

BUILDING A MINERAL NATION? THE OYU TOLGOI COPPER-
GOLD MINE AND CONTESTED INFRASTRUCTURE
DEVELOPMENT IN MONGOLIA

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Abstract

This dissertation investigates mining as a contested nation-building project through the development of mining-related infrastructure for the Oyu Tolgoi copper-gold mine, located in Mongolia's South Gobi province. Oyu Tolgoi is expected to contribute over 30 percent of Mongolia's GDP in the coming decades and has become a symbol of the promise of national development through mineral extraction. At the same time, the material effects of mining-related infrastructure challenge these promises of nation-building. I argue that controversies over Oyu Tolgoi provide a lens onto the complexities of mining as a nation-building project, revealing how the state both facilitates and inhibits mining and how people living in mining-affected areas perceive the impacts of mining on their livelihoods, futures, and belonging to the nation. Specifically, I examine how Oyu Tolgoi and its parent corporations contribute to rebuilding Mongolia as a 'mineral nation;' how the privatization of water resource access creates new visions of the nation at the cost of pre-existing visions; how road dust brings local residents into intimate contact with contradictions of mining as a nation-building project; and how fiction can reveal alternative understandings of nature, mining, and nation. At the core of contestations over infrastructure development are questions of who has the power to define the direction of the nation, how the materiality of mining channels the possibilities of local and national development, and what are the costs to both local livelihoods and the nation. By focusing attention on mining-related infrastructure, this dissertation contributes to calls for more research on how infrastructure enables, channels, and delimits future possibilities of not only governance and territory, but also, I argue the nation.

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CHAPTER 1: Introduction



Figure 1 A view of Oyu Tolgoi from a herder's winter camp, spring 2012

[Oyu Tolgoi] has become the answer to every single question these days.

—Bat-Erdene, research assistant, in Ulaanbaatar spring 2012

The Oyu Tolgoi copper-gold mine looms on the horizon, not only locally among its neighbors, but throughout Mongolia where mining promises to rebuild the nation. To local residents, the mine offers some employment opportunities, but it also consumes vast quantities of water and along with other nearby mines, produces vast quantities of dust. Concerns about water levels and the dust-coated pasture suggest mining and nomadic herding cannot co-exist in the region—at least not comfortably. At the same time, with expectations that Oyu Tolgoi will contribute over 30 percent of Mongolia's GDP in the coming decades, it has become a symbol of the promise that mining can foster national economic development. As the mine's construction

was nearing completion in spring 2012, my research assistant captured the mine's power and promise: Oyu Tolgoi has become the answer to every question. Yet Oyu Tolgoi also poses new questions to the nation such as how nature should be harnessed to rebuild the nation, which visions of the nation will be realized and which will be neglected, who implements these visions, and who will bear the costs. These questions are most tangible to those living near the pipelines that redirect water to and from the mine site and the unpaved roads that produce clouds of dust with each passing vehicle.

Located 80 kilometers north of the Chinese border in South Gobi province, Oyu Tolgoi is the second largest undeveloped copper mine in the world. A so-called world-class deposit, the mining company promises to renew the nation through jobs, infrastructure development, and expanded international investor appeal. Moreover, Oyu Tolgoi claims to thoroughly mitigate environmental damage caused by its operations and to promote the conservation of resources. The company's promotional materials are brimming with breathtaking vistas of desert landscapes, populated by the occasional nomadic herder, camel, or *khulan* (wild ass). Yet since infrastructure construction began in 2010, local residents, particularly nomadic herders, argue that their livelihoods are under threat. Thus, romantic portrayals of Mongolia's 'untouched' landscapes that serve as thin blankets for 'untouched' mineral deposits belie the complex relationships between corporate, state, non-governmental, and local actors that shape mining as a nation-building project. While Oyu Tolgoi appears to have become *the* answer to Mongolia's nation-building question, the mine remains contested as many Mongolians question the costs of mining to the environment, to affected populations, and ultimately to the nation.

The purpose of this dissertation is to examine the complexity of mining as a nation-building project and how the material effects of mining-related infrastructure development

challenge the promises of nation-building. I argue that controversies over Oyu Tolgoi provide a lens onto these complexities, revealing how the state both facilitates and inhibits mining and how people living in mining-affected areas perceive the impacts of mining on their livelihoods, futures, and belonging to the nation. Moreover, these controversies highlight how a transnational corporation directs and realizes visions of the nation. At the core of these contestations are questions of who has the power to define the direction of the nation, how the materiality of mining channels the possibilities of local and national development, and what are the costs to both local livelihoods and the nation. By focusing attention on mining-related infrastructure, this dissertation contributes to Hannah's (2000) call for more research on how infrastructure enables, channels, and delimits future possibilities of not only governance, but also, I argue the nation (see also Humphrey 2005).

The debates with which this dissertation engages cut across the literature on nation-building and nature to consider how mineral nations, water, and dust are lenses onto the intersecting and parallel ways that mining transforms Mongolia's political geography and environment. This multidimensional approach builds on the work of other scholars who have suggested that the power of the nation has not diminished with globalization, but transformed (see Wood 1999; Sparke 2005). These transformations of the nation include a greater role for corporate actors in nation-building, particularly in post-socialist "frontiers" where vast mineral resources have become more accessible to capital since the fall of the USSR (see Labban 2008). However, what remains relatively unchanged are the ideals of nation-building, including the creation of visions and infrastructure to promote national unity, cohesion, and identity. Unfortunately, the inability of the state and other actors to fully realize these visions and the unintended negative effects of infrastructure construction on local populations also appears to be

consistent with 20th Century modernist nation-building projects (see Scott 1998; Kaika 2006; Bakker 2010).

This dissertation is timely due to broader geopolitical and political economic events that have made Oyu Tolgoi possible. The collapse of the Soviet Union, China's rise as a dominant trade and industrial power throughout the region and globe, and escalating prices of mineral commodities profoundly shape the emergence of mining as a nation-building project in Mongolia. Moreover, these intersecting processes have created the institutional changes that reproduce Mongolia as a new resource frontier (see Bunker and Ciccantell 2005; Peluso and Lund 2011). At the same time, Mongolia is *not* a new resource frontier to China, which exploited Mongolia's mineral wealth as recently as the Qing Dynasty (see High and Schlessinger 2010; Dear 2012), nor to Russia, which greatly contributed to the nation's extractive industries during the socialist era and beyond (see chapter 3). Nonetheless, Oyu Tolgoi represents a new phase in Mongolia's mining development as free-market ideologies redirect the nation's attention to exporting its vast mineral wealth, no matter the local costs (see Bunker 1984; Peck and Tickell 2002; Bunker and Ciccantell 2005).

Nation-building, Mining, and Infrastructure

Nation-building involves both the discursive and material transformation of the nation. It concerns the stories that states and other actors tell to create a sense of shared history, place, and future (see Johnson 2001; Light 2011) as well as the construction of physical symbols that denote a share in the nation's resources and the power of the state to realize its promises (see Penrose and Mole 2008; Kezer 2009). As I suggest in this dissertation, transnational corporations develop and tell national stories. A nation-building role for corporations decenters not only the

state, but also struggles over the power to build the nation. However, as I show in this dissertation, mining proponents reproduce not only nation-building discourses, but also material symbols of nation-building ranging from the rents that flood state coffers offering promises of infrastructure development and improved public services, increased employment opportunities, and in the case of Oyu Tolgoi, higher environmental standards under the guidance of Rio Tinto's operational standards. Yet, mining as a nation-building project in Mongolia remains highly contested as concerns about corporate involvement, state legitimacy, and the local costs to landscapes and livelihoods that circulate unease throughout the country.

As the following chapters illustrate, transnational corporations play a role in the reproduction of nations, not only through institutional changes that transform (or erase) the national boundaries that corporations encounter, but also through their active engagement in what have been previously considered state practices (see Scott 1998). I demonstrate how a corporation both takes on and shies away from responsibility for the management of resources and infrastructure all the while promoting itself as a nation-building actor. While scholars have previously acknowledged the role of corporations in nation-building (see Watts 2004; Taylor 2006; Swyngedouw 2007; Biggs 2010), a major contribution of this dissertation is a decentering, but *not erasure*, of the state to provide a more accurate representation of contemporary neoliberal nation-building processes. However, the rise of corporate power over nation-building narratives is not without controversy. Mongolia is often celebrated as a new, successful democracy, but the transference of nation-building into the hands of a corporation demonstrates a subversion of the people's rights to have a say in the use of the nation's natural resources for economic development. This movement of power from the state to corporate hands is an ongoing source of

tension over mining and Oyu Tolgoi in particular, an argument that I develop throughout the dissertation.

Yet the dissertation also demonstrates the limits of corporate engagement with nation-building. As one regional development staff argued in an interview with me in 2012, “Oyu Tolgoi is not the government.” While the company takes on the role and image of a nation-building entity, it does not and cannot replace central and local state institutions. Nor does it fill the vacuum left after 1990 by the evaporation of socialist-era institutions that modernized the national economy following Soviet dictate (see Fernandez-Gimenez 1999; Sneath 2003a/b, 2010; Rossabi 2005; Bruun 2006). People living in mine-affected areas, particularly nomadic herders, experience the power of the corporation to impose its demands for resource access and to negatively affect the environment without a strong state regulating presence. Oyu Tolgoi claims that it brings improved standards to Mongolia and arguably *does* provide more compensation for displacement and plans for environmental mitigation than most other foreign and domestic companies operating in the country. However, the role of the state in facilitating the company’s less costly development of a water supply network (see chapter 4) and road network (see chapter 5) demonstrates how the material realities of building a mine and a mineral nation (see chapter 3) remain controversial. Thus I show how the state and corporation are not entirely distinct entities, which at times collaborate and at others have a more adversarial relationship as they pursue independent but overlapping goals to develop Oyu Tolgoi as a nation-building project.

Legitimacy is also a central theme of this dissertation as nation-building is contingent upon the legitimacy of the state (Penrose and Mole 2008) and, in this case, corporate actors to realize visions of national renewal and unity. Many scholars have suggested how the material effects of mineral extraction deligitimize nation-building when benefits are unevenly distributed

and local residents' livelihoods are threatened by environmental degradation (Watts 1996/2004, 2004; Perrault and Valdivia 2010; Bebbington and Humphreys Bebbington 2011; Valdivia and Benavides 2012). As I demonstrate, in South Gobi province uneven effects of mining-related infrastructure development have the potential to undermine nation-building. Thus many local residents express a sense of exclusion from the promises of nation-building, delegitimizing both state and corporate actions that divert resources to mining and away from alternative visions of the nation. The question of legitimacy of not only mining itself as a nation-building project, but also the supporting infrastructure and how it is implemented contributes to a much broader literature on mining that considers the long-term impacts of the early stages of mine development (see Caine and Krogman 2010).

As mining operations sweep across South Gobi, according to local residents and critics, the changes to the physical and economic landscape have taken on an air of permanence. Specifically, the redirection of water resources and the sterilization of the landscape through the intensification of road dusts close off pre-existing and alternative uses of national space as mining dominates the region. While a subset of the scholarship on pasture health and the Gobi identify nomadic herders as the culprits of desertification (see Natsagdorj *et al.* 2003; Batjargal *et al.* 2006; Zhang *et al.* 2008; Lee and Sohn 2011), other scholars identify the radical institutional changes of the late 20th century as the catalysts for the decline of the national herding economy (see Sneath 2003, 2010; Bruun 2006; Sternberg *et al.* 2009; Marin 2010; Addison *et al.* 2012; Sternberg 2010, 2012). These permanent changes to the landscape wrought by mining exacerbate pre-existing political and economic conditions that have rendered herders vulnerable to extreme weather conditions and climate change; thereby foreclosing alternatives that require the water and pasture access that mining threatens.

However, pre-existing landscapes also provide fodder for alternative visions of the nation. These visions critique mining processes and corporate control of nation-building narratives and practices. Although there is a danger of reproducing romanticized images of timeless nomads (Tavares and Brosseau 2006) such as those idealized by Deleuze and Guattari (1987/2005; see also Sneath 2007), throughout the dissertation I attempt to contextualize these alternative visions of the nation as part of the broader geopolitical and political economic changes mentioned above. Thus I do not write of modern nation-building as “an anti-nomadic technique” (Foucault 1995, 218). Rather, I draw from past national visions, specifically from the socialist era when the state developed infrastructure to expand nomadic herding activities into territories that were previously inaccessible to livestock (see Bruun 2006; Sneath 2010; Upton 2009).

While Oyu Tolgoi makes claims of mitigating impacts on herders, their activities and those of other mining companies shrink the expanse of pasture and nomadic herding in the affected areas. Thus this dissertation examines how the costs of nation-building are perceived at relatively early stages of mining development. A broad literature considers the rise of social movements in the face of the social, economic, political, and environmental costs of mining, demonstrating how the threats that mineral extraction poses to local livelihoods can generate political activity (see Muradian *et al.* 2004; Watts 2004; Tsing 2005; Kirsch 2007; Gledhill 2008; Bebbington and Hinojosa *et al.* 2008; Bebbington and Humphreys Bebbington *et al.* 2008; Kaup 2008, 2010; Walton and Barnett 2008; Jell-Bahlsen and Jell 2012; Himley 2013; see also North *et al.* 2006). Scholars such as Watts (1996/2004, 2004) argue the impacts of extraction fragment national identities rendering communities unimaginable (following Anderson 1983/2006). However, other scholars contend that the effects of extraction produce new political identities as

citizens make claims to national belonging through claims to natural resources (Gledhill 2008; Valdivia and Benavides 2012). Threatened local resources are also rescaled as national, providing new means to challenge the vision and implementation of nation-building projects (see Desbiens 2004a/b). Hence analyses of construction phases of mining development provide insights into the formulation of alternate visions of the nation.

