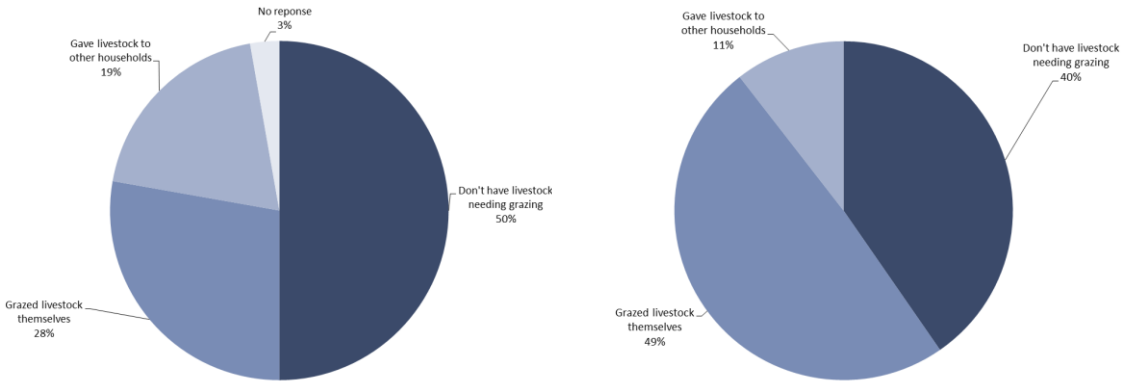
well they might lock it as well and stop following customary rules of open access; this in turn hinders migration as herders from further afield find wells locked.

As we have seen, mining was widely regarded as the main cause of pastureland degradation and water scarcity in Dalanjargalan soum. Both large- and small-scale mining were considered to have diverse impacts on herders' livelihoods, and the perceived land and water scarcity and environmental degradation brought about by mining were said to have contributed to increasing conflicts over winter and spring camps between herders, and to changes in traditional nomadic movement patterns towards a more settled lifestyle, as we discuss further below.

> "If pasture is good, life is good." (BI18, married middle-aged female herder)

These trends were reflected in our baseline survey data on grazing patterns. Figure 30 below shows that only 28% (10) of all female-headed households and 49% (28) of all male-headed households reported for their main mode of grazing that they grazed livestock themselves, while 19% (7) of all female-headed households and 11% (6) of all male-headed households gave livestock to other households, to relatives or assistants (paid in cash or kind).

Figure 30. Grazing patterns in female- (left) and male- (right) headed households, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Female chart includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households. N = 57 for male-headed households.

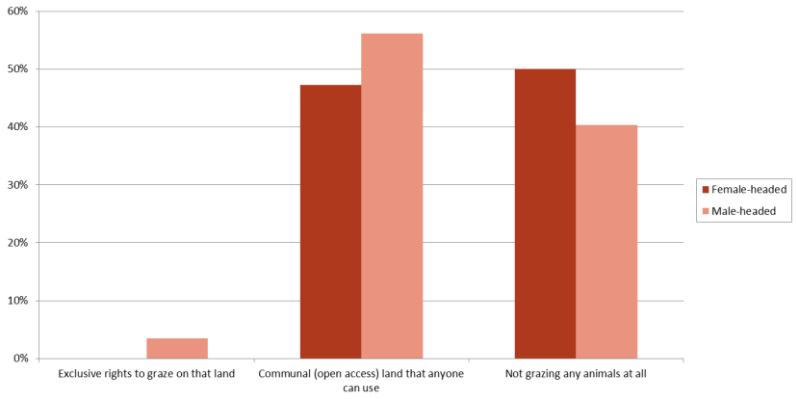
Female-headed herder households were thus proportionately more reliant on others to help them with grazing; some of these were likely to have been urban-based absentee herders, but we found very few actual cases of this, and the households giving livestock to others to graze in our baseline survey were living across all five baghs, not just in the soum centre. Our data thus suggest that female-headed herder households had less capacity to graze livestock themselves, either due to labour constraints or to more limited access to pasture.

However, and more significantly perhaps, 43% (32) of the randomly sampled households in our baseline survey reported that they were not grazing (and did not have) any animals at all. Fifty-three per cent (39) of the randomly sampled households reported their primary means of access to grazing land as through communal (open access) land that anyone could use, and there were also two households in Dalanjargalan, both male-headed, that reported during the baseline survey that they were using their own land around their housing plot for grazing, with exclusive private rights to that land. However, we were unable to establish anything further about these two cases during our FGDs and BIs, and it seemed more likely that these responses arose from a miscommunication or misunderstanding during the survey process; a further randomly sampled household, female-headed, did not answer this question.

As can be seen clearly in Figure 31 below, 50% (18) of all female-headed households in our baseline survey were not grazing any animals at all, compared to 40% (23) of all male-headed households, which was a lesser degree of gender differentiation than we found in Bornuur. Moreover,

households with older household heads were more likely to be using communal open access grazing land, and to be giving their livestock to others for grazing, while households with household heads of working age were much more likely not to be grazing any animals at all. Due to the lack of crop farming in Dalanjargalan, people were not sharing grazing rights on land that was also used for crop farming in the same ways as in Bornuur.

Figure 31. Main means of access to grazing land by all surveyed households, Dalanjargalan



Source: WOLTS Mongolia baseline survey, 2016. Chart includes additional female-headed households, as well as those randomly sampled. N = 36 for female-headed households, with data for one of them unknown. N = 57 for male-headed households.

Otor migration and changing movement patterns

Whereas in socialist times (and before) many herders in Dalanjargalan moved as families between three seasonal camps, the main movements of herders seemed nowadays to be between spring/summer and winter camps; some people had become absentee herders, giving their livestock to relatives to pasture rather than moving with them themselves, and otor migration was less common. Spring and summer camps tended nowadays to be in the same place, reducing seasonal movement, and local herders no longer really had separate spring camps.

Even though many herders we spoke with reported having possession certificates for their winter camps, participants in our FGDs and BIs revealed a general reluctance to move from their winter camps because of fears either of losing the campsites to mining companies, or of having their winter pasture eaten by the livestock of herders from other soums. Some herders even said that, if rainfall had been sufficient, they would stay in their winter camps year round, complaining not only that they needed to guard their pasture from people from neighbouring soums, but that climate change and mining had led to pasture degradation at their spring and summer campsites. As wood was scarce in the Gobi, and therefore a valuable material for winter camp fencing, herders also risked losing it if they moved away from their camps.