The timing of the dissertation also provides a unique perspective on mining as a nation-building project as I conducted research during the construction phase of the mine before the open pit went into full-operation in July 2013.¹ Scholars such as Tsing (2000) and Bridge (2007) have examined how the *idea* of mineral wealth can generate a national and international flurry of attention without any mining actually taking place, and scholars such as Coronil (1997) and Ferguson (1999) have explored the failure of states to realize the promises of nation-building through mineral extraction. However, this dissertation takes place in-between these moments during another important juncture in the life of a mine. The Oyu Tolgoi copper-gold mine has become a *real* entity in Mongolia beyond the hype of the early years (see chapter 3), yet the long-term effects on the nation remain unknown. What this dissertation provides is a snapshot of a key period during the early life of the mine and how challenges to its nation-building promises parallel perceptions of some its negative material effects. Thus the timing of the research highlights an understudied phase of mining as a nation-building project.

Finally, the dissertation demonstrates how mining and nation-building are ongoing processes of negotiation that did not end with the signing of the Oyu Tolgoi investment agreement. Concerns about how water and transportation infrastructure have been implemented (or not) continue to raise questions about how, when, and for whom nation-building is taking

¹ The block-cave mine shaft is not expected to go into operation until 2016.

place. Hence, the dissertation counters discourses of mining as a done deal in Mongolia as external factors such as changes in commodities markets and internal factors such as national political opinion have the potential to shift the extent and longevity of mining as a nation-building strategy.

Dissertation Structure

While each chapter contributes to the arguments and themes discussed above, I also wrote each chapter to stand-alone as publishable pieces, with the exception of the second half of chapter 2. Thus the structure of the dissertation is somewhat unorthodox because there is no overarching literature review to frame the work. Rather, each chapter (with the exception of chapter 6) contains its own literature review and discussion of theoretical and empirical contributions.

Chapter 2 examines the methodological approach to research and describes the field sites and methods used in this dissertation. A central purpose of the chapter is to consider how the fictional chapter of this dissertation (chapter 6) draws on political ecology to consider writing about fieldwork in unorthodox ways. Building on Christensen's (2012) concept 'research storytelling,' I propose *critical magical realism* as a new genre of academic writing. Critical magical realism combines the critical realist approach that informs political ecology with the literary genre of magical realism. Together, I argue that academic research can overcome false dichotomies between non-fictional and fictional representations of controversial issues, such as mining and nation-building. The chapter thus frames the approach of the dissertation as a whole as well as illustrates how the positionality of the researcher includes her imagination, which greatly affects research paths, outcomes, and limitations.

In the third chapter, I ask what are the promises of mineral nations and how and why they are contested. The promises of mineral nations, I argue, are tempered by concerns about ‘resource curse’ and ‘Dutch Disease’ among state actors and the Mongolian public. While the literature on building mineral nations focuses on the role of the state, I argue that transnational corporations such as Oyu Tolgoi play an integral role in building mineral nations. In addition to providing historical background on mining in Mongolia and the development of Oyu Tolgoi itself, I show how the immediate political, economic, and environmental effects of the mine challenge the promises of building Mongolia as a mineral nation. Further, I consider how the lived experience of affected residents conflict with the environmental imaginaries developed in Oyu Tolgoi’s public relations materials. These tensions come to the fore in public debates through the neologism ‘Mine-golia.’

Chapter 4, *Water*, examines Oyu Tolgoi’s two major water infrastructure projects that symbolize how mining produces new visions of the nation, at the cost of pre-existing visions. While the literature on water and nation-building examines state-directed projects, Oyu Tolgoi’s involvement demonstrates the proliferation of actors involved in nation-building with the neoliberal turn in resource governance over the last several decades. Although the Mongolian state actively extended the pasture through rural water infrastructure during the socialist-era, that system has fallen into disrepair. To support mining development, the state has made exceptions in the Water Law and the Oyu Tolgoi Investment Agreement to facilitate the large-scale redirection of water resources from aquifers and local ephemeral streams. Oyu Tolgoi’s water infrastructure includes the Gunii Hooloi aquifer pipeline that diverts water towards the mine to process minerals and the Undai River diversion pipeline that redirects water away from the open pit with potentially devastating impacts on nomadic herders downstream. Disagreements over the

granting of permission for these pipelines elucidates broader contestations over channeling water to develop Mongolia's mining industries at the cost of local users. Moreover, these disagreements highlight different visions of what water means to the nation.

The final empirical chapter considers dust as a by-product of the promises of rebuilding Mongolia as a mineral nation. I bring the literature on dust into conversation with the literature on roads to consider how dust, as a particular kind of materiality, challenges the promises of nation-building and modernity more broadly. As state and corporate actors blame one another for a failure to develop a regional transportation infrastructure, hundreds of mineral-laden trucks from Oyu Tolgoi and the many other mines in the region speed through the desert on dirt and gravel roads. Local residents, particularly nomadic herders, argue that the dust shrinks the available pasture and threaten the health of their families and livestock. Dust thus symbolically and materially invades the most intimate spaces of local residents, excluding them from the promises of nation-building.

Chapter 6, *Altansar and the Death Worms*, offers a radically different approach to understanding mining and nation-building in Mongolia. Written as a short story, the chapter is in the process of being transformed into a graphic novel for circulation in Mongolia and North America. A preface expands my interpretation and reasons for using a critical magical realist approach, as discussed in chapter 2. The story itself follows a teenage girl, Altansar, and her encounters with anthropomorphizations of the mining boom. The tale draws on stories and myths I was told in Mongolia during my fieldwork as well as on those that I have exaggerated and fabricated to create a research-based narrative. While an undercurrent of the story implies the role of transnational corporations in creating hybrid monsters, I focus on the experience of Altansar and her quest to understand and possibly reverse many of the changes tied to mining

and the recreation of Mongolia that she sees in her family and the places she calls home. The story reveals alternative understandings of nature and mining left unexamined in the preceding chapters.

To conclude the dissertation, I revisit the major arguments and contributions to make connections between themes. I end with some of the questions left unanswered, as the future of mining in Mongolia and Oyu Tolgoi remains unknowable at this time.

CHAPTER 2: Methods

As narrator she is narrated as well.

—Bhabha 1990, 301.

Imagination is the starting point for all research. The sparks of intuition that turn into research questions and arguments are integral to the work that geographers and other scholars produce. Thus as Bhabha (1990) suggests in the quote above, the research results we read tell us something about the researcher. This epistemological approach is particularly relevant to this dissertation because nation-building is in part an exercise in storytelling (Light 2011). In this dissertation, I engage directly and indirectly with questions of the enchanting promises of building a mineral nation, including expectations of wealth that collide with the negative impacts of mining development as well as some sense of optimism that concern for the environment will mobilize the public to limit excessive environmental degradation. Actors who narrate and materially reproduce Mongolia as a mineral nation include the state, transnational corporations, citizens, and civil society networks, among others. While the reproduction of nation-building discourses, the construction of nation-building infrastructure, the perceptions and actions of these different actors are explored in other chapters of this dissertation, here I explore how I narrate these narrations of nation-building. In particular I am interested in how my imagination filters, channels, and reproduces the stories, descriptions, and arguments that unfold, as well as the limitations of my objectivity and research methods.

To frame how I draw broadly from interpretive approaches in social sciences, in this chapter, I consider how geographical research engages with not only the positionality of the researcher, but also the imagination and unorthodox creative potential of academic research.

Post-colonial and feminist discussions of positionality and debates in political ecology on critical realism suggest that academic research and writing are forms of storytelling. In addition to conceptualizing non-fiction storytelling (Behar 1990), many academics also engage in fictionalizations of research to create alternative approaches to critical inquiry and research dissemination (Solorzano and Yosso 2001).

I engage with both non-fiction and fiction storytelling in this dissertation to describe and analyze controversies over the development of mining related infrastructure during Oyu Tolgoi's major construction phase. To consider my engagement with non-fiction and fiction writing as well as political ecology and magic, I suggest a new genre of academic storytelling, *critical magical realism*. I argue that critical magical realism combines the philosophical stance of critical realism with the fiction genre magical realism to suggest a methodology that challenges false dichotomies between fiction and non-fiction to better understand perceptions of controversial issues such as mining and nation-building (see Taussig 1980/2010; Escobar 2008). Chapters 3-5 in this dissertation draw on epistemologies of critical political ecology, as my perspective on nation-building and mining in Mongolia recognizes that a reality exists independent of human thought and that our knowledge of the world are representations (see Neumann 2005). In chapter 6, I engage with magical realism to suggest how we can reveal the world in new ways when we tell, exaggerate, and create stories about supernatural beings and phenomena. Thus taken as a whole, this dissertation can be read as a critical realist *and* magical realist work that unravels and reproduces nation-building stories.

To consider the power of researchers' imaginations, I begin this chapter by discussing how storytelling positions the researcher as amalgamator, creator, and narrator of stories. Then I outline critical realism and magical realism to explore the role of imagination in this dissertation

as a whole. Finally, I describe the research methods I employed in the field to reproduce my narration of nation-building in the proceeding chapters.

Positionality and Storytelling

Feminist and post-colonial scholars over the last several decades have repeatedly emphasized the significance of recognizing the positionality and situated knowledge of researchers (Haraway 1991; Rose 1997; Tuhiwai Smith 1999; Hyndman 2001; Pratt 2004; Gibson-Graham 2006). To avoid conducting research and reproducing knowledge from a “view from nowhere” as Haraway (1991) suggests, we must place ourselves in the stories we create (non-fictional or otherwise), just as we place people and ideas. Creating knowledge from this perspective forces us to recognize the visible and invisible worlds that shape how we interpret and represent material realities and discursive formations (Haraway 1991; Rose 1997). Thus we acknowledge that the stories we tell reflect ourselves as much as the realities that research participants discuss (Bhabha 1990).

My positionality as an American, white, middle class, left-leaning woman consciously and unconsciously informed my relationships to people who participated in the research project and shapes how I tell the story of mining as a nation-building project in Mongolia. When I interviewed herders in their homes and when we were eating in *tsainii gazar* (canteens) in South Gobi, people generally assumed that I worked for Oyu Tolgoi. And when I entered the headquarters of Oyu Tolgoi, I felt as though I might be perceived as a member of the expat mining community because of my whiteness and professional clothing. However, on the streets and in the taxis of Ulaanbaatar, I noticed that I was more frequently identified as a teacher, student, NGO worker, or tourist. In all cases, I am a privileged outsider with interests in “stirring

the dust” to better understand how nation-building promises fall short—particularly when they are made and facilitated by transnational corporations that operate from my home (North America). At the same time, what I hope this dissertation demonstrates is my empathy for people who challenge multinational corporations, my belief that despite all of their failings states and civil society should pressure corporations and international institutions to consider values outside the economic, and that citizens and the governments that represent them should have more rights and control over their resources than foreign entities. These ideals unavoidably influence the ways that I tell the story of mining as a nation-building project in Mongolia.

To describe my positionality and approach to this dissertation, I use the term storytelling loosely to suggest how I view the production of knowledge (epistemology) and the multiple worldviews (ontology) that shape contestations over nation-building in Mongolia. Drawing from her forays into research-based fiction, Christensen (2012) argues that writing fiction creates a new genre for researchers to not only reach broader audiences, but also to have the space to consider new approaches to analyzing findings in ways that complement academic writing. After all, the purpose of geographic writing is to convey ideas about particular times, places, and people to reveal the complexity of the world around us. However, there need not be a strict line dividing research storytelling into non-fiction and fiction. Drawing from Blaser (2010), Houston (2013, 421) argues that storytelling can be viewed “as a material practice, grounded in complex and co-constitutive realities.” Furthermore, she contends that storytelling allows for non-linear shifts in time and place to illustrate how epistemology and ontology are fluid and multidirectional. Thus, the boundary between non-fiction and fiction can be porous in academic research and as Nash (2003) contends, writing can stretch us beyond the confines of traditional academic research methods.

Christensen (2012) suggests that research storytelling goes beyond analyzing the stories that we read and we are told—it includes (creative) writing (see Tuhiwai Smith 1999; Nash 2003; Flusty 2004; Dittmer 2005; Christensen 2012). Drawing from Benjamin, Behar (1990, 1993) sets a framework for using storytelling as a research method for interviewing and writing. Through the stories of Esperanza, the “translated woman,” Behar tells three interweaving tales of subjectivity, research, and trust. Like Pratt (2004), Behar (1990, 1993) advocates listening (see also Rose 1997), which is key to (re)constructing stories (see also Berg 2001; McDowell 2010). As Benjamin (1963, 87) argues “The more self-forgetful the listener is, the more deeply is what he listens to impressed upon his memory.” Furthermore, Behar (1990, 228) argues that as she writes she is “reading rather than as informing,” changing from a listener to a storyteller, attempting to capture the tone of Esperanza’s stories in written form. Following Benjamin (1963, 83), Behar writes as a storyteller who “takes what he tells from experience—his own or that reported by others. And he in turn makes it the experience of those who are listening to his tale.” Thus the storyteller transports the listener/or reader to a different time, place, and positionality, where they “self-forget” and consider the possibilities of different worlds (Benjamin 1963).

Another advantage of research storytelling is that researchers can draw on the experiences of more than one person and create new fictionalized possibilities (Christensen 2012). Solorzano and Yosso (2001) engage in research storytelling when they create composite characters out of their empirical findings. These characters engage in dialogues that intersect with concepts in Critical Race Theory to better understand the experiences of Chicana and Chicano graduate students. Through this approach, which Solorzano and Yosso (2001, 477) call counter storytelling, they hope that it “offers an accessible and critical insight into this set of concepts, ideas, and experiences.” By telling stories that challenge hegemonic discourses, new

dialogues emerge to provide theoretical and pedagogical insights that have the potential to lead to more reflexive, if not transformative, conversations within and beyond academia (see also Johnston and Pratt 2009). Moreover, research storytelling provides an opportunity for researchers “to get inside” characters in ways that non-fiction does not permit (Christensen 2012, 238).