Participants in our FGDs and BIs shared that the distances moved had reduced in recent years too (cf. Sandagsuren & McCarthy 2016; Sneath 2000). We learnt from some elderly herders that they used to move more than 100 km in search of good grasses, but that was in socialist times when the state provided transportation; now they were likely to move only 5 to 15 km from their winter camps. Many of them felt this was not enough to prevent pastureland degradation, as herders need to move further with their livestock in order to give the vegetation on arid and semi-arid land enough time to recover before they return.

"It is hard for herders to move far away as they often lose their khashaa wood and animal dung to thieves. They always have to look after their camps. People often get into conflicts due to thefts." (FGD16, female herders)

"By tradition, there was no Mongolian family that would settle in their camp all season. But now there is no land for movement, so the tradition is changing…Pasture with open water sources for livestock is only in the Dalanturuun area and many households from nearby soums and baghs come here for the summer. As there is a lack of pasture, households make fences for their gers [Broom grass] and they do not let others come in…Disputes over pasture and campsites have become more common since the land possession process started." (FGD21, married women)

"In socialist times people moved more often and it was one of the duties of the negdel herders. But young people are very lazy and not active… Nowadays herders do not move, including me. I do not want to lose my winter pasture to others." (BI15, elderly married male herder)

"My father used to herd horses and go on otor migration for three months every year…Horse herders would not stay home for many days, they always had to follow their horses. Today's herders are not good at herding, they are using motorcycles to herd their livestock." (BI16, middle-aged single woman)

"For herders, what is important is pasture and water resources. That is all. So simple…We need to protect the pasture and use water resources appropriately. Some people lock up public wells. My son made my well but we give the water to everyone…There must be some regulation of otor movements. I don't go on otor much, I give my livestock to my children to go. Last year they went from December to February." (BI17, elderly widower)

"I was born in this soum and my parents didn't have any land. Land used to be common access but now we can't just move and live anywhere we want. All the land is possessed by someone. We are often chased if we go to a different pasture. That is why we live in our winter camp all four seasons…I got my winter camp after my husband passed away. He used to drink a lot and he passed away due to that…I submitted all the required documents to the Land Officer and I got a possession right for 15 years. But I don't move because if I move from my camp I will be in danger of losing it…Really I need a housing plot in the soum centre to make it easier to take my child to day care there…It's becoming very difficult for single-headed women households to get on with their lives. Sometimes single women are treated badly and discriminated against." (BI19, middle-aged widow)

According to participants in our FGDs and BIs, household movement was decided among household members, but it was mainly the responsibility of men as they were seen as the main herders. If the movement was to be far from their winter camps, three to four households would move together, but otherwise each household just moved by itself. We were also told that since the transition from socialism, there has been no regulation of seasonal or rotational pasture and otor movement. Many people we spoke with during our 2016 fieldwork talked about herders from neighbouring soums, such as Govisumber, Airag and Bor-Undur, coming into Dalanjargalan to use its small otor area. Sometimes these herders from neighbouring soums would just pass through Dalanjargalan on their way further afield, but their livestock would still graze the local grasses on the way. Official attempts to chase them away had not always succeeded, and it seemed that more needed to be done by the governments of all the soums involved to regulate herder movements across soum boundaries.

Herders were also reported to have come to Dalanjargalan on otor migration from as far away as the western aimags, escaping difficult conditions there in recent years; some of these people had then settled in Dalanjargalan, putting further pressure on the local pastureland. We were told that one big concern of local herders was about diseases being carried by livestock from other areas; for example, foot and mouth disease was present in the livestock of people from neighbouring soums.

> "The soum government is supposed to regulate otor movements. But they do not do that. So herders from everywhere move anywhere they want. Other soum governments are very strict when herders from this soum come to their area on otor. They don't allow us to access water and we are chased away by them. However, the Dalanjargalan soum government does not do anything when outside herders move in here. The soum receives trespassing herders from everywhere. We are worried that their livestock can carry and spread disease." (FGD20, married male herders)

Participants in our FGDs and BIs shared that in 2015, in response to some of these issues, the Dalanjargalan Soum Governor made a resolution on pasture use, stating that anybody coming from another bagh or soum to use Dalanjargalan pastureland would have to pay a pasture tax of MNT 5000 per month (USD 2) for small animals and MNT 2,500 per month (USD 1) for large animals. This has reportedly helped to reduce disputes with herders from neighbouring soums, as nobody wanted to pay the tax, so they went elsewhere instead.

We also learned that over the last 10 years or so, herders with sufficient financial and labour resources had started to put up temporary portable fences in the wider pastureland around their campsites at the start of the winter, to protect it for themselves as reserve pasture; however we did not discover any local regulations about this.

On the other hand, Dalanjargalan herders who had seen their otor area and winter pastures encroached by the movement of other herders over recent years have started to move away to neighbouring soums themselves in search of good grass. We were told that some herders without possession certificates for spring camps in Dalanjargalan went on otor to other soums, living in portable wagons, like caravans; in turn, they were often chased away by the herders of those other soums. In response, according to participants in one FGD, some herders from Dalanjargalan have moved away completely to stay with their relatives in other soums; others have turned to 'fake' divorce as a way to enable their household to access pastureland in more than one soum, as we discussed above.

All these changes in seasonal movement patterns appeared to have come about as a direct result of the formalisation of tenure, whereby herders felt that they now had to stay in the pastureland around their campsites to protect their rights to it. According to participants in our FGDs and BIs, disputes between herders have become especially common since 2008, when the land titling and land allocation processes we discussed above got under way in the soum. Herders with possession certificates were allowed the private use of an area of pastureland some 500 metres in radius around their winter and spring camps, in line with national law. However, disputes often arose when herders built winter camps in another household's winter camp pasture area. We were told that some households had also set up their winter camps right inside the soum otor area, which also caused disputes; even though the soum government had decided not to allocate any possession certificates in the otor area, some herders were said to have attempted to obtain titles for winter camps there.

Disputes over pasture thus appeared to have become very common and sometimes several families claimed ownership over one campsite. Participants in our FGDs and BIs told us that nowadays herders did not want to share pasture with each other, as they have come to see it more as private property. Further, as we saw above, dispute resolution mechanisms were limited, with people either trying to resolve issues themselves or calling their bagh governors for help.