But are research storytellers appropriators (Tuhiwai Smith 1999; Christensen 2012)? Is it possible for me as a white American to avoid becoming an orientalist gazer? Is it possible for me to write about Mongolia and to not use the stories to refract my own imperialist gaze (Spivak 1999)? Christensen (2012) argues for collaboration and not using the first person narrative. Unfortunately, as of the time of writing, I have not been able to return to Mongolia to receive feedback on the story, but I am planning to do so.² I intentionally chose third person narrative for Chapter 6 to avoid the questions of appropriation that Christensen (2012) raises. However, in the “non-fiction” chapters I intentionally use first person narrative to remind the reader that the dissertation comes from somewhere and someone—me. Haraway (1992) offers a more philosophical approach to questions of appropriation and ventriloquism. She (*ibid*, 299) brings Trinh Minh-ha’s (1988) “inappropriate others” from the realm of the post-colonial into science and technology studies to argue that inappropriate/d others are “neither modern nor postmodern” but amodern. Haraway (1992, 300) suggests that we explore how others have been inappropriate/d others to map “where the *effects* of difference appear,” which blur dualistic conceptions such as nature and society found in modernist thought (see also Latour 1990). Thus by telling stories from multiple perspectives including engagement with non-fiction and fiction, differences and their effects are revealed (see Behar 1993; Tuhiwai Smith 1999).

² I was able to distribute my preliminary dissertation report electronically and through participating NGOs, who provided useful feedback and questions about the need for more research—particularly on water issues.

While looking towards what has been in/appropriated to reveal hegemonic discourse, as storytellers and researchers we inevitably experience the discomfort of never fully knowing how we represent ourselves and how we are perceived, as identities are constantly in flux, often giving researchers a sense of insecurity and failure (see Gould 2010). Rose contends that this feeling of failure dooms all exercises in situating knowledge because “The reflexive gaze at a landscape of power is not sustainable, and this is because of its assumptions about agency and context” (1997, 312). We can be vigilant, but at some point we all let down our guard—opening spaces for monsters to emerge from our humanness.

What the literature on positionality and storytelling also suggests is the freedom and necessity to express rather than conceal scholars’ imaginations not only to reveal their biases, but also to reach broader audiences. Geographers sift through fragments of the world and piece them together into a coherent narrative for knowledge production, policy implementation, and political action, all of which eventually find its ways into public discourse (one hopes). Hence, I am attracted to forms that reach outside of the academy that offer the potential to find newer—and younger—audiences, to spur curiosity and interest in dialogues across social boundaries (see, Nash 2000; Solorzano and Yosso 2001; Dittmer 2005; Johnston and Pratt 2009; Christensen 2012).

Storytelling can reach broader audiences in part because it is pedagogical. When we imagine ourselves as someone else, we open our eyes to new worlds beyond the ones that we inhabit in our daily lives and these new visions are shared through stories. Qualitative research already accomplishes this task on some level, but experience is always mediated by the narrator—and the academic institutions and traditions that pre-determine modes of communication. Returning to Benjamin (1963), he argues that the decline of storytelling due to

capitalist print media homogenized and standardized stories, which coincided with the emergence of national consciousness and education systems (Anderson 1983/2006; Gellner 1983/2006). Moreover, Benjamin contends (*ibid*, 85) “it is half the art of story-telling to keep a story free from explanation as one reproduces it” (see also Behar 1990). Through communication, rather than information, the listener/reader (and teller) are free to “interpret things the way he understands them, and thus the narrative achieves an amplitude that information lacks” (Benjamin 1963, 85). Storytelling focuses our attention on experience rather than on explanation to bring us closer to peoples’ experiences. This also means that once the teller finishes a story, it is in the ears of the listener and out of the power of the teller.³ At the same time, by producing academic, policy, and fictional research results, I am attempting to amplify the power of the stories into different domains and into the hands of very different actors than my academic writing could reach.

Research storytelling positions the researcher as someone who reproduces not just knowledge, but also as Taussig (1980/2010) and Christensen (2012) argue, as a producer of culture to potentially contribute to political change. Moreover, storytelling acknowledges the significance of listening when conducting research and when writing to consider how different readers read. At the same time, as I develop further in the following section, research storytelling creates avenues to overcome binaries between fiction and non-fiction to develop new genres. When researchers position themselves not just as communicators but as storytellers, we must confront directly the discomforts that come with the inevitable possibility of in/appropriating others. At the same time, storytelling provides new ways for researchers to reach diverse

³ See Latour (2005) and the role of texts in (re)shaping networks.

audiences and realize political and pedagogical goals through new genres such as critical magical realism.

Critical Magical Realism

While the relationship between nation-building and storytelling is perhaps more explicit, I now turn to considering how imagination influences epistemology and the creation of academic storytelling genres, such as *critical magical realism*. Within political ecology, Neumann (2005, 9–10), argues that critical realism “starts from the premise that the world exists independently of our knowledge of it, and that its very independence means that human knowledge is not itself reality, but a representation of it.” When this reality includes supernatural entities such as death worms, hydrologists who are also fish, and talking camels it becomes *magical realist*. In this dissertation, a critical realist perspective informs chapters 3–5, whereas chapter 6 is a work of magical realist fiction. Thus, taken as a whole, this dissertation represents the combination of two seemingly unrelated concepts, critical realism and magical realism. Both concepts draw from epistemological and ontological positions that consider both the limitations of the researcher/storyteller and alternative ways of understanding the world to better explain material and phantasmal outcomes of processes such as mining and nation-building. However, to explain how critical realism and magical realism come together to elucidate the magic of mining booms, they must be understood individually.

Critical Realism

In *A Realist Theory of Science*, Bhaskar (1975/2008) outlines a philosophical approach to scientific knowledge that has become highly influential in political ecology, referred to as *critical realism* (see Forsyth 2003; Carolan 2005; Neumann 2005). The approach evolved as a reaction to positivism and the conceptualization of science as a-political and universal. Bhaskar (1975/2008, 2) argues that a reality exists independently of human influence and inquiry, which may be ‘out of phase’ with the experiments that scientists create in laboratories (see also Latour 1993; Linton 2010). Moreover, he argues that science is socially produced and that scientists act “self-consciously on the world: that is not just to monitor and control their performance, but to monitor the monitoring of their performance: to plan, to act and so to make an anticipatory commentary come true” (Bhaskar 1975/2008, 231). His perception of the positionality of knowledge production parallels that of the feminist scholars mentioned above as he states that the power to use language implies that “we are material things with a point of view in space and an existence in time, so that we must be able to communicate with each other from different spatial-temporal locations” (Bhaskar 1975/2008, 231). From this perspective, Bhaskar (*ibid*, 232) argues that unlike what positivists suggest, humans do not just describe, but we also imagine structures, which we establish as real to “grasp their mechanisms of their production.” Bhaskar thus suggests two important aspects of how we as humans operate in and understand the environment. First, there is a reality that exists regardless of how we perceive the world around us. While we may influence that reality, it is not dependent on our being. Second, we are creative, analytical beings that imagine different meanings and causalities of possible realities that materially influence the environment.

Political ecologists such as Forsyth (2003) and Neumann (2005) advocate for a critical realist approach to examine environmental degradation and resource conflicts. They recognize that human knowledge is a representation of reality and that biophysical properties exist independently of us. For example, water freezes, melts, boils, and evaporates (see Linton 2010). Advocates of critical realism also argue for the exploration of social and historical context of environmental issues that avoid biological determinism and the epistemic fallacy of reducing all causation to discourse (see Bhaskar 1975/2008; Forsyth 2003; Carolan 2005). This includes an approach to environmental damage and resource scarcity that avoids automatically blaming resource users for degradation by considering the social production of politically motivated explanations. Thus critical realists avoid the reproduction of simplified categories of victims and villains. Forsyth (2003, 98) argues that scientific and policy storylines often redefined “preexisting political debates under environmental guises.” By drawing on a critical realist approach, political ecologists uncover complex political and social underpinnings of resource degradation and conflict (see also Le Billon 2001; Peluso and Watts 2001). Furthermore, critical realists acknowledge the role of researchers as storytellers and that representations can transform power relations (Forsyth 2003).

In Mongolia, critical political ecology scholarship challenges the reproduction of the overgrazing thesis in policy circles and physical sciences where grassland degradation is attributed to nomadic herders. This dissertation supports these challenges by considering how conditions of the post-socialist economy and institutional transformations have made herders more vulnerable not only to economic instability and climate change, but also mining (see Fernandez-Gimenez 1999; Sneath 2003a/b, 2010; Marin 2010; Sternberg 2010). Thus storylines in this dissertation that portray mining as a threat to nomadic herding lifestyles are underpinned

by broader transformations in Mongolian society and environment. Throughout this dissertation, I also draw on key moments in Mongolia's transition from a command to a central market economy to consider how these institutional changes continue to influence the proposed purposes and directions of nation-building through mining. Although the existence of the minerals has been known for many years, accessing resources has become dependent on particular temporal realities of the global economy, including China's demand for raw materials and the decline of Mongolia's herding economy. Political economic history contextualizes why extracting minerals such as copper and gold have become more economically, politically, and culturally desirable as a means to rebuild the nation, despite the potential for environmental degradation such as decreased water access (chapter 4) and dust production (chapter 5). Throughout the research and writing of this dissertation, I have endeavored to take a critical realist approach that considers both the material realities of the environment and my role as a reproducer of representations of realities. But at the same time, I have also attempted to reveal the more complex dynamics of how I imagine the world, which is perhaps at times more magical than realist.

Magical Realism

Magical realism as a genre creates new possibilities to describe, interpret, and analyze situations through storytelling. Magical realists reproduce representations of the observable and imagined world as though they exist simultaneously, without conflict. While magical realism most popularly refers to a genre of fiction from post-colonial regions, the concept predates post-World War II decolonization movements. Following the horrors of World War I, German art critic Franz Roh wanted to abandon expressionist dreamscapes. In 1925, he published *Post-Expressionism—Magic Realism: Problems of Recent European Painting*, to show the horrors of

reality and to complicate traditional realism (Reeds 2006). Magical realism differs from traditional realism in that representations of the world include the supernatural as everyday, matter-of-fact objects and situations. Thus, magical realism also differs from fantasy, where the supernatural is *not* normal (see Reeds 2006). For example, in

Otto Dix's (1920) woodcut entitled *Katzen*,⁴ he illustrates the slight of hand between the real and the magical that has come to characterize magical realism. In the image, we are not entirely sure whether the cats are standing on a staircase and playing with a ball of yarn or if these cats are giants, standing on rooftops, playing with the moon. Or is the moon just a ball of yarn? *Katzen* subverts any singular



Figure 2 Otto Dix's *Katzen* (from www.moma.org).

interpretation of reality as supernatural characteristics merge into the depiction of playful cats. The image also suggests alternative realities and perspectives on the world through a normative understanding of cats.

Following World War II, magical realism traveled to post-colonial locales and became a global literary and cinematic phenomenon. The genre achieved broad-based appeal particularly among post-colonial authors who describe hybridized identities between pre-colonial and colonial pasts that meld with ideals and dystopias of the post-colonial present (Hart 2004; Reeds 2006; Latham 2007). Authors such as Gabriel Garcia Marquez and Salman Rushdie evoke the magical as mundane to drive the plot, provide cultural context, and transport readers into alternative realities of time and place, challenging what Giffard-Foret (2014, 2) calls the

⁴http://www.moma.org/collection/browse_results.php?criteria=O%3AAD%3AE%3A1559&page_number=12&template_id=1&sort_order=1

“colonial monochromatic worldview” (see also Latham 2007). These authors and others channel their own and their readers’ imaginations to highlight difference and unearth taken-for-granted power structures. Magical realists critique the false binaries that scholars such as Latour (1993) and Haraway (1991) argue plague modernity (see also Bhabha 1990; Giffard-Foret 2014), providing analyses of hybridity, signifying resistance to hegemonies (Reeds 2006; see also Hart 2004). As hybrids, the monsters of critical magical realism are products of the refracted imperial gaze of the West, which reclaim in/appropriate others (Haraway 1992; Spivak 1999; Giffard-Foret 2014).

As a written art form, magical realist fiction accentuates dualisms and demands that readers pay attention to changes in tone (Giffard-Foret 2014). Latham (2007, 61) contends that as writers shift between real and magical, “notions of empirical reality as being somehow distinct from magic are called into question.” Magical realism facilitates the readers’ exploration of a non-binary world where epistemologies and ontologies are simultaneously magical and rational. Creating binary worlds is thus a political project that reveals the “cultural politics underlying the ideology of representation” (Hart 2004, 308). Magical realists also question the nation by revealing the “multidimensional realities lying beneath the nation’s apparent unity” (Giffards-Foret 2014, 3). The representation of alternative worldviews in itself subverts singular, rational, apolitical explanations that a critical realist approach also challenges.

In this dissertation, the supernatural in chapter 6 nuances the background stories of nation-building in Mongolia, providing context that I was unable to include in other chapters, while also serving as a plot device. For example, I draw heavily on the multidimensional connections between land and the human body (High 2013a/b) including the *lusan am’tan* (spiritual animals) and *baigaliin ezen* (natural guardians) that inhabit the landscape (Sneath

2002). While I did not ask about death worms during interviews because I did not want to distract from the focus of my research on mining, as the image below illustrates, there is some acknowledgement of death worms in the popular imagination in Mongolia. However, the death worms I describe are hybrids of the cryptids *olgoi horhoi* (large intestine worms), romanticized in Western explorer narratives⁵ (Andrews 1926/2004), literature (Herbert 1965; Rohrer 2002), and film,⁶ to create a new monster of mining. But these imaginings also relate to academic writing, because as scholars suggest, the transmogrification of minerals into wealth conveys a sense of magical power of the state and previously unseen supernatural creatures (Taussig 1980/2010, 2004; Coronil 1997; see also Bridge 2004b).



Figure 3 A wood carving of an *olgoi horhoi* (large intestine worm) at a natural history museum in South Gobi province. Photo by author, 2012. The creatures are also mentioned in Baasan 1990/2010, see chapter 4.