"In the olden days we used to use the pasture together and we were never mean to each other. Nowadays herders are mean to each other and they have become selfish, chasing each other from their pasture. Everyone just wants to protect their private property and not let anyone else use it." (BI13, married middle-aged male herder)

"We move around in summer, autumn, winter and spring, mostly to the same places. We have a possession certificate for our winter camp but everywhere else is open and we just look for good grass…Mining is hurting us a lot. There are mines to the south of our winter camp and we lost our pasture to those mines. So we can no long winter there and have to move in winter now too. The area is full of dust and the water sources are degrading…We go on otor in search of good grass to feed our livestock…We are often in disputes when we move close to someone's winter or spring camp in other soums. Herders complain to us. We have not been involved in any disputes lately though. Once we were moving to Airag soum and wintered there and on the way back one household got so angry at us…Now we usually get permission from the bagh governor and then the disputes happen less. Bagh governors have agreements among themselves about how many livestock they should receive due to the conditions each season. It's called an inter-soum agreement." (BI18, married middle-aged female herder)

"This bagh has a salt and fodder dry lake area. People from other baghs and soums come to get salt and fodder, even from Sainshand, with big trucks. Salt comes from the dried out lake and it regenerates during the rainy season. But rain is becoming less frequent and the rain is not able to regenerate. So people are making holes to get salt. The holes would also normally regenerate but that is not the case anymore. People are taking the salt without any regulation and they throw their garbage around. The soum government needs to regulate this." (FGD22, male herders)

All these difficulties appeared to be exacerbated for female-headed herder households, who were not taken seriously in the male-dominated herder environment.

"Single women herders face a problem of finding pastureland with good grass. If one single woman comes close to someone's home or close to someone else's water source, that household could chase her away." (BI13, married middle-aged male herder)

"Being a herder is difficult for female-headed households. Generally, they live close to other households or relatives, so they can help." (FGD20, married male herders)

Challenges for women herders and vulnerable groups

As we have seen throughout, there were specific challenges for women in relation to traditional herding in Dalanjargalan. Although we did not find specific evidence of women without men to support them being chased from pastureland or water sources, we have seen that life was harder for female-headed herder households in various ways. They were likely to be poorer than male-headed herder households, for example having fewer silver cups and horses, and they were much less likely to be herding at all. We also saw that life is hard in the soum centre for many female-headed households, especially those who were formerly herders.

However, the overall picture that emerged from our fieldwork in Dalanjargalan in 2016 was one of complex gender relations and of very different situations facing different women and men, making it difficult to identify the most vulnerable groups. It seemed clear that female-headed households in rural areas were very vulnerable to descending into poverty and tenure insecurity, given the difficulties facing women such as widows in continuing with herding. However, the husbands in split families, living through each winter alone in the countryside, must also be considered as a potentially vulnerable group – dealing with traditional heavy herding tasks while managing housework and living apart from their wives and children for prolonged periods of time; if nothing else, the mental health effects of the split family lifestyle are something to consider.

At the same time, as we saw above, the wives in split families seem to have been growing more powerful and independent. Although it was not directly raised by any of the participants in our

fieldwork in 2016, evidence from elsewhere in Mongolia suggests that these kinds of changes in gender relations, particularly when linked to mining-related social problems such as alcoholism, can contribute to gender-based violence. Moreover, as some of our participants did raise, changes in gender relations seemed likely to be contributing to increasing separation and divorce, particularly given the relatively high movement of people in and out of the soum – by herders on otor migration, temporary workers in mining company sites, illegal artisanal miners from other soums, and all the traffic associated with the railways in Tsomog and Olon-Ovoo. Although in our baseline survey formal divorce rates appeared to be low, there were several households headed by people in a range of informal relationships, many of whom were non-religious, and in general we detected a certain level of instability in family life. This also included the issue of 'fake' divorce, which appeared to make sense as a household land acquisition strategy, but whose longer-term social implications were harder to gauge. 'Fake' divorce did not change the actual composition of the household, as couples still seemed to consider their household as one economy, but this too could lead to greater empowerment for women, as they would be recognised as having an important role in helping the household to gain access to additional winter camps and pasture, which would be titled in their names and would thus protect them should their 'fake' divorce become real.

On the other hand, we also detected a core tension between all these social changes and the continuation of traditional practices on the part of most married couples, such as putting men's names on land documents and considering them as head of the family. This would make any married women vulnerable to losing their property if they did get divorced, and thus constrained their fallback options in the face of any difficulties that might arise in their marriages as a result of the pressures and strains of the common split family lifestyle.

> "As our wives are staying in the soum centre during the school year, the divorce rate is increasing." (FGD20, married male herders)
>
> "Due to land issues, many herder couples now face divorce. The husband stays at the rural home herding the livestock and the wife stays in the soum centre looking after the children at school. Some couples also live separately to register their names in different soum administrations to get access to land. Young families often face divorce due to these actions." (FGD23, women involved in community groups)

Participants in our FGDs and BIs were clear that in general most of the changes taking place in the soum were creating positive results for women, especially for married women living in the soum centre, or women from female-headed households who had formal employment. Women appeared to play an active role in Dalanjargalan's society and economy, and many local leaders were women too. For those willing to leave herding behind and embrace the urban life, these changes that we saw during our fieldwork in 2016 could thus be considered as very positive for women indeed. Yet the poorer female-headed households in the soum centre still argued strongly for more support from the local government for vulnerable people, such as they considered themselves to be, given the difficulties facing all households in Dalanjargalan that were not of the traditional husband and wife family structure.

Conclusions from Dalanjargalan

Dalanjargalan appeared to have changed quite dramatically over the 20 years since the democratic transition, from being mainly a traditional herding society to one that has witnessed a period of rapid social change linked to a mining and industrial boom. Conflicts and disputes over land and natural resources in the soum seemed to have increased with the development of the local mining sector from the late 1990s, both between miners and herders and among herders themselves. Participants in our fieldwork were almost unanimous in their view that mining has substantially contributed to pastureland degradation and the increasing scarcity of clean water. People shared concerns about social and health effects of mining, as well environmental concerns, with both illegal

artisanal miners and mining companies of all sizes generally held in low regard. Lack of information and awareness about the activities of mining companies and (illegal) artisanal miners contributed to these concerns, and we detected a general desire for the local government to take a more proactive role in consulting local people and monitoring mining companies to ensure that mining land is rehabilitated and that the local environment and local herders' tenure rights to the pastureland are well protected. On the other hand, local people had benefited from markets for their meat, vegetables, shops and services from mining workers and factory employees, and there were some jobs in mining for local people too.

The expansion of mining in Dalanjargalan has created a perceived shortage of good quality pasture and disputes over pastureland have become particularly commonplace. Coupled with the formalisation of land tenure through allocation of private rights to housing plots and winter and spring camps, practices such as fencing have started to increase while seasonal movement has simultaneously reduced. In the rural baghs it seemed that most families either stayed in their winter camps year round, or moved only very nearby, in order to guard and protect their rights to the pasture around their campsites. This trend towards more settled herding lifestyles puts further pressure on the sustainability of the local pastureland. Thus although winter and spring camp titling (under possession certificates) was intended to help secure the tenure rights of herders over pastureland in areas where their families had had campsites and customary pasture rights for generations, disputes over land have in fact stimulated fears among some herders about losing their land or being left without any titled camps. This has reinforced the trend towards less movement and contributed to newly unfolding changes in traditional land management practices whose full effects are not yet clear.

The changing social and economic context of life in Dalanjargalan has also contributed to changing patterns in pastoral lifestyles and in gender relations within households and the community. Changes in pastoralist land management away from traditional nomadic migration and towards fencing private areas of pastureland have coincided with changes at the household level between men and women in herder families. We saw this most obviously in the case of 'split families', with many couples living separately for much of the year in order to support their children's education. Women who stay in the soum centre with their children have gained opportunities to become more informed and increase their independence, in some cases taking advantage of new employment and trading opportunities, while the men who stay behind in the winter camps have to engage in domestic work as well as dealing with the increasing challenges of herding. Even though this new lifestyle brings certain opportunities to the whole family, for example by having a base in the soum centre from which to more easily follow up land applications and link into markets, its full effects have yet to be seen. In addition, there was the rise in 'fake' divorces, which were providing women with access to land in their own name but might also put strains on the relationship and lead to a real break-up.

Nevertheless, within marriages there appeared to be a lot of trust between spouses, who were working hard to manage the household enterprise in the more challenging economic environment than many of them had grown up with and worked in during socialist times. However, there were clearly also still ways in which women in general, and certain women (and men) in particular, appeared to be disadvantaged.

Overall Conclusions

Bornuur and Dalanjargalan differ in various ways. Bornuur is much closer to Ulaanbaatar than Dalanjargalan and livelihoods were more diverse, with crop farming having played a large role in the local economy from socialist times. Dalanjargalan is much more of a traditional herding community, but the scale of mining activities (and related industrial development) was much larger and appeared to pose a greater threat to herders' livelihoods.

Both soums have changed significantly with the transition from socialism to a market-based economy. As land has been privatised and is becoming scarcer, both fencing and fears of land loss have become more common in both communities, making seasonal nomadic movement more difficult. This reduction in movement as well as general population and livestock increases have in turn contributed to the perceived degradation of pastureland and to increased conflicts over pasture in both soums (and related conflicts over haymaking areas in Bornuur). Mining has exacerbated these problems, with its environmental impact much more pronounced in Dalanjargalan.

There appeared to be a major lack of information about mining licences and activities in both soums, and very limited engagement between mining companies and the local communities. Some local employment was created by mining companies, but in both soums people were more likely to be engaging in artisanal mining. In Bornuur illegal artisanal mining peaked after the opening up of the economy, but in Dalanjargalan both legal (small-scale licensed) and illegal artisanal miners seemed to be causing bigger environmental problems at the time of our research. While legal artisanal gold and fluorspar mining was often done by household members together, the illegal picking of semi-precious stones was often done by women. In both communities artisanal mining was considered to be a very dangerous activity and a last resort for those without other livelihood options.

In both soums the transition from socialism to a market-based economy, as well as the growth of mining, had specific gendered consequences. While women appeared to hold considerable decision-making power both within their households and in their communities (also related to their generally higher levels of education), we found that traditional gendered norms were still very strong. Herding was generally considered to be a male task, thus making it very difficult for widows and divorced/separated women to continue to engage in it, and, as conflicts over pasture were increasing in both soums, the rights of female-headed herder households were less likely to be respected. At the same time, in both soums land was usually titled in the husband's name because he was seen as the head of the household; this was even though some women also held possession certificates or were included on joint certificates. In an era of increasing land scarcity, women without land titles may face considerable challenges upon widowhood or divorce. While divorce rates were still quite low in Bornuur, they were increasing in Dalanjargalan, for different reasons. While the common practice of split families brought some advantages and opportunities to women, it was also seen to be putting family life under strain and leading to an increase in divorce. In addition, more and more herder households were obtaining 'fake' divorces, creating similar issues between couples from the strain of living apart.

Our research concluded that traditional nomadic pastoralism was increasingly threatened in both Bornuur and Dalanjargalan. The general transition towards a market economy, the increase in mining operations in Dalanjargalan, and the increased competition over different land uses in Bornuur have all contributed to perceived pastureland degradation and decreasing movement of herders. In both soums, both internal and external threats therefore appear to have combined to make herders' livelihoods very precarious today. In Bornuur, government policy did not seem to promote pastoralist lifestyles, preferring intensive livestock and crop farming instead, and large tracts of land seemed to have been allocated for farming, tourism and mining investments. The perception was that these largely outsider-driven investments had negatively affected the quality and quantity of pastureland, water and forest resources in the soum as well as local people's health.

In Dalanjargalan the scale and extent of the growth in mining has combined with the (unintended) negative consequences of the formalisation of land tenure to result in major inter-linked changes both in traditional pastoralist lifestyles and in social and gender relations.

Herders have adapted in Bornuur by becoming semi-intensive livestock farmers and engaging in alternative income-generating activities (as also encouraged by government policy), while in Dalanjargalan families have developed a range of coping mechanisms, including living arrangements that seem unlikely to be socially sustainable in the long term. At the same time, many young people are not interested in herding anymore and move to Ulaanbaatar to seek employment, especially from Bornuur. While women may be better equipped to compete in the broader economy due to their higher levels of education, this may also contribute to male violence and alcoholism, as well as to relationship break-ups. Further, not just female-headed households but also young male herders and those men who live separately from their families must be considered as vulnerable groups in both soums today.

Questions remain about what positive livelihood options there are for vulnerable groups in both soums, given our fieldwork findings about the difficulties in gaining access to land for both herding and crop farming, the dangers of mining, and the persistence of social norms about traditional gender roles. Small businesses and formal employment stand out as important alternatives, but are unlikely to be viable for all.

Instead, broader solutions must be found in improved governance of tenure of land and natural resources. In Bornuur there is a clear need for greater participation by all people in decision-making about land and natural resources in general, and about pastureland in particular – including poorer people, and especially such vulnerable people as female herders and widows, as well as the sick and elderly poor – in order to prevent these not insubstantial groups of Bornuur citizens from falling into long-term chronic poverty and tenure insecurity. Likewise, to address the many challenges around gender relations and mining in Dalanjargalan it is important to find ways to share information more widely and increase all local people's involvement in the management and governance of land and natural resources, especially those poorer and more vulnerable people within the soum.