Although presented here as a short story, I intend to transform chapter 6 into a graphic novel for dissemination purposes. While graphic novels and comics are generally considered a genre in their own right (see Dittmer 2005, 2010; Dunnett 2009), many writers portray the

⁵ For a (2005) documentary on the search for the elusive death worms please watch the video by Robert Freeman and the Center for Fortean Zoology <http://www.youtube.com/watch?v=c1hxIQYNdgQ&feature=related>. See also <http://www.animalplanet.com/tv-shows/lost-tapes/creatures/death-worm.htm>.

⁶ Lynch's *Dune* is based off of Herbert's book, with giant sand dwelling creatures loosely based on death worms. The 2010 Syfy movie *Mongolian Death Worms* included both nationalist and extractive industry themes.

supernatural as simultaneously mundane and spectacular.⁷ For example, in Takahashi's *Ranma ½*, the series' namesake is a teenage boy whose father runs a dojo in contemporary Japan. While practicing with his father near some magical pools, he loses his balance and falls into a pool that contains the soul of a young woman. After falling into this pool, for the rest of his life whenever Ranma is splashed with cold water, he becomes female. His father also falls into a pool that contains the soul of a panda, turning him into a panda when splashed with cold water. To reverse the processes, they must be splashed with hot water. In the series, Ranma's shifting identities serve as a plot device as s/he encounters different obstacles to growing up as a young wo/man. At the same time, the stories reveal and subvert gender binaries as Ranma experiences the advantages and disadvantages of his transgendered magical fate. The visual representations of Ranma emphasize his transformations that drive the plot, which also become integrated into his/her daily routine. *Ranma ½* demonstrates how the graphic novel format can overlap with magical realism as magic becomes mundane. Furthermore, as Dittmer (2005, 2010) and Dunnett (2009) argue, comics demonstrate multidimensional realities that rely on readers' imaginations and intuition. They also argue that the visual form of comics emphasizes minimalism in storytelling where meaning is suggestive and not heavy handed, just as Benjamin (1963) prescribed. Moreover, comic books serve a didactic function, socializing children into adopting worldviews that both support and challenge contemporary political frames (Dittmer 2005, 2010; Dunnett 2009).

While the fictional chapter *Altansar and the Death Worms* is presented here as a short story, as a graphic novel it will better convey the matter-of-fact, yet magical, transformations

⁷ I use graphic novel and comic book loosely. Tintin and *Ranma ½*, for example, are graphic novels with longer stories that start and end in one book. DC Comics such as Batman and Superman, for example, come in shorter, serialized formats with the stories chopped up and printed in separate short issues.

taking place. The visual form also accentuates the recognition of my imagination and imperial gaze as well as that of the illustrator, Noah Shumate. At the same time, the graphic novel format, like magical realism, remains popular with readers in Mongolia and North America (Dittmer 2005; 2010; Dunnett 2009), helping to represent and disseminate the research from an unorthodox approach (see also Campbell 2013).

The empirical chapters of this dissertation are intended to question representations of reality and to suggest other possibilities from an academic perspective. However, I wrote the story chapter with different intentions, including challenging how academics, specifically geographers, can use research to both analyze situations and promote social change. In addition to academia, the intended audiences for the subsequent graphic novel are young adults, in Mongolia and North America. The main character, Altansar, is a teenage girl seeking explanations for why her family and home are changing. As a teenager in a magical realist tale, her power lies in testing boundaries and subverting power structures (Latham 2007). Thus the “merging of the magical and the real” portrays an alternative and at times subversive view with the message that young adults can change themselves and their communities (*ibid* 62). *Altansar and the Death Worms* thus adheres to the genre. At the same time, it is an expression of research storytelling that is informed by critical realism.

Critical Magical Realism as a Genre

So how does critical realism become critical *magical* realism? And how does this approach inform this dissertation?

To integrate critical realism with magical realism, let us return briefly to critical realism. Bhaskar (1975/2008) argues that structures emerge through scientific inquiry and that there are

three basic structurings of nature—the empirical, the actual, and the real. Forsyth (2003, 71) summarizes these structurings as the following:

Empirical: “refers to those experiences of underlying reality that we can observe and measure.”

Actual: “more than just measurements of changes, but also the events by which environmental changes maybe take place.”

Real: “includes causal mechanisms as well as events and experiences.”

Within the fictional worlds of magical realists, these structurings of the natural and social world include what according to Western science would be supernatural phenomena and not-quite-real objects and events that are represented as ordinary and mundane. For example, from magical realist approaches, a talking sheep-man (Murakami 1989/2002) and telepathic connections due to coincidence of birth at the moment of India’s independence (Rushdie 1991) are represented as everyday occurrences *not* outside the realm of possibility. The stories represent these situations as normal for the characters involved, demonstrating how the supernatural as well as the rational become naturalized. While it is tempting to consider how the magical becomes a fourth structuring of nature, which would violate one of the basic principles of the genre of magical realism—that magic and supernatural occurrences are no different from the scientific explanations of reality. Representations of magic are thus also representations of particular perspectives on reality that reveal ideas, contestations, and constraints that normative inquiry leaves uncovered (see also Escobar 2008).

Critical magical realism is particularly useful for understanding resource booms. Discourses swirl around natural resource booms that paint glittering portraits of how extraction brings wealth to investors, corporations, states, and nations (Coronil 1997; Tsing 2005). Coronil (1997) shows how the state in 20th century Venezuela became deified through the promises and expectations that the nation’s natural body (oil) could provide a new life for the national body

(population). And Taussig (1980/2010) argues that proletarianization reveals the magic of capitalism. For example, in Latin American natural resource booms, he contends that the devil became identified with both wealth and destruction as a means to critique capitalism, and inspired magical realist literature in the region. Furthermore, he argues that magic has explanatory powers, revealing altered material conditions and relations that shape the meanings of resource extraction.

Magical beliefs are revelatory and fascinating not because they are ill-conceived instruments of utility, but because they are poetic echoes of the cadences that guide the innermost course of the world. Magic takes language, symbols, and intelligibility to their outermost limits, to explore life and thereby to change its destination. (*ibid*, 15)

Magic not only provides context, but also frames how scholars develop their arguments about the meaning of resource extraction, similar to how magical realists use magic to drive the plot (Latham 2007). At the same time, Taussig (1980/2010) and Coronil (1997) explain discourses of resource curse to situate the ills associated with resource booms within specific political economic histories, following a critical realist approach. They recognize the material realities of resources, but at the same time acknowledge their own works as representations informed by Marxian, and in the case of Taussig, Indigenous epistemologies and ontologies.

There are no binary, natural, social, or supernatural representations in critical magical realism. By contributing the magical to Bhaskhar's structurings, the epistemological and ontological barriers between real and magic begin to erode. This opens up the possibility for the magical to be real for some people at some times. And these explanations inform perceptions of the kinds of rapid and radical changes that mining-related infrastructure in South Gobi represents. This creates a new sub-genre of research storytelling. As critical realists re-write the storylines of political degradation (Forsyth 2003), elements of magic facilitate the merging of real and imagined worlds. More than simply incorporating the stories as epistemological and

ontological perspectives of research participants into narratives (Escobar 2008; Houston 2013), the research storytelling genre of critical magical realism provides a window into the sparks of imagination that initiate research quests and the paths that channel and direct the research and writing processes and attempt to change material realities.

I intentionally wrote the dissertation to engage separately with critical realism and magical realism. The purpose was strategic to reach as many different readers as possible including policy, government, and academic audiences. Therefore, I intentionally limited my creative expression and focused on developing a more traditional academic style to ensure the acceptance of my findings. Future work, including different iterations of this dissertation, may find magic seeping in to provide a more comprehensive critical magical realist approach. Nonetheless, this dissertation does represent a hybrid approach with chapter 6 suggesting not only the promises of monsters (Haraway 1992) in relation to mining and the nation, but also within academia itself.

Therefore, taken as a whole, this dissertation represents a critical magical realist approach. In the chapters that follow, the symptoms of Dutch Disease (chapter 3), drained water resources (chapter 4), and clouds of dust (chapter 5) hint at the monsters that come to life in chapter 6. While I was unable to include all of the stories that suggest the supernatural or magical aspects of the landscape into the academic chapters, they emerge through my interpretations of these phenomena in the fictional chapter. Moreover, each chapter, non-fiction and fiction, represents a reconstructed narrative from the fragments that I encountered during my fieldwork. While I attempted to maintain a somewhat subjective distance, how I imagine mining and nation-building are taking place in Mongolia runs throughout the dissertation. At the same time, I try not to reproduce discourses of blame for conflicts over mining development, but to elucidate the

different perspectives on why the promises of nation-building are so easily contested—including the magic of mining as an easy solution to the nation’s economic development (see also Bridge 2004b; Tsing 2005). By recognizing the limitations of my own knowledge production, representations, *and* imagination, I build a critical magical realist approach into the fields of political ecology and geography. And it was a kind of magic of a future unknown that inspired my initial interests in mining in Mongolia, and the subsequent directions and channeling of my research and writing paths. My approach to this dissertation is thus plural, both epistemologically and ontologically as discussed above and in the research methods used to gather information about mining and environmental issues, as I discuss in the remainder of this chapter.

Research Methods

Why Mongolia?

My positionality asserts itself casually in the frequent event that I am asked how and why I became interested in Mongolia and mining. I was introduced to the Oyu Tolgoi copper-gold mine at a time and place very close to home. In spring 2008, the Ulaanbaatar Sister City committee held an opening ceremony for the Ulaanbaatar Park located in Denver, Colorado at the redeveloped site of the former Lowry Air Force Base. The park is very close to the neighborhood where my grandmother lived and not far from where I grew up. During the ceremony, a lawyer representing Oyu Tolgoi received an award for his contribution to Mongolia. In his acceptance speech, he expressed frustration that despite all of the money invested, the Oyu Tolgoi agreement negotiations at the time continued to stall (see chapter 3). The contradiction he highlighted—that the mine promised to rebuild the nation but that the Mongolian government

and public remained obstinate to the deal—stirred my curiosity. While my travel experiences the year before had sparked my interest in conducting dissertation research in Mongolia, that one event determined the research paths that followed. In spring 2009, I moved to Ulaanbaatar to teach English at the National University of Mongolia, to gain in-country experience and to take introductory language lessons. At the same time, I made friends who would provide emotional and research support throughout the dissertation process.

Initially, I was interested in how mining development promotes English language learning. However, after encountering the literature on territory and extractive industries and once the agreement was signed, I began to learn more about the potential environmental impacts of Oyu Tolgoi on nomadic herders, particularly after infrastructure development began. With this knowledge, I decided to change the focus of my dissertation to reflect these interests. After completing the first year of my Ph.D. program, I took language courses at the American Center for Mongolian Studies in Ulaanbaatar, traveled to central and southern Mongolia, developed my network with other researchers in Mongolia, and began to make connections at Oyu Tolgoi and a new NGO that began in spring 2010 called OT Watch. After completing my comprehensive exams and proposal, I made two major fieldwork trips to Mongolia in fall 2011 and spring/summer 2012. Over a four-year period from 2009 to 2012, I spent a year and a half in Mongolia working, studying, and researching.

Research Sites and Participants

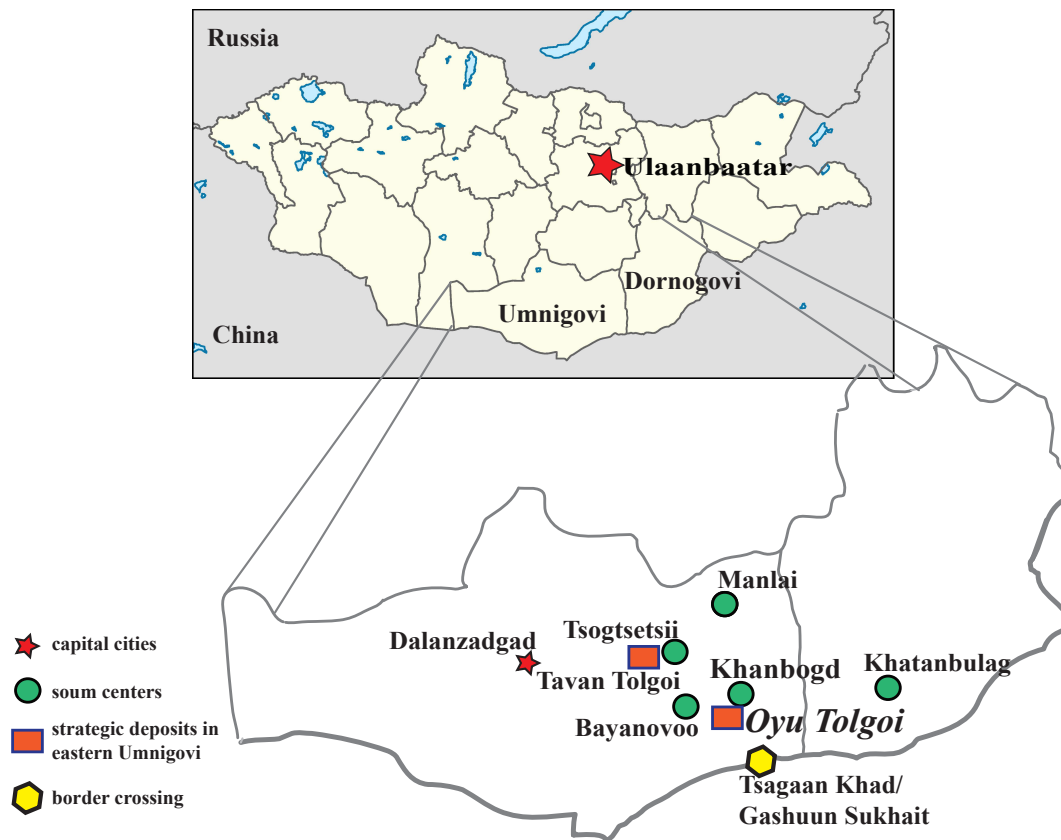


Figure 4 Map of fieldwork locations. Base image from http://commons.wikimedia.org/wiki/File:BLANK_in_Mongolia.svg.