These issues and the solutions they suggest are all the more pressing to address in the wider Mongolian context. Nearly 30 years after the transition from socialism, gender relations are highly complex and people have to negotiate their access to land and natural resources through multiple layers of social and economic differentiation. The general re-turn to male-dominated customary land management practices among herders in the countryside since the end of socialism – and the tensions between this and the simultaneously opposing pressures of the treatment of pastureland by some herders as open access while land tenure privatisation of winter camps continues – have combined with a resurgence in traditional gendered norms that make a herding lifestyle particularly challenging for non-traditional households. In particular, the difficulties faced by female-headed households in rural soums are a key driver in their exodus to the ger districts of Ulaanbaatar, with those who stay behind in the countryside remaining vulnerable to gender-based violence and discrimination.

Gender-based violence itself, and related sexual exploitation of women, was a largely hidden subject in our research, alluded to rarely and sometimes with embarrassment or a joke, but the silence around it spoke volumes. Social norms around traditional herder lifestyles and men's and women's respective roles remain very deep-rooted and affect the day-to-day lives of everyone. Nationally, (some) women are becoming more educated and empowered, leaving the countryside behind, and (some) men still in the countryside are becoming more marginalised, and there is growing instability in family arrangements and more unmarried partnerships than married couples. In this situation, deciding to challenge traditional norms about the man as the household head, and about putting names other than his on the family's land documents, becomes a calculated risk for women, who risk in the backlash the further disempowerment of their men and the shame of domestic abuse,

especially in a social context that is also beset by the widespread problem of alcoholism. The irony here is that, although the global evidence clearly shows that secure land rights give women more bargaining power in their homes and can help make them less vulnerable to domestic violence, where joint titling or individual land titling for women are options rather than mandatory, the same outcomes may not apply.

As a former socialist country, Mongolia remains strongly committed to gender equality, and it does well globally on many gender equality indicators. Thus the constant refrain at the start of our WOLTS research was that "gender is not an issue in Mongolia". Women's high levels of education are (rightly) praised, and the land legislation does not discriminate because all citizens are (on paper) allowed to own land, even if the regulations for implementation contain gender biases. Yet questions remain, such as why, after 70 years of socialism, can women in herder households not slaughter animals or operate heavy machinery? And why do more women not work in large-scale mines? Our detailed and methodologically rigorous research over the past two years has demonstrated that, as everywhere in this world, there is much work still to be done.

Annex 1. The WOLTS Project in Mongolia

WOLTS concept

Mokoro's multi-country, practical and action-oriented strategic research project, the WOLTS Project, has three long-term goals:

1. To establish a stronger evidence base on the internal and external threats to women's land tenure security in selected developing countries, especially in the context of LSLAs;
2. To strengthen the capacity of communities, NGOs/CSOs and local governments to protect and secure women's land rights in the face of these threats, contributing to a paradigm shift that sees gender equality and women's rights mainstreamed within community land management, land tenure governance and land rights protection efforts worldwide; and
3. To see tangible improvements in women's land tenure security in the communities and countries reached by the project, and wider sharing and dissemination of the lessons learned and tools developed for a greater and more lasting impact.

Gender, land, pastoralism and mining

WOLTS has initially focused on pastoralist communities in mineral-rich areas of Mongolia and Tanzania, where we are working with our national NGO/CSO partners – People Centered Conservation (PCC), in Mongolia, and HakiMadini, in Tanzania. Together we have been carrying out a two-year pilot study in four communities affected by mining investments that explores gender and land relations in different pastoralist contexts and facilitates the development of a methodology for continuing community engagement. The aim is to develop both generic and context-specific analytical, capacity development and advocacy tools to support gender equity and specifically protect the land rights of the most vulnerable people. To date there have been limited studies of the intersection of gender, land, pastoralism and mining, thus WOLTS aims to contribute to this knowledge gap in a practical and action-oriented way.

Study activities in Mongolia

Activities in Mongolia under the first six phases of the pilot study have included:

1. Inception mission in Ulaanbaatar in November 2015 to conduct research protocols and initiate document collation and background research (Phase 1).
2. Development of community selection criteria and assessment of likely study sites, incorporating a community selection mission in April 2016 that involved field visits to five different soums (districts) across four different aimags (regions) (Phase 2).
3. Baseline survey, in August 2016, of 10% of households in the two communities selected for the study (Phase 3). (See Annex 2 for details of the baseline methodology.)
4. Participatory fieldwork in the two selected communities in November 2016 (Phase 4). (See Annex 3 for details of the participatory fieldwork methodology.)
5. Follow-up field visits to both communities between June and August 2017 and a multi-stakeholder workshop in October 2017 to share and validate findings (Phases 5 and 6).
6. Interviews with more than 60 key stakeholders in Ulaanbaatar and local areas between November 2015 and June 2017. (See Annex 4 for a list of all interviewees.)
7. Comprehensive desk-based background research and literature review. (See Annex 5 for a list of all secondary sources consulted.)

Annex 2. Baseline Methodology

Survey objectives

The WOLTS baseline survey had three linked objectives:

1. To develop a basic understanding of the community and local socio-economy.
    - E.g. demographic structure of the community, relative wealth/poverty, main livelihoods and land use, gendered divisions of labour, nature of land tenure arrangements and state of tenure security, scale and importance of involvement in mining and pastoralism etc.
2. To serve as a benchmark on issues around land, gender, pastoralism and mining against which to measure impacts of WOLTS work with the community over time.
    - E.g. types and extent of current land disputes and threats to women's land rights, perceptions of pastoralist tenure security, levels of participation in land governance, perceptions of impacts of mining companies' activities etc.
3. To support the detailed methodological design of subsequent phases of WOLTS research and community engagement, by uncovering key issues needing further exploration.
    - Information from the *questionnaire content* helped inform the research questions for the participatory fieldwork.
    - Information from the *survey administration process* helped inform the research design for the participatory fieldwork, in terms of identifying key 'change-makers', measures needed to support participation, and the participatory methods and tools likely to be most effective.

Survey instrument

A questionnaire consisting of four sections was designed and translated into Mongolian as follows:

Section A: to gather basic demographic information about all members of the household and people living in the house.

Section B: to gather additional demographic information about marital status, religion, ethnicity and education levels, and socio-economic information about sources of cash income, divisions of labour, household land usage and livelihood activities, location and tenure status of household land and housing, involvement in mining etc.

Section C: to elicit respondent perceptions of key issues around land rights, gender, mining, pastoralism and natural resources, and gather information about land disputes.

Section D: to gather information about household possessions, house structures and access to services and infrastructure (e.g. water, sanitation, transport and electricity).

Sampling strategy and process

The baseline survey was conducted in 10% of households in each community, evenly distributed as 10% of households in each bagh within the community. The total number of households was obtained from the soum governor at the start of the survey process. Of the 10% of households surveyed, 80% were randomly sampled and 20% were additionally targeted female-headed households. The survey was split in this way to boost representation of female-headed households so as to ensure enough data would emerge to support understanding of complex gender issues.

Bagh lists were obtained from each soum governor and the following method was used to randomly sample households from each list:

- Take each bagh household list and count down 9 from the top and number this survey household 1.
- Count up 9 from the bottom and number this survey household 2.
- Go back to household 1 and count down 9 more, so the 18th household from the top of the list becomes survey household 3.
- Go back to household 2 and count up 9 more, so the 18th household from the bottom of the list becomes survey household 4.
- Continue like this until the middle of the bagh list is reached, stopping only when there are less than 9 spaces between the last two households chosen.
- Write a list of the chosen households for that bagh and work through it in order, carrying out surveys until the required total of households chosen by random list method is complete, skipping households only if the household head and/or other responsible adults in the household refuse to take part or if all household members are away.

In cases where households were unavailable for interview, the survey team continued working through the randomly sampled list, using the extra households chosen during the initial sampling process. Once these households were exhausted, a second round of sampling was carried out, selecting the 10^{th} and 16^{th} households in the original bagh household lists. In a few cases where a household was absent, the physically nearest neighbour was interviewed in order to save valuable time in travelling the long distance between households in rural Mongolia.

The randomly sampled list for each bagh was supplemented with specific targeting of female-headed households, selected through the following method:

- Take each original bagh household list to bagh governor.
- Indicate which households have already been randomly selected for the baseline survey.
- Inform the bagh governor of the number of additional female-headed households needed to be added for the sample for their bagh, and ask them to indicate (from among all those not yet selected for the survey) the needed number, plus 2 or 3 extra/spare.
- Put their details on a separate list and work through it, carrying out surveys until the required total of female-headed households chosen this way is complete for the bagh.

Numbers of households surveyed

235 questionnaires were carried out in Mongolia, of which 185 households (or 79% of the total sample) were generated completely by the random list method and 50 households (or 21% of the total sample) were specifically added to boost representation of female-headed households. The breakdown of sampling numbers in each soum is given in the tables below.

Bornuur

Bagh/Soum	Total number of households (as at 4 Aug 2016)	Total number of households surveyed	Randomly sampled households	Additional female-headed households
Nart	293	30 (10% rounded up)	25 (83% of bagh sample)	5 (17% of bagh sample)
Mandal	314	32 (10% rounded up)	26 (81% of bagh sample)	6 (19% of bagh sample)
Bichigt	359	36 (10% rounded up)	27 (75% of bagh sample)	9 (25% of bagh sample)
Uguumur	438	44 (10% rounded up)	33 (75% of bagh sample)	11 (25% of bagh sample)
Bornuur	1,404	142 (10.1% of total)	111 (78% of soum sample)	31 (22% of soum sample)

Dalanjargalan

Bagh/Soum	Total number of households (as at 28 Jul 2016)	Total number of households surveyed	Randomly sampled households	Additional female-headed households
Bichigt	145	15 (10% rounded up)	11 (73% of bagh sample)	4 (27% of bagh sample)
Ungut	176	18 (10% rounded up)	15 (83% of bagh sample)	3 (17% of bagh sample)
Eldev	130	13 (10%)	11 (85% of bagh sample)	2 (15% of bagh sample)
Olon-Ovoo	234	24 (10% rounded up)	19 (79% of bagh sample)	5 (21% of bagh sample)
Tsomog	231	23 (10%)	18 (78% of bagh sample)	5 (22% of bagh sample)
Dalanjargalan	916	93 (10.1% of total)	74 (80% of soum sample)	19 (20% of soum sample)

Survey administration process and data entry

The survey was conducted by the same team of two enumerators and one supervisor in both communities. It took place over a period of three weeks in August 2016 and was immediately preceded by two days' intensive training led by the WOLTS Team Leader. Three guiding principles were adhered to throughout:

1. People's participation in the baseline survey was willing and voluntary.
2. People's information has been treated confidentially. The results have been analysed anonymously and all questionnaires were carried out in a private place.
3. Where possible the questionnaire was carried out with the household head and their spouse if they had one, otherwise with the most responsible adult present. No children were interviewed.

The breakdown of respondents by gender in each soum is given in the tables below.

Bornuur

Respondent sex	Respondent relationship to household head	Random sample	Additional female-headed household	Grand Total
Female	Household head	28	26	54
	Spouse	30		30
	Son/daughter		3	3
	Mother/father in law	1		1
	Total	**59**	**29**	**88**
Male	Household head	49		49
	Spouse	1		1
	Son/daughter	1	1	2
	Grandchild		1	1
	Brother/sister in law	1		1
	Total	**52**	**2**	**54**
Grand Total		**111**	**31**	**142**

Dalanjargalan

Respondent sex	Respondent relationship to household head	Random sample	Additional female-headed household	Grand Total
Female	Household head	15	18	33
	Spouse	21		21
	Total	**36**	**18**	**54**
Male	Household head	34		34
	Spouse	4		4
	Son/daughter		1	1
	Total	**38**	**1**	**39**
Grand Total		**74**	**19**	**93**

All questionnaire data were checked in the field and then entered into a Microsoft Excel workbook ready for analysis once the survey was complete. Spot checks of data entry were subsequently carried out on approximately 20% of questionnaires by other team members who had neither conducted questionnaires themselves nor done any of the original data entry.

Photographs, where taken, were always with the explicit permission of the respondents.

Annex 3. Participatory Fieldwork Methodology

Participatory fieldwork objectives

The participatory fieldwork was designed to build on the baseline findings and explore them in more depth. In particular, the baseline enabled identification of key issues in each community meriting further research, and of some key social groups (and in some cases specific individuals) whom it would be productive to include as participants in the next round of research. The two key objectives of the participatory fieldwork were as follows:

1. To develop more detailed and nuanced understanding of the community, local socio-economy, and of key local issues around gender, land, pastoralism and mining.
2. To create and facilitate a safe space for community members to start raising and identifying possible solutions to the land and natural resource related issues, problems and threats that affect them, including issues for the tenure security of women and vulnerable groups.

Methods, tools and exercises used

The participatory fieldwork was carried out using a mixture of focus group discussions and one-to-one biographic interviews. Both methods allowed plenty of opportunity for spontaneous discussion.