The location of Oyu Tolgoi and centers of power determined the location of my fieldwork. Although mining has varied affects on all of the locations on the map above as well as many more not shown,⁸ I focused my research in eastern South Gobi province where mining boom and its immediate effects take place and Ulaanbaatar, where mining company headquarters, many NGOs, and central government agencies are located. I spent the majority of my time in South Gobi in Khanbogd *soum*, where Oyu Tolgoi is located and its presence is most pronounced.⁹ Within Khanbogd, the Javakhlant¹⁰ and Gaviluud *bagh*¹¹ whose seasonal

⁸ Due to space constraints, I only listed the strategic deposits in western Umnigovi. Another strategic deposit, the Nariin Sukhait coal mine is located in eastern Umnigovi.

⁹ A *soum* is a small administrative unit within the *aimag* (province), a system established as part of modern divisions of space during Mongolia's socialist era (Bruun 2006).

encampments are located near the sites of Oyu Tolgoi and the Gunii Hooloi aquifer pipeline, have experienced the most direct contact with the mining company and its infrastructure development. Thus the majority of my interviews with herders are from these two *bagh*. While the urban population of Ulaanbaatar has increased due to natural disasters and other pressures on the pasture in the countryside (see Bruun 2006),¹² the population of Khanbogd has increased rapidly over the last ten years due to mining development.¹³ The chart below demonstrates population influx as mining development has increased in the region.

| | Khanbogd | Tsogttsettsii | Bayanovoo ¹⁴ | Manlai | South Gobi <i>aimag</i> | Khatanbulag | Ulaanbaatar | Mongolia |
|-------------|----------|---------------|-------------------------|--------|----------------------------|-------------|-------------|-----------|
| 1995 | 2,190 | 1,947 | 1,545 | 2,222 | 43,551 | 2,851 | 612,100 | 2,234,386 |
| 2000 | 2,306 | 2,189 | 1,563 | 2,441 | 45,420 | 3,168 | 773,613 | 2,379,516 |
| 2005 | 2,659 | 2,155 | 1,539 | 2,431 | 47,866 | 3,090 | 952,410 | 2,533,445 |
| 2010 | 3,522 | 3,366 | 1,600 | 2,441 | 52,306 | 3,096 | 1,159,899 | 2,746,399 |
| 2012 | 4,300 | 5,180 | 1,712 | 2,530 | 56,585 | 3,034 | 1,226,991 | 2,809,693 |
| % Change | 96% | 166% | 11% | 14% | 30% | 6% | 100% | 26% |

Table 1 Population change of registered residents in field research sites from 1995 to 2013. People may migrate to another location, but remain registered in their home *soum*. Data does not include these ‘temporary’ residents. Statistics from the National Statistics Office.

South Gobi is Mongolia’s least densely populated province, but has some of the highest concentrations of mining activities including Oyu Tolgoi, two additional strategic deposits,¹⁵ and many other small and medium-sized developments. Only around 6 percent of the provincial territory remains open as 71 percent of the territory has been divided into mining licenses and 23

¹⁰ Members of the Javakhlant *bagh* also experience the most direct impacts of the Undai River diversion.

¹¹ A *bagh* is a division within a *soum*.

¹² The spectacular increase in Ulaanbaatar’s population is often attributed to the negative effects of *zud* on rural populations, which from 1999-2001 and again in 2010 killed millions of livestock (see Bruun 2006; Sternberg 2010).

¹³ The same can be said of Tsogttsettsii due to the development of the Tavan Tolgoi coal mines.

¹⁴ The Australian operated company Hunnu Coal held its opening ceremonies in 2011 when we were in the *soum* center. However, the opening of the coal mine does not appear to have increased the *soum*’s registered population.

¹⁵ The Tavan Tolgoi coal deposit is located in Tsogttsettsii *soum* and the Nariin Sukhait coal deposit in Gurvantes *soum* is located in the western region of South Gobi.

percent has been designated as special protected areas. Some nomadic herders are permitted to live in special protected areas—with concentrations increasing as mining expands.

Over the course of the fieldwork, I was based in Ulaanbaatar and made two extended and three short trips to South Gobi. To gain insights into the experiences of people living in the midst of the mining boom and those in centers of power who shape perceptions and implementation of mining activities, I conducted eight-four open-ended semi-structured interviews and five focus groups with twenty-four total participants. I used snowball as well as random sampling techniques to locate and recruit research participants (Berg 2001). The majority of South Gobi and Dornigov province participants were *soum* center residents and nomadic herders. Several government officials were also interviewed. Research participants in Ulaanbaatar included government officials, mining company staff and consultants, NGO leaders, and former Khanbogd *soum* residents. Interviews outside of Mongolia were conducted with NGO leaders, international institution representatives, and company consultants. Over the years, I also had informal conversations about mining and the environment in the Gobi region, with NGO leaders, at mining forums, at academic events, and with friends and colleagues.

| Category of Interviewee | Participants |
|---|--------------|
| Herders (includes those living in <i>soum</i> centers for the season) | 36 |
| Soum residents (unemployed, retired, and miscellaneous employment) | 19 |
| Mining company workers (Oyu Tolgoi and coal companies) | 14 |
| NGO representatives | 12 |
| Oyu Tolgoi staff and consultants | 8 |
| Government representatives and staff | 8 |
| Former Khanbogd residents | 5 |
| Other ¹⁶ | 6 |
| Total Number of Participants | 108 |

Table 2 This table shows the number of people participating in each category at the time of interview. However, many participants overlap categories. For example, mining company workers were once herders and one government official I interviewed also used to be a consultant for Oyu Tolgoi.

I also picked up and photographed Oyu Tolgoi related objects and documents beginning in 2009. These included the names of cocktails (see photos), loose papers I found on the ground outside of Oyu Tolgoi's former headquarters,¹⁷ as well as magazines and official public relations materials. These objects and documents along with newspaper articles (online and in print) supplement the interviews, focus groups, and participant observation methods used in this dissertation and illustrate the broader context of Oyu Tolgoi's presence in everyday life in Ulaanbaatar and mining-affected areas.

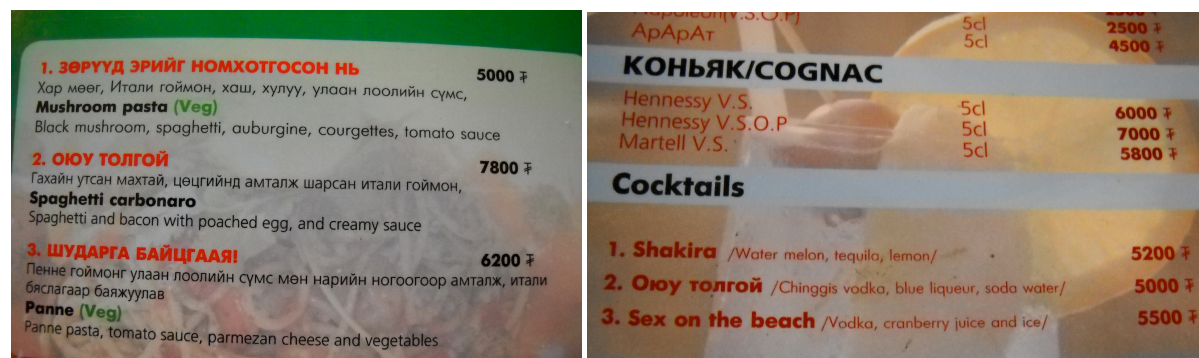


Figure 5 Photos from a menu in Ulaanbaatar taken in summer 2010. The Spaghetti Carbonaro is called the "Oyu Tolgoi" in Mongolian. On the right, the "Oyu Tolgoi" drink is listed below the Shakira.

¹⁶ The other category includes academics familiar with issues in the area, an international organization representative, and a focus group of young urban professionals.

¹⁷ The former Ulaanbaatar headquarters of Oyu Tolgoi was located down the street from the apartment I lived in 2009 and 2010, until the headquarters were relocated closer to Sukhbaatar Square in the city center.

Before conducting interviews, I shared my interview schedule with OT Watch and asked the executive director, Sukhgerel, for comments. A former colleague from the National University of Mongolia, Sarantuya, and one of my research assistants, Tuul, translated the questions. Interview and focus group questions for local residents were designed to illicit discussions about changes in water levels, changes in herding patterns, who they talk to about water and dust issues, observable effects of mining, and how they think mining and Oyu Tolgoi specifically will affect their lives as well as their children and grandchildren's futures (see appendix). I also asked people to reflect on past stories or myths related to water and the environment. Interview schedules for company staff, government officials, and NGOs included questions about concerns over water resources and mining, climate change, how public and private entities are dealing with environmental concerns, and questions about the future of mining and Oyu Tolgoi in Mongolia. I asked interview participants for permission to tape record interviews, which about three quarters agreed to, including all of the focus group participants.

Some interviews in Ulaanbaatar were conducted in English; however, research assistants translated the majority of interviews, particularly in South Gobi. Because of my intermediate language skills, research assistants (Tuul, Undarmaa, and Bat-Erdene) also provided onsite translation for my communication with two of the participating NGO organizations (Steps without Borders and Gobi Soil) as well as with my driver, Davaa, who I hired to take us to research sites and participants in Khanbogd and surrounding *soums*. Thus, I carried out much of the research with a team who facilitated not only communication, but also networks and suggestions on how to best approach people and ideas given my limited experience in the Mongolian countryside. Below, I describe in more detail the fieldwork conducted in 2011 and 2012, how I analyzed the data, and offer a few thoughts on working with NGOs in Mongolia.

Fall 2011

The purpose of the fall 2011 fieldwork was to develop a baseline case for my research questions about mine-intensive areas in the western half of South Gobi province and to deepen my involvement with the NGOs. I also attended the Discover Mongolia international mining forum, and broadened my network of Oyu Tolgoi and government contacts. I made my first major trip to South Gobi in fall 2011 to conduct research alongside OT Watch's human rights training workshops. The map shown above illustrates the sites of the trainings in Khatanbulag, Khanbogd, Bayan Ovoo, Tsogttsetsii, and Manlai *soums*. In total, I conducted thirty-three interviews¹⁸ and four focus groups with twenty-one local residents.¹⁹ On average, we stayed in each *soum* for three to four days and the trip lasted a little over three weeks. My participation in the trainings included group mapping exercises and focus groups. After the trip, I wrote a short report of my findings that OT Watch supplied to its funder, and that I used to develop materials to give to research participants in 2012 (see appendix).

During the two-day training forums, my research assistant and I helped organize the room and we introduced ourselves as researchers. At the request of the NGO leaders, we conducted a participatory mapping exercise to elicit group discussions about the observable effects of mining and how infrastructure had begun to affect their "dwelling spaces" (Roth 2009). I refer to the mapping exercises a few times in the dissertation, but the major purpose of the exercise was to initiate discussion and contribute to the trainings rather than for my own data collection.

¹⁸ We carried out the most interviews in Khanbogd, where Oyu Tolgoi is located. We conducted the fewest in Manlai *soum* because both my research assistant and I took ill from food poisoning.

¹⁹ Tsogttsetsii presented a challenge for the focus groups, because only two or three people attended the trainings, so we were unable to conduct a focus group similar in composition to the other *soums*. In the other *soums*, twenty to thirty people attended the trainings and people were more willing to participate in the focus groups. Also, people in Tsogttsetsii were less interested in Oyu Tolgoi because they live so close to Tavan Tolgoi.

The four Gobi focus groups were composed of human rights' training participants.²⁰ On advice of the NGOs, I offered an honorarium to focus group participants.²¹ Focus group participants were thus more politically active than some of the randomly selected *soum* center residents interviewed (see Bosco and Herman 2010). Overall, a higher percentage of women participated than men. Ages ranged from young people (early 20s) to the elderly (late 60s). Many participants were herders; others worked in government, mining companies, or were employed in the *soum* centers. Because the focus groups were integrated with the training program, combined with the mapping exercise, the research contributed to “cooperative knowledge formation” upon which the communities could build their opposition to how mining affects their livelihoods (Bosco and Herman 2010, 193).

When not participating in the trainings, my research assistant and I conducted interviews with *soum* center residents in their homes. Mongolian customs include welcoming visitors into the home. While women traditionally will not receive visitors when alone, this custom did not pose any major issues. Whether it is because we are young women or because participants were used to researchers, I am uncertain. If they were interested and available, a number of women who were alone welcomed us into their *gers*. Interviews ranged from 30 to 90 minutes and the focus groups lasted 60 minutes or longer, depending on the schedule of the human rights trainings.²² I asked relatively simple questions and worked with Tuul to emphasize listening rather than speaking during interviews—including my need to respect her timing on translations and asking questions (Berg 2001; McDowell 2010). For compensation, we gave participants children's books and art supplies. To introduce ourselves, we asked each participant if they had

²⁰ I conducted a fifth focus group with one of my research assistants and his friends in Ulaanbaatar who are involved with the financial sector.

²¹ 10,000 tugriks or about \$US7 at the time of the research.

²² Several of the interviews in Ulaanbaatar lasted longer to upwards of 90 to 120 minutes.

heard about the human rights trainings. Because most foreigners who conduct research in the area work with mining companies, it was often difficult to convince participants that we did not work for Oyu Tolgoi. Moreover, people frequently complained of their past experiences participating in research and never seeing any results—both in terms of positive changes and seeing research findings. Nonetheless, participants for the most part spoke candidly about the effects of mining and their concerns about the future. To overcome perceptions that I work for a mining company and to show preliminary research results, before conducting further research in 2012, I created a flier that described the preliminary findings from the research to hand out before interviews (see appendix).

After traveling in the countryside with the NGOs, I returned to Ulaanbaatar where I conducted interviews with Oyu Tolgoi staff and consultants, NGO representatives, and government officials. I also visited a Soviet-era mine in Nalaikh where informal miners dig coal to sell in Ulaanbaatar's *ger* districts (see Jackson 2012). While in Ulaanbaatar, I also took the opportunity to reflect on my research experiences with fellow Ph.D. candidates working on similar issues.