All the focus group sessions included structured discussions about natural resources and mining. The team also utilised five different tools and exercises during the focus group discussions, with the specific mix of tools and exercises varied for the different targeted groups. The five tools and exercises were as follows:

1. Natural resource mapping
2. Migration mapping
3. Proportional piling of tenure types tool
4. Stakeholders/institutions analysis exercise
5. Seasonal labour analysis exercise

All the biographic interviews followed the same structured question guide, with questions organised to elicit information on three broad themes: childhood and changing access to land; current livelihoods; and women's access to land. However, there was much free-ranging discussion in all these interviews, and the emphasis of the questioning varied according to the responses of participants and their particular life situation.

Focus group discussions

A total of 91 people in Bornuur and 83 people in Dalanjargalan participated in fourteen focus group discussions with specific groups in each soum as follows:

Bornuur

Code	Type of participants	Bagh
FGD1	Local leaders including soum officials, bagh governors and male and female members of soum and bagh citizen khurals	All
FGD3	Women herders	All
FGD4	Men herders	All
FGD5	Women engaged in any sort of mining	Uguumur, Mandal
FGD6	Men engaged in any sort of mining [*uncompleted due to drunkenness of participants*]	Uguumur, Mandal

Code	Type of participants	Bagh
FGD7	Married women herders who were around during the summer and not on otor migration	Bichigt
FGD8	Young unmarried men (i.e. living singly as male headed households having never married or adult sons living with parents) in mixed occupations including herders, farmers, farm workers, miners and employees	Bichigt
FGD9	Men herders who were not born in the soum	Nart
FGD10	Women involved in forest user groups	Nart
FGD11	Young unmarried women (i.e. living singly as female headed households having never married or adult daughters living with parents) in mixed occupations including herders, farmers, farm workers, miners and employees	Nart
FGD12	Men engaged in any sort of mining	Nart
FGD13	Married men herders	Uguumur
FGD14	Unmarried women living in male-headed households (i.e. unofficial wives or partners) in mixed occupations including herders, farmers, farm workers, miners and employees	Uguumur
FGD15	Single women (female household heads), living in the soum centre with formal employment or own businesses/enterprises and some of whom send livestock to be grazed by other people in the soum	Mandal

Dalanjargalan

Code	Type of participants	Bagh
FGD2	Local leaders including soum officials, bagh governors and male and female members of soum and bagh citizen khurals	All
FGD16	Women herders	All
FGD17	Men herders	All
FGD18	Married men herders who were around during the summer and not on otor migration	Eldev
FGD19	Married women (any age) in mixed occupation households including herders, farmers, farm workers and miners	Eldev
FGD20	Married men herders, born in the soum, who were around during the summer and not on otor migration	Ungut
FGD21	Women (any age) in mixed occupations including herders, miners and employees	Ungut
FGD22	Men herders, born in the soum, who were on otor migration in the summer	Bichigt
FGD23	Women involved in community environmental protection groups	Bichigt
FGD24	Single women (female household heads) living in the soum centre with formal employment or own businesses/enterprises	Tsomog
FGD25	Men engaged in any sort of mining	Tsomog
FGD26	Young unmarried men (i.e. living singly as male headed households having never married or adult sons living with parents) in mixed occupations including herders, miners and employees	Ungut
FGD27	Women engaged in any sort of mining	Olon-Ovoo
FGD28	Single unmarried male household heads (any age) working in mining or the cement factory and some of whom send livestock to be grazed by other people in the soum	Olon-Ovoo

Biographic Interviews

Eleven biographic interviews with targeted individuals were conducted in each soum as follows:

Bornuur

Code	Type of interviewee	Bagh
BI1	Widow (any age) whose main household livelihood is from mining	Uguumur
BI2	Young to middle-aged widow whose main household livelihood is non-herding (i.e. from farming, mining or formal employment)	Uguumur
BI3	Elderly married male herder whose household was on otor migration in the summer	Bichigt
BI4	Elderly widow involved in a forest user group	Bichigt
BI5	Female herder whose household has over 200 head of livestock and employs herding assistants	Nart

Code	Type of interviewee	Bagh
BI6	Wealthy married herding couple with a big area of agricultural land (over 40ha)	Nart
BI7	Married man (any age) whose main household livelihood is from mining	Nart
BI8	Young to middle-aged widow who works as a farm labourer for other households	Nart
BI9	Elderly widowed female herder from a household containing a disabled person	Uguumur
BI10	Elderly unmarried disabled man, born in the soum	Uguumur
BI11	Single unmarried male household head (any age)	Mandal

Dalanjargalan

Code	Type of interviewee	Bagh
BI12	Young to middle-aged widowed disabled woman whose work involves looking after the herds of other households	Eldev
BI13	Married male herder whose household has over 100 head of livestock	Eldev
BI14	Elderly married female herder from a household containing a disabled person	Ungut
BI15	Elderly married male herder, born in the soum, whose household was on otor migration in the summer	Ungut
BI16	Unmarried middle-aged woman, born in the soum	Bichigt
BI17	Elderly widowed male herder	Bichigt
BI18	Female herder whose household has over 200 head of at least one type of livestock and employs other people to help with herding	Eldev
BI19	Middle-aged widow whose household contains a disabled person	Tsomog
BI20	Married woman (any age) whose main household livelihood is from mining	Ungut
BI21	Married man (any age) whose main household livelihood is from mining	Olon-Ovoo
BI22	Man (any age) who was formerly an artisanal miner	Olon-Ovoo

Participatory fieldwork process and documentation

The participatory fieldwork was conducted by a field team of the same five people in both communities, alternating on different days so that they always worked as two pairs. It took place over a period of three weeks in November 2016 and was immediately preceded by two days' intensive training led by the WOLTS Team Leader. The team was assisted by the bagh governors in both communities in inviting the targeted participants to the different sessions. Most focus group discussions had to take place in (heated) soum and bagh offices because the participatory fieldwork was being carried out in early winter. However, wherever possible the biographic interviews took place in participants' homes. Two guiding principles were adhered to throughout:

1. People's participation in the participatory fieldwork was willing and voluntary.
2. People's information has been treated confidentially. The results have been analysed anonymously and participants were assured that their names would not be used and their contributions would not be directly attributable to them.

In each focus group discussion and each biographic interview there was a nominated lead facilitator and a nominated note-taker. The note-taker was responsible for typing up and recording all documentation for the session at the end of the fieldwork period, which was then reviewed by the lead facilitator, ready for analysis. Photographs, where taken, were always with the explicit permission of the participants.