Spring/Summer 2012

Over the 2012 winter term, I transcribed interviews and compiled field notes to begin preliminary analysis and determine the focus of my longer fieldwork trip to Mongolia. While the research conducted in several *soums* suggested ways that Oyu Tolgoi affects regional perceptions of the mine, I decided to focus on the experience of herders in Khanbogd, who are at the center of the complaints processes that the NGOs are pursuing against the company. Moreover, because other mining companies are located in Tsogttsetsii, Khatanbulag, and now Bayanovoo *soums*,

Oyu Tolgoi is less of an immediate concern in these areas. In the second trip, I also conducted more interviews with government officials in South Gobi and Ulaanbaatar as well as Oyu Tolgoi staff and consultants. I interviewed NGO representatives and participated in Mongolian environment and academic forums. In fall 2012, I attended an annual mining and environmental reclamation conference that was hosted by Oyu Tolgoi, at which time I took a tour of the mine.²³

In the spring of 2012, I organized a second extended trip to South Gobi with the assistance of a new Khanbogd-based NGO, Gobi Soil, which had recently formed. The leaders of the two NGOs with whom I traveled in 2011, OT Watch and Steps Without Borders, also provided contact information for potential research participants. Gobi Soil facilitated interviews in Khanbogd and the leader acted as a guide for part of the trip. In addition to meeting with herders and government representatives in Khanbogd, I took a short trip to the Chinese border crossing at Tsaagan Khad where Tuul's friend was working. There, we briefly explored the emergence of an unregulated town that services the border and coal depots. As during the fall 2011 trip, in spring 2012, we used random and snowball sampling to recruit interview participants. We also gave children's books and art supplies as compensation. Because we were traveling with Gobi Soil and had a summary of my previous research in the area, overall, research participants seemed to more readily believe that we were not from a mining company. During visits with families in the countryside, Davaa, the driver, often came along and made casual conversation with research participants, which helped to put them at ease. Overall, while the number of interviews was fewer than in the fall trip, the quality and depth of the data improved. I attribute this to my ability to provide research results, increased familiarity with the

²³ According to one of the staff tour guides who is on the environment team and whom I met previously through a friend, she had been so busy giving tours to investors, journalists, and other visitors that it was difficult finishing all of her regular work.

area and issues, a focus on people directly effected by Oyu Tolgoi, connections with a local NGO, and Tuul's incredible improvement of her language skills over the winter months.

Upon return to Ulaanbaatar, the purpose of my fieldwork was to interview Oyu Tolgoi staff and consultants, government officials, and NGO representatives based in Ulaanbaatar. To complement and validate the research conducted in Khanbogd, I interviewed five former Khanbogd residents about their perceptions of Oyu Tolgoi and what they heard from family members about changes in the area. These interviews were some of the richest in terms of depth and cultural context that explored changes over time. Because Tuul was unavailable during the summer months, I hired a graduate student from National University of Mongolia's Water Research Center, Undaraa, to translate. I also took two more short trips to South Gobi, one to the western half of the province including Dalanzadgad, the provincial center, and a final trip to Oyu Tolgoi itself (see photos below).



Figure 6 The photo on the left was taken from the Oyu Tolgoi visitor observation deck and shows trucks removing rock from the open pit. The photo on the right shows the construction of one of the deep mine shafts. Photos from September 2012.



Figure 7 The photo on the left is a sample of Oyu Tolgoi's mineral rich ore located near the open pit observation deck for visitors to examine. The photo on the right shows the author in front of a mining truck at Oyu Tolgoi. Tour buses and other visitors are shown in the background. Photos from September 2012.

Data Analysis

Upon return to North America in fall 2012, I began transcribing the remaining English interviews and field notes, while one of my research assistants transcribed the Mongolian interviews into English. Batuka has professional translation experience and he translated the majority of the Mongolian interviews. I checked the interview transcripts against detailed notes taken during interviews to account for discrepancies of translation and interpretation. Once complete, I coded the transcripts and notes by theme and constructed a document to index quotes using key words to develop arguments based on the most prevalent themes. I integrated themes and stories from the fieldwork into the story to make it more representative of the fieldwork and connect with the dissertation as a whole.

Working with NGOs

Finally, I want to provide a few thoughts about working with NGOs. While there are romantic assumptions in many Western countries that NGOs always do good work, in Mongolia,

rumors about NGO leaders raising funds for themselves and protesting only for money are fairly widespread, contributing to the widespread sense that corruption is a mundane activity (see Zimmermann 2012). A few quick anecdotes from my fieldwork highlight this juxtaposition. Before going on my second major trip to Khanbogd, OT Watch gave me a box of literature to deliver to Gobi Soil. I decided to walk rather than take a taxi back to my apartment in Ulaanbaatar, about a mile and half from the NGO office. Outside of the Chinggis Khan hotel, I began to struggle with the heavy box. A young Australian man asked if he could help. I told him I would appreciate his assistance, as my apartment was not far. He then asked me if I worked for an NGO. I told him about my research and he said he worked for Rio Tinto on the ore concentrator, which at the time was not yet ready for full operation. He told me that my parents must be proud and that it is good that I am “living the life, trying to do some good, unlike me” (personal communication 2012). I was surprised that he described the work he does as implicitly bad and what I do as implicitly good—reproducing a dualism between mining companies as bad and NGOs as good. On the other hand, Davaa, the driver, is suspicious of NGOs. When I told him I was working with NGOs, he said to me “Don’t give them any money. All they want from you is money.” And when the leader of Gobi Soil told me repeatedly that he is not looking for money, the context was the assumption that all NGOs and affected herders are greedy. The expanding, robust civil society networks of Mongolia contrast with these suspicions, presenting both positionality issues for researchers and an as yet unexplored opportunity for research and reflection in Mongolia (see Blunt 2014).

Despite these contradictions, I do believe that civil society organizations have an important role to play in monitoring corporations, democracy, and human rights in Mongolia and elsewhere. Therefore, to contribute to the NGOs who made my fieldwork possible, I remain in

close contact and try to support their work in several ways. For OT Watch, I maintain the English and Mongolian websites (en.minewatch.mn and minewatch.mn). The executive director of the NGO, Sukhgerel, coordinates an international network of activists and scholars who raise awareness about and critique the practices of mines in Mongolia such as Oyu Tolgoi. The website and responding to her calls for comments on company documents are small ways that I can support the organization. While I have applied on behalf of Steps Without Borders for international funding, we have yet to be successful. The executive director, Bayarsaikhan, asked me to help because major funding institutions require applications in English. I am currently collaborating with the Southwest Research and Information Center located in Albuquerque, NM, to write grants for a new water-monitoring project to be implemented by Steps Without Borders in Khanbogd. The research conducted for this dissertation provides a baseline understanding of the issues that inform the more collaborative research project for which we are currently seeking funding. Gobi Soil is a local partner working with both Ulaanbaatar-based NGOs.

All three NGOs were instrumental in shaping the short dissertation report I wrote, which was written with two purposes in mind. The first was to send information back to research participants and the second was to create a document that the NGOs could use for education and advocacy purposes. Many of my policy suggestions are based on the work that they do. Before sending out the final report, I made revisions based on their suggestions. In addition to sending copies to research participants with email addresses (including several in South Gobi province), in spring 2014 Bayarsaikhan distributed 100 copies in Khanbogd and Tsogttsetsii to herders and government workers. I intend to deliver copies of *Altansar and the Death Worms* to all five *soum* centers in person with at least one of the NGO leaders to facilitate community dialogue. I hope

that this will also provide an opportunity to receive feedback on my research findings and methods of dissemination (see Christensen 2012).

Conclusion

In this chapter, I have suggested how I draw broadly from social science approaches to examine how my philosophical, political, and imaginative perspectives on mining as a contested nation-building project. Critical magical realism offers a means to conceptualize and to practice research storytelling for geographers and other academics. A critical magical realist approach challenges hegemonic discourses and power structures, elucidates complexity of discursive and material realities, and values the co-existence of multiple epistemologies and ontologies. At the same time, critical magical realism informs my positionality and the approach I have taken to researching and writing this dissertation as a whole. I have exposed the limits of my objectivity and language abilities, as well as my dependence on research assistants, Davaa the driver, and the NGOs. While I did not spend many words on the meaning of collaboration, how I describe my research methodologies and methods conveys the social relations necessary to carry out the fieldwork and to improve my research and writing abilities. It is with these parameters in mind that I welcome you to encounter the following representations of the promises and realities of mining as a nation-building project.

CHAPTER 3: Mineral Nation?



Figure 8: Billboards in Ulaanbaatar, 2012 (left) and 2011 (right). Photos by the author.

Representations of Mongolia as a mineral nation are writ large along Ulaanbaatar's busiest streets and public spaces. Two of the most striking images are the billboards above, produced by the Oyu Tolgoi mining company and located across the street from the Mongolian Parliament and the nation's symbolic Sukhbaatar Square. Similar to the majority of Oyu Tolgoi's promotional materials, the billboards draw from national symbols and often feature Mongolian company employees and nomadic herders. The billboard on the left commemorates the summer 2012 *Naadam*, the national holiday that celebrates independence and the three “manly” sports of horse racing,²⁴ wrestling, and archery. The boy wears a hardhat with Oyu Tolgoi's logo and a *deel*, the traditional Mongolian jacket. The slogan reads “clear health, with energy” and “Happy Naadam.” The image on the right was taken in 2011 and features a mine employee (a welder) under the slogan “We are building Mongolia's future.” While the image of the boy melds symbols of Mongolia's nomadic tradition with the promises of mining, the welder suggests a more industrialized vision of the nation similar to the promises of socialist-era nation-building discourses (see Sneath 2003a).

²⁴ Young boys are the jockeys.

What the interplay of these unifying slogans and images of mining workers, technological advancement, happy nomads, and cultural tradition suggest is that Mongolia need not compromise its national culture for modernity and economic development. The billboards project a confident, unified nation, and a shared vision of the future where mining development brings progress. The repetition of traditional symbols also reproduces the mine as part of the nation's historical trajectory, providing a clear example of how Oyu Tolgoi engages in nation-building discourses that promote the promise of national strength and unity through mining.

However, what these images do not show are contestations over the transformation of Mongolia into a mineral nation. While large-scale mining projects were developed in Mongolia during the socialist era, mining did not become a focus of national economic development until the late 1990s when new Minerals Laws opened the country to foreign investment. At the same time, the current state lacks experience negotiating with transnational mining companies over mines the scale of Oyu Tolgoi, and the development of the mine highlights how relationships between transnational corporations and the state arose after the Minerals Laws changed. Moreover, infrastructure development has lead to fears that local environmental degradation threatens the pasture and water resources that nomadic herders depend on for their livelihoods. Thus the history of Oyu Tolgoi and its relationship to the Mongolian public and state and its potential for nation-building are much more complex than the billboards discussed above portray. Debates over control of the mine, economic instability, and environmental degradation continue to shape public skepticism of the promises of mining to rebuild the nation.

The purpose of this chapter is to explore the development of the Oyu Tolgoi mine as a lens onto broader questions over the political and environmental controversies surrounding Mongolia's mining boom. I argue that despite billions of dollars of investment and the

development of infrastructure, state and public actors continue to question the ability of Oyu Tolgoi to realize the national *telos* represented in the images above—that is economic development through mining without irreparably damaging the environment upon which nomadic herders rely. The history of Oyu Tolgoi reveals some of the underpinnings of debates over mining and the future of the nation that relate directly to Mongolia’s experiences of post-socialism. This chapter not only provides background information on Mongolia, mining, and Oyu Tolgoi for the chapters that follow, but also contributes to the literature on mineral nations an understanding of how a transnational corporation explicitly engages with nation-building and how tensions over the direction of the nation emerged through agreement negotiations and infrastructure development. The contribution is timely given Mongolia’s current transition to not only capitalism, but also to becoming a global supplier of mineral resources. After elaborating on the dual teleologies of mineral nations, I provide a brief history of mining in Mongolia and an overview of the Oyu Tolgoi mine. Then I discuss the mine’s recent history and ongoing debates over agreement negotiations, environmental impacts, and the neologism Mine-golia.

Dual Teleologies of Mineral Nations

An interdisciplinary literature explores nation-building as processes through which states attempt to convince a group of people that they share an identity and territory (Talantino 2004; Penrose and Mole 2008; Light 2011; Polese 2011). Classic studies on nation-building search for the origins of nations as “imagined communities” (Anderson 1983/2006) that depend on “invented traditions” (Hobsbawm 1983/2000) to articulate shared visions of the present, past, and future (see Gellner 1983/2006; Smith 1986; see also Edensor 2002; Penrose and Mole 2008). While the nation-building literature reveals the historical contingency of nations, it also suggests

that nation-building projects are teleological and will resolve the problem of defining and unifying the modern nation (see Mitchell 2002; Mitchell 2003). More recently, scholars have examined how economic development in addition to shared culture informs the strategies that states deploy to unify the nation in the 20th and 21st centuries (Denison 2009; Allen 2010; Virág 2012). And geographers argue that the legitimacy of nation-building is contingent on “rights to a share in the material and symbolic resources that define the nation” (Penrose and Mole 2008, 278; see also Edensor 2002). To demonstrate these shared rights to resources, states may employ economic nationalist policies including support of domestic industries, such as mineral extraction, to unify the nation through symbols of economic development (Pickel 2003; Nakano 2004), and to convince local populations of “the unified national standards of state power” (Tsing 2000, 135). As Edensor (2002) illustrates with the example of British automobile manufacturing and Coronil (1997) shows with oil in Venezuela, industries can become symbols of the nation itself, domestically and internationally projecting industrialization and urbanization as the desired outcomes of national economic development (see also Ferguson 1999; Negi 2013). Thus, economic development as a nation-building project aims to construct not only what Anderson (1983/2006) calls “imagined communities,” but also what Agnew (2004) names “material communities.”