Annex 4. Key Stakeholder Interviews

Interview Date	Interviewees: Name, Position and Organisation
Stakeholders in Ulaanbaatar	
16 Nov 2015	Mrs T. Enkh-Amgalan – Project Manager – Swiss Development Corporation (SDC) Green Gold Project
17 Nov 2015	Mr Batsaikhan Jamsranjav – Head of Land Management – Administration of Land Affairs, Geodesy and Cartography (ALAGaC) Mr Khurelshagai Ayurzana – Director General – ALAGaC
17 Nov 2015	Ms Naranchimeg Bagdai, Officer – Division for Land Resources Management – Ministry of Environment, Green Development and Tourism
18 Nov 2015	Mrs Altantuya Tseden-Ish – Vice President – National Association of Mongolian Agricultural Cooperatives (NAMAC)
18 Nov 2015	Mr D. Enkhbold – Executive Director – Mongolia National Mining Association
18 Nov 2015	Mr Sainbayar Surenkhuu – Executive Director – Mongolian Land Management Association (MLMA)
18 Nov 2015	Mrs Bolormaa Mashlai – Secretary and Head of the Secretariat – National Committee on Gender Equality of Mongolia (NCGE)
18 Nov 2015	Mrs Tsolmon Begzsuren – Associate Social Development Officer – Asian Development Bank (ADB)
06 Apr 2016	Dr Hijaba Ykhanbai – Director – Environment and Development Association (JASIL)
12 Apr 2016	Ms Amgalan Terbish – Board Member, Community Development Centre in Tolgoit
12 Apr 2016	Katie Barraclough – Coordinator – Amnesty International Mrs Munkhjargal – Amnesty International
12 Apr 2016	Dr U Tungalag – Science Secretary – Institute of Geography and Geoecology
12 Apr 2016	Mr Enkh-Amgalan Ayurzana – Founding Director – Center for Policy Research
15 Apr 2016	Mrs T. Enkh-Amgalan – Project Manager – SDC Green Gold Project + Green Gold Project Team
26 Jul 2016	Ms Diana Fernandez – Deputy Country Representative – The Asia Foundation Ms Bolormaa Purevjav – ESEC Senior Project Advisor / UNICEF Program Manager – The Asia Foundation
26 Jul 2016	Mr Purevdorj Enkhmandakh – Senior Officer – Urban Development and Land Affairs Policy Department, Ministry of Construction and Urban Development
27 Jul 2016	Mr Rodney Chanin – General Manager – Centerra Gold Mongolia LLC / Boroo Gold Company
01 Aug 2016	Mrs Dugersuren Sukhgerel – Executive Director – OT Watch
03 Aug 2016	Mr Ya Altangerel – Senior Expert and Acting Director – Livestock Industry Policy Implementation Department, Ministry of Food, Agriculture and Light Industry
16 Aug 2016	Mr Zoljargal Jargalsaikhan – Director of Energy and Chemicals Department – Mongol Alt LLC
04 Oct 2016	Mrs Dolgor – Director – Khugjliin Khelkee
01 Nov 2016	Ms Bayarsaikhan – Executive Director – Steps Without Borders
01 Nov 2016	Mr Kevin D. Gallagher – Deputy FAO Representative in Mongolia and Acting Country Representative – FAO Mongolia Ms Munkhbolor Gungaa – M&E, Communication and Networking Coordinator – FAO Mongolia Ms Altantsetseg Balgan – FAO Mongolia (and formerly Ministry of Food and Agriculture, Legal Division)
01 Nov 2016	Ms Sarantuya – Social Responsibility Manager – Mongol Alt LLC Ms Enkhzaya – Social Responsibility Team Member – Mongol Alt LLC
27 Jun 2017	Ms Bayarsaikhan – Executive Director – Steps Without Borders
27 Jun 2017	Mr Altanbagana – Director – SDC Sustainable Artisanal Mining Project
27 Jun 2017	Mr Batsaikhan Jamsranjav – Director – ALAGaC
28 Jun 2017	Ms Khulan Bayar – Senior Officer – Artisanal Mining – Department for Coordination of Policy Implementation, Ministry of Mining and Heavy Industry

Interview Date	Interviewees: Name, Position and Organisation
28 Jun 2017	Mr Rodney Chanin – General Manager – Centerra Gold Mongolia LLC / Boroo Gold Company
28 Jun 2017	Ms T. Enkhbayar – Secretary and Head of the Secretariat – NCGE
Stakeholders in Bornuur Soum	
12 Apr 2016	Mrs Munkhzul – Soum Environmental Inspector Mr Batmunkh – Soum Land Officer Mrs Shinejil – Small Scale Mining Community Leader Mrs Enkhtuul – Small Scale Mining Community Member Mr Lkhagvadorj – Director of Crop Planting Company
10 Nov 2016	Mr Orgodol, T. – Process Director – Boroo Gold Company Environmental Expert
Stakeholders in Dalanjargalan Soum	
7 Apr 2016	Mr O Purevkhuu – Soum Governor Mrs Davaagerel – Soum Environmental Inspector Mrs Purevsuren – Bichigt Bagh Governor Mrs Enkhtuya – Ungut Bagh Governor Mrs Ulziisaran – Eldev Bagh Governor
19 Nov 2016	Mr Lkhagvadorj – MAK Operations Director – Mongol Alt LLC, Dalanjargalan Soum Coal Mine and Cement Factory
Stakeholders in Bulgan Soum	
9 Apr 2016	Mrs Dulamsuren – Buffer Zone Committee Member, Bulgan Soum Protected Area Administration Mrs Azkhuu Munkhuu – Soum Land Officer Mr Buyantsereg – Bulgan Centre Bagh Governor Mr Ulambayar – Den Bagh Governor Mr Damdinsuren – Soum Environmental Inspector Mr Bayartogtokh – Soum Governor
Stakeholders in Jargalant Soum	
11 Apr 2016	Mr Ganbold – Soum Governor Mrs Baasansuren – Soum Environmental Inspector Zolzaya – Soum Land Officer
Stakeholders in Mandal Soum	
11 Apr 2016	Mr Anar – Soum Vice Governor Mr Munkhtuvshin – Soum Environmental Team Leader Soum Land Officer Mrs Battsetseg – Soum Environmental Ranger Mr Naran – Soum Head of Forest Units Mrs Oyunbileg – Soum Forest Engineer Mr Jargal – Tunkhel Bagh Environmental Inspector Mrs Otgonchimeg – Kherkh Bagh Administrative Officer

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БАЙГАЛЬ
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