Agnew (2004, 225, author’s emphasis) argues that the political organization of the world into nation-states has created communities that are not only imagined, but also “*material* communities of interest and identity in which large numbers of residents see their fate tied to that of the national state.” Thus promises of economic development are deeply intertwined with nation-building projects and public perceptions of belonging. Moreover, Agnew suggests that nation-building is contingent upon an intangible sense of nationness that is directed and defined

by industry, infrastructure, and technology. However, extensive scholarship on resource extraction illustrates how particular imagined and material communities in mineral rich countries promise great wealth, but at the same time threaten economic, social, and environmental devastation without institutions and policies that promote shared benefits in the exploitation of the nation's nature (see Girvan 1976; Watts 1996/2004, 2004; Coronil 1997; Schurman 1998; Ferguson 1999; Szablowski 2002; Maxwell 2004; Auty 2005; Halvaksz 2006; McCarthy 2007; Gledhill 2008; Walton and Barnett 2008; Reeves 2011; Sæther, Isaksen, and Karlsen 2011; Hall 2013; Jell-Bahlsen and Jell 2012; Kohl and Farthing 2012). Thus the extractive industries literature suggests how mineral wealth can simultaneously be a desirable and undesirable means to build mineral nations, informing the caution with which the Mongolia state and public *at times* approach nation-building through mining.

A central text in contemporary scholarship on building mineral nations is Coronil's (1997) *The Magical State*. Coronil argues that material conditions and the metabolic relationship between nature and society underpin the imagined communities that gave rise to Venezuela as an oil nation in the 20th Century. He explores these tensions to illustrate how Venezuela's imagined community formed through collective ownership of oil. Drawing on Marx, Coronil (1997, 34) contends that commodities, "As symbolic tokens of society's productive power...form a system of signification through which domestic value is represented; in this sense they are 'national' commodities." Through the extraction of oil, Cornil argues the Venezuelan state took on a magical appearance as oil rents transformed into money and circulated throughout the national economy. Wealth became politicized as oil rents provided the material basis to produce symbols of economic development and national belonging including infrastructure development and urbanization.

The metabolization of natural resources (see Foster 1999; Moore 2000), with investment from transnational corporations, transformed oil in Venezuela from stock capital into promises of national development and unity, bonding the natural body (oil) with the political body (nation). Yet, Coronil also demonstrates how political instability resulted from the failure of the state to realize the development promises made to its citizenry, which were contingent upon high oil prices and loans from international financial institutions. Thus he suggests that the promises of oil wealth juxtaposed with fluctuations in global commodities markets coupled with political instability represents an alternate and undesirable teleology of mineral nations in what is often referred to as resource curse or Dutch Disease—concepts to which I will return shortly. As the oil shocks of the 1970s increased the foreign exchange value of oil, mineral-dependent economies throughout Latin America and Africa collapsed in the 1980s when countries could no longer repay debts to international lending agencies (Gledhill 2008; Saad-Filho and Weeks 2013).

Building mineral nations depends on a number of assumptions that continue to support a teleology of Western development (Ferguson 1999), but are also interconnected with the entrenchment of neoliberal reforms that deregulate and reregulate national economies to facilitate the expansion of corporations into mineral frontiers (see Bridge 2000, 2004a/b, 2007; Tsing 2000; Taylor 2006; Heynen *et al.* 2007; Peluso and Lund 2011; Hall 2013). In addition to vast mineral resources, mineral nations depend on transnational corporations to finance and build infrastructure to extract, process, and export resources (Watts 1996/2004; 2004; Santiago 1998; Sawyer 2002, 2007; Kaup 2010; Emel, Huber, and Makene 2011; Kohl and Farthing 2012). Moreover, in developing countries without the financial and human capital to exploit mineral resources independently, international institutions advise states to develop policies that facilitate

transnational corporations' investment, exploration, and exploitation activities (Bunker and Ciccantell 2005; Saad-Filho and Weeks 2013). Bunker and Ciccantell (2005) argue that the portrayal of national histories, for example that of the United State, as pre-destined due to abstract laws rather than political economic responses to material conditions deceive developing nations. Moreover, "When such mystifying interpretations are successful, they become hegemonic, achieving the complicity of the subordinate supplier nation with trade policies that benefit the industrial core while prejudicing the economy and environment of the extractive periphery" (*ibid*, 26). Thus they contend the circulation of promises of nation-building through mineral wealth perpetuate global economic inequalities, which Girvan (1976) argues is the outcome of the multinational *corporate* economic system that developed from the late 19th Century and throughout the 20th Century.

The failure of economic development and democracy in mineral-rich countries is commonly referred to as resource curse or Dutch Disease. Resource curse implies the potential for national fragmentation, violence, corruption, economic instability, and environmental degradation associated with resource rich countries without the regulatory structures to ensure the sound reinvestment of resource rents (see Girvan 1976; Watts 1996/2004, 2004; Auty 2001; Le Billon 2001; Bebbington and Hinojosa *et al.* 2008; Reeves 2011; Sæther, Isaksen, and Karlsen 2011). Similarly, Dutch Disease, named after the Netherlands' neglect of economic sectors outside of the extraction industries in the mid 20th century, refers to the vulnerability of state coffers to global commodities markets, overinvestment in mining infrastructure and underinvestment in non-mining sectors, inflation, underemployment, and debt (see Coronil 1997; Auty 2005; Bunker and Ciccantell 2005; Rustemova 2011; Saad-Filho and Weeks 2013).

Scholars such as Auty (2001, 2005) argue that vested interests benefit from rents in resource abundant countries and encourage the reversal or postponement of reform policies that would reduce dependence on exports and shelter national economies from volatile commodity price fluctuations. As foreign exchange rates rise during boom periods other sectors such as manufacturing and agriculture “become less competitive in the global market, and even domestically” leading to what is often termed underdevelopment (Zalik 2008a, 43). Furthermore, Omeje (2006, 212) argues that oil-rich Nigeria can be described as a rentier state because of its dependence on “oil mining rents, taxes and royalties” from transnational oil firms and state investments in oil company investments, which encourages elites to reproduce state practices that support their own interests and networks. With rent-seeking behavior, the state has few incentives to increase its capacity to regulate the actions of oil corporations and leaves development programming to corporations “with the result that their efforts are mostly chaotic, appeasement-oriented and business-driven” (*ibid*, 214).

While Auty (2001, 2005) argues that resource curse represents a failure to invest in economic sectors outside of commodities, other scholars contend corporate actions that influence state institutions must be taken into account when assessing the political economic instabilities and environmental devastation wrought by resource extraction (see Sawyer 2002, 2007; Omeje 2006; Zalik 2008a/b).²⁵ Hence, Coronil (1997, 7) argues that Dutch Disease should be called the third world or neocolonial disease because it “constitutes an epidemic in the monocrop economies of the third world” and has been a “colonial plague that malformed the third world into narrowly specialized primary product exporters.” The underdevelopment encouraged by colonial economic policies influences the path dependencies of countries that rely on established

²⁵ Zalik (2008, 43) also notes that Mexico appeared to have avoided resource curse after oil was nationalized in 1938 and revenues were directed towards industrial development.

historical patterns of national economic development that underinvested in non-exporting sectors (see Girvan 1976; Bunker 1984; Barham and Coomes 2005; Omeje 2006; Gledhill 2008; Kaup 2010). Therefore, resource curse and Dutch Disease become a binary teleology to the promises of national economic development through mineral extraction.

Nonetheless, many scholars contend that reproducing the promises of nation-building is possible, *if* states re-invest mineral rents from transnational corporations in infrastructure, education, and other public goods to modernize the nation and improve the collective well-being of its citizens (Maxwell 2004; Auty 2005; Sæther, Isaksen, and Karlsen 2011). Ironically, reinvesting mineral rents to realize nation-building promises contradicts conditions of loans from the International Monetary Fund that constrained public investment in collapsed mineral nations such as Zambia (Ferguson 1999) and Venezuela (1997) as well as post-Socialist nations such as Russia and Mongolia (see Rossabi 2005; see also Saad-Filho and Weeks 2013). Furthermore, despite claims of more responsible mining practices, continued reliance on transnational corporations to develop mining industries further entrenches neoliberal policies that encourage the extraction minerals with little regard for the economic, social, and environmental costs of mining (see Zalik 2004; Watts 2005; Sawyer 2007; Kaup 2010; Hall 2013; Himley 2013).

However, mineral nations are not only reproduced through investment and rents that naturalize mineral wealth as the source of national well-being. A large body of literature examines how environmental imaginaries naturalize the nation as timeless and signify teleologies of development (see Peet and Watts 1996/2004; Kaufman and Zimmer 1998; Luke 1999; Johnson 2001; Comaroff and Comaroff 2005; Jazeel 2005; Yeh 2009). Since the 1960s, scholars have examined how transnational corporations appropriate nature to secure profits often at the long-term expense of national economies in developing countries (see Girvan 1976;

Bunker 1984). While this literature emphasizes the political economic motivations of corporations and states, corporations also reproduce new environmental imaginaries. From a cultural geography perspective, Braun (1997, 10) argues that corporate forestry public relations materials in British Columbia abstract and displace resources “from exiting local cultural and political contexts” resituating them “in the rhetorical space of the ‘nation’ and its ‘public.’” Moreover, he contends that promotion materials translate resources such as forests into something manageable to legitimize their rational use, excluding considerations of the ethics and social uses of resources, thereby shifting attention away from contentious issues such as land claims.

More recently, Hall (2013) has argued that mining companies brand Canadian diamonds as pure to promote the environmental and social responsibility of companies operating in the Northwest Territories (NWT) as opposed to “conflict diamond” sources in developing countries. Yet Hall (2013, 385) contends these representations of Canadian diamonds obscure responsibility for “social and economic destruction taking place in Indigenous communities across the NWT.” Thus corporate representations of natural landscapes simultaneously reproduce nature as national and the nation as natural, but without reference to contestations over resource extraction (see also Sawyer 2010; Takach 2013).

While the promotion of corporations as good stewards of the environment figure more broadly in the Corporate Social Responsibility literature (see Zalik 2004; Watts 2005; North *et al.* 2006; Canel *et al.* 2010; Himley 2013), what Braun (1997) and Hall (2013) demonstrate is how corporations actively promote teleologies of nation-building not only through resource extraction, but also through idealized visions of the nation’s nature to minimize the visibility of local contestations. These promotions maintain corporate power over resources, while obscuring

the social and environmental impacts of resource extraction; therefore, complimenting the ways that other corporate strategies and innovations in Northern Canada such as Impact Benefit Agreements that attempt to assuage community concerns about territorial sovereignty (see Cain and Krogman 2010). Hence, Canadian corporations play a key role not only in generating international investor attention, exploring and exploiting mineral resources (McNish 1998; Tsing 2000, 2005), but also the development of strategies to superficially or otherwise engage with local communities at home and abroad (see North *et al* 2006; Coumans 2010; Laforce 2010; O’Faircheallaigh 2010) that reproduce nation-building ideals.

Scholars also examine how states and people question and contest activities of transnational corporations and the reproduction of mineral nations. States such as Bolivia (Kaup 2010; Kohl and Farthing 2012) and Kazakhstan (Domjan and Stone 2010; Palazuelos and Fernández 2012) have asserted power over mineral resources to challenge the power of foreign corporations and claim larger stakes in the nation’s mineral wealth, in what is often pejoratively referred to as resource nationalism (see Bremmer and Johnston 2009; Vivoda 2009; Eaton 2010; Emel, Huber, and Makene 2011). However, despite state claims to mineral resources, they continue to rely on the financial and human resources of transnational corporations, limiting the extent to which states can challenge the power of corporations (Kaup 2010).

Non-state actors, particularly affected populations, NGOs, and workers, also challenge the ways that transnational mining corporations and states deploy mining as a nation-building strategy (see Muradian *et al.* 2004; Watts 2004; Tsing 2005; Kirsch 2007; Gledhill 2008; Bebbington and Hinojosa *et al.* 2008; Bebbington and Humphreys Bebbington *et al.* 2008; Kaup 2008, 2010; Walton and Barnett 2008; Jell-Bahlsen and Jell 2012; Babidge 2013; Himley 2013; see also North *et al.* 2006). Building on Harvey (2003), Bebbington and Bebbington Humphreys

et al. (2008) argue that movements that contest mining development practices can be broadly categorized into relationships between the state, corporate actors and workers (accumulation by exploitation) or relationships between the state, corporate actors, and affected local residents (accumulation by dispossession). For example, recent research on worker movements in Latin America demonstrates how claims to the nation's natural resources challenges privatization regimes and evokes alternative visions of national economic development through resource governance, but not necessarily the elimination of extraction as a source of national development (see Valdivia 2008; Perreault and Valdivia 2010; Valdivia and Benavides 2012). However, perceptions that mining will cost local residents their livelihoods and therefore will exclude them from the promises of nation-building are more germane to this chapter.

Bebbington and Humphreys Bebbington (2011, 142) contend that despite different approaches to mining in Bolivia, Ecuador, and Peru, arguments that “the subsoil belongs to the nation, and that it should be extracted so that its benefits can be shared by that nation” ring false among affected residents. They argue that social movements opposed to the social and environmental impacts of mining development arise because “The spaces that bear the brunt of the externalities generated by extraction are in the vicinity of the wells, mines, pipelines and smelters” while the “benefits and opportunities accrue in other spaces” (*ibid*). However, the idea that mineral wealth should bring benefits to the nation, supported by the nationalization of industries during the 20th Century's post-colonial era, has staying power even among separatist movements that threaten the integrity of post-colonial nation-states such as Indonesia and Nigeria (see McCarthy 2007; Zalik 2008a). Furthermore, in research in Papua New Guinea where mining promised but failed to rebuild the nation, scholars have found that many local residents are not opposed to mining so much as the environmental effects, unequal compensation

for loss of resources, and unequal distribution of benefits (Halvaksz 2006; Kirsch 2007; Walton and Barnett 2008; Jell-Bahlsen and Jell 2012). However, while corporations may claim to independently mitigate long-term environmental impacts (Bebbington and Hinojosa *et al.* 2008), without strong environmental regulation, scholars argue dispossession is likely in mining-affected areas (Muradian *et al.* 2004; Bebbington and Humphreys Bebbington 2011). Thus the actions and attitudes of state and non-state actors towards mining are complex and cannot simply be assessed as for or against mining as strategies to develop the nation. At the same time, the concept resource curse belies the actions of corporations from Northern states that facilitate the extraction of mineral resources at the least cost to the producers and at the highest costs to local residents (see Girvan 1976; Bunker 1984; Santiago 1998; Sawyer 2002, 2007, 2010; Bunker and Ciccantell 2005).

As discussed above, the mineral nation's literature reveals nuanced attention to the parallel teleologies of building mineral nations through tropes of progress and perils. However, the literature primarily focuses attention on the state. With the deregulation and reregulation that accompanies neoliberal policies (see Peck and Tickell 2002; Heynen *et al.* 2007), corporations play a growing role in the promotion of mineral nations, which remains under examined in the literature. Although Watts (2004) argues that the concept "oil complex" articulates the relationship between corporations, states, and the nation, how corporations create mineral nations as material and imagined communities requires more attention. This chapter begins to fill this gap by focusing on some of the ways Oyu Tolgoi promotes Mongolia as a mineral nation as well as state and public perceptions of and responses to the implications of building a mineral nation. The chapter also contributes to the limited literature on corporate reproductions of nature that naturalize mining development as the nation's teleology, obfuscating tensions over extraction

(Braun 1997; Santiago 1998; Sawyer 2002, 2007, 2010; Hall 2013). Finally, this chapter contributes to the under examined role that mining firms play in creating representations of mining as a nation-building project. I explore how those representations contradict perceptions of the material changes associated with mining, provoking a sense of caution, but not necessarily rejection, among state and local actors. As I show, this occurred during the negotiation and construction phases of the Oyu Tolgoi mine as Mongolia became more deeply embedded in global circuits of capitalism through mineral exports following the collapse of the USSR.

Mining and Economic Development in Post-socialist Mongolia

Despite Mongolia's relatively recent entry into global commodities markets, knowledge of the nation's mineral wealth is not new to Mongolians or to the Russian, Soviet, and Chinese empires that have shaped the nation's political, economic, and cultural history for centuries. However, in the past national customs and attitudes towards land management have privileged nomadic herding. For example, digging the soil and collecting minerals are often portrayed as antithetical to Mongolian customs,²⁶ and moral cosmologies view the environment and people as interconnected (see High 2013a/b). However, mining has contributed to Mongolia's economy since well before the Socialist era (High and Schlessinger 2010; Dear 2012), including small-scale turquoise, copper, and gold mining at Oyu Tolgoi.²⁷ Large-scale coal and copper mining developed in Mongolia during the Socialist era and mining emerged as the focus of Mongolia's economic development in the late 1990s. How mining has emerged as a focus of national

²⁶ See also chapter 4 on water.

²⁷ Archeologists who conducted field research for Oyu Tolgoi's Cultural Heritage Program found evidence of ancient copper mine sites (stone tools) within the mine license, but the sites will be destroyed by the open pit (see Oyu Tolgoi 2012, B12). Local residents mentioned stories of Chinese who came to look for gold in the hills and that stories of angry spirits were told to protect the environment from mining activities.

economic develop contextualizes the significance of the Oyu Tolgoi deposit and investment to Mongolia's national economy.

Mongolia's mining activities first became industrialized through cooperation with the Soviet Union. From 1921 to 1990, aid from the USSR was intended to remake Mongolia into a modern socialist society with a focus on "collectivization of the herds, industrialization, and urbanization" (Rossabi 2005, 31; see also Sneath 2003a). These activities were part of nation-building projects intended to bring progress and development to Mongolia, to build "the material and technical base for socialism" (Sneath 2003a, 47). Mongolia supported the Soviet empire through exports of minerals such as copper, molybdenum, uranium, and fluorospar from northern and eastern *aimags* (provinces). Coal was mined primarily for domestic consumption. To develop mining, railways were built, engineers and other professionals were trained in universities across the Soviet Bloc, and towns were established to provide supporting industries and housing for miners and their families. National surveys conducted with Soviet scientists in the 1970s and 1980s identified major mineral deposits such as Oyu Tolgoi. From the 1950s to the 1980s, the percentage of industry (including mining) that contributed to Mongolia's Net Material Production increased as the agricultural percentage decreased (Rossabi 2005, 34). By 1989, 70 percent of Mongolia's exports went to the Soviet Union and other Comecon states, the majority of which were minerals (Dorian 1991; Sneath 2003a).²⁸ However, unbalanced trade relations tied the state to the USSR, which provided 30 percent of Mongolia's GDP in the form of aid by the late 1980s.²⁹

²⁸ Rupens (1979) argues that the Erdenet copper mine was an example of Soviet neocolonialism because 100 percent of the minerals during the socialist-era were destined for Russia.

²⁹ For a discussion of how dependence on oil and Western markets lashed the Soviet Union to the global economy, paving the way for its collapse and the rise of post-socialist oil oligarchies and state consolidation, see Labban 2008.

In late 1989, student protests against authoritarianism in Ulaanbaatar's Sukhbaatar Square spread to mining workers in Erdenet and turned into a national revolution (Rossabi 2005). Mongolia emerged as a new democracy in early 1990. With the decline of the Soviet Union and its financial support, Mongolia's democratic transition initiated an economic transformation as international financial institutions submitted the former command economy to a free market experiment in exchange for loans. As neoliberal policies of privatization and commodification swept through the former Soviet world in the 1990s, *decollectivization*, *deindustrialization*, and *ruralization*³⁰ took place across Mongolia (Fernandez-Gimenez 1999; Rossabi 2005; Bruun 2006). Under the influence of free market ideologies, Mongolia's socialist era was dissolved as its institutions were dismantled (Burawoy and Verdery 1999; see also chapter 4). Thousands of unemployed urban Mongolians relocated to the countryside to herd livestock. While herders continued to increase their livestock numbers to support their families,³¹ mining continued to play an important role in the national economy. For example, Sneath (2003a, 43) notes that by the mid-1990s one-third to one-half of Mongolia's exports derived from the joint Russian-Mongolian owned Erdenet copper and molybdenum mine.

As dependence on mineral exports increased, Mongolia's agricultural sector has seen a reduction both in employment and percentage share of GDP. According to the UNDP (2014),

³⁰ After several years of *zud* (harsh winter weather conditions combined with summer drought) devastated livestock populations between 1999 and 2001, tens of thousands and ultimately hundreds of thousands of people have relocated in Ulaanbaatar. The re-urbanization of Mongolia has transformed Ulaanbaatar's landscape as informal *ger* districts ring the city and underemployment continues to effect large segments of the urban population.

³¹ Following the dismantling of the herding collectives, *negdel*, in 1992, there was no longer any formal control over pasture management (Fernandez-Gimenez and Batbuyan 2004). The 1994 Law on Land and subsequent revisions intended to facilitate more control over pasture management. While the number of herders and livestock have increased following decollectivization and privatization, the state no longer provides transportation and fodder to support herders during migration and times of stress. Thus herders' mobility and productivity have decreased while their vulnerability to climate change and the market economy have increased (Fernandez-Gimenez 1999; Sneath 2003a/b; Fernandez-Gimenez and Batbuyan 2004; Bruun 2006). Sneath (2003a, 41–42) states that the national percentage of pastoral workers rose from 18 percent in 1989 to 50 percent by 1998 and the size of the national herd increased by 20 percent.

percent employment in Mongolia's agriculture fell from just under 40 percent in 2005 to less than 33 percent in 2012. The table below shows that while the number of registered³² mining employees has almost doubled, employment in the agriculture sector decreased by 12 percent from 2002 to 2012 (NSO 2003, 2007, 2010, 2012). The percentage contribution of nomadic herding and other agricultural industries has also declined.³³ As the second table below illustrates, while Mongolia's GDP grew by 39% from 2008 to 2012, agriculture has seen much more modest growth than services, industry, and construction sectors (NSO 2013). Furthermore, as discussed in chapter 2, the movement of nomadic herders to urban areas, particularly to Ulaanbaatar since the *zud* from 1999 to 2001, also indicates the decline of herding throughout the country (see Bruun 2006; Sternberg 2010).

| | 2002 | 2005 | 2008 | 2011 | Percent Change |
|---|-------------|-------------|-------------|-------------|-----------------------|
| Total Employees | 870,800 | 950,500 | 1,041,700 | 1,037,700 | 19% |
| Agriculture, hunting, and forestry | 391,400 | 381,800 | 377,600 | 342,800 | -12% |
| Mining | 23,800 | 33,500 | 46,500 | 45,100 | 90% |

Table 3 Employment data from the National Statistics Office.

³² Because artisanal miners do not operate legally, they are not included in these figures. When I was touring the Nalaikh artisanal operations, I was quoted a figure of over 100,000 people working illegally in mining across the country. See High 2012, 2013a/b for more on artisanal mining.

³³ There are some large and small scale farms in Mongolia, but the National Statistics Office does not differentiate between herding and farming in their economic data. Furthermore, because nomadic herding is often done in conjunction with other employment, because it is not taxed, and because there is so much informal employment in Mongolia, the figures may be higher for the number of people engaged in nomadic herding.

| | 2008 | 2010 | 2012 | Percent Change |
|---|-----------------------|-----------------------|-----------------------|-----------------------|
| Total GDP | 3.96 trillion tugriks | 4.16 trillion tugriks | 5.5 trillion tugriks | 39% |
| GDP from Agriculture | 768 billion tugriks | 664 billion tugriks | 803 billion tugriks | 4.5% |
| GDP from Industry and Construction | 1.12 trillion tugriks | 1.16 trillion tugriks | 1.39 trillion tugriks | 19% |
| GDP from Services | 1.6 trillion tugriks | 1.77 trillion tugriks | 2.4 trillion tugriks | 50% |

Table 4 GDP data from the National Statistics Office. In 2005 constant prices.

After the Soviet Union collapsed, Mongolia lost its principal investor and sought to repay somewhere between \$11 to 17 billion US dollars to Russia through mineral exports (Rossabi 2005).³⁴ Foreign loans from international financial institutions and other donors comprised up to 25 percent of Mongolia's GDP in the 1990s (Sneath 2003a), and the state was encouraged to stimulate foreign interest in the nation's mineral wealth to repay debts. In an early assessment of Mongolia's transition, Dorian (1991, 43) argued that mineral wealth could help rebuild the nation as "the long-term economic outlook of Mongolia is promising, as development of the nation's extensive minerals and energy resource base continues to expand in the midst of reform." And by the early 2000s, attention to Mongolia's vast resources and increased openness to foreign investment coincided with the Chinese demand-driven global commodities boom (Bridge 2004; Tuya 2006). However, Mongolia lacked the capital, human resources, and infrastructure to develop the mining sector without foreign investment. From 1990 to 2004, 13.7 percent of foreign aid to Mongolia was channelled to the mining sector (Fritz 2007, 198).

International institutions such as the Asian Development Bank (ADB) and the United Nations

³⁴ In 1991, Dorian put the figure at between \$6 and 18.8 billion. For more on the negotiations of the debt see Rossabi (2005, 200–201). In 2003, Ivanhoe Mines held a 100 percent stake in Oyu Tolgoi and after the company bought \$50 million worth of government bonds there were concerns "about a possible quid pro quo" arrangement with the state (Rossabi 2005, 201). In an interview I conducted with a prominent civil society leader, she suggested that Ivanhoe's chairman, Robert Friedland, paid-off some of Mongolia's debt to Russia to facilitate the investment agreement.

Development Program (UNDP) viewed Mongolia's lack of private land ownership as problematic for capitalist economic development and encouraged privatization policies including expanded mineral exports (Sneath 2002, 2003a/b; Reeves 2011). However, the austerity measures that conditioned loans combined with a drop in commodities prices led to a loss of improvements in Mongolia and the public suffered from decreased services and infrastructure (Sneath 2002, 2003a; Rossabi 2005; Bruun 2006; Reeves 2011). Bank failures, food shortages, and power outages plagued Mongolia's entry into the global economy, making life in Ulaanbaatar especially difficult.³⁵

Although the socialist era mines continued to operate after 1990, the infrastructure was limited to producing minerals for export to the Soviet Union and coal for domestic power production. To attract foreign investment, Mongolia's socialist-era mineral estimates also had to be recalculated to conform to international standards to demonstrate the nation's proven mineral resource reserves (see Tvalchrelidze 2011; Camisani-Calzolari 2004). Furthermore, the state had to cultivate new markets for its minerals. The North American Mongolian Business Council, founded in 1990, was among many new transnational links that supported the state's transition to capitalism and created new investment opportunities. Soon after, with the assistance of then Prime Minister Purevdorj, the first international conference on Mongolia's mineral wealth in North America was organized in Denver, Colorado (interview 2012).

Expectations for the new national direction and sources of wealth needed for national

³⁵ Many Mongolians lost their savings during the 1990s when, for example, the Golomt Bank failed in 1996. While I teaching in 2009, a friend advised me not to keep any money in my Golomt university account because she was worried the bank might fail again in the midst of the global financial crisis. In another example of hardships in Ulaanbaatar, my Mongolian teacher talked about how for a year and a half during the 1990s the only thing for sale in the stores was salt. Most people in Ulaanbaatar relied on relatives in the countryside for food (personal communications 2009, 2010). The *Lonely Planet: Mongolia* 2005 edition advised visitors to be prepared to fly out of Ulaanbaatar if the power went out in the winter—something that fortunately never happened to me while I was living in Ulaanbaatar during the winter in 2009, but did occur during warmer months in 2009 through 2012.

economic growth were also communicated to resource-rich regions. When I interviewed a retired *soum* (county) official in South Gobi, he said he learned about Khanbogd's mineral wealth from a central government Cabinet Minister in the early 1990s. The Minister told him that within a few years foreign investors would come to the region and "in the future we would be rich and have lots of mining....Four years later Oyu Tolgoi came" (interview 2012). Yet, in the early to mid-1990s, while state mining co-operatives were opened to foreign investment, the state also limited development of mineral resources in part to ensure environmental protection of the land for future generations (High 2012). However in 1996, when the Democratic Party coalition gained power in Parliament, its pro-market leaders³⁶ implemented a wave of liberal economic policies. One major change was the 1997 Minerals Laws, which were at the time considered some of the most liberal in the world and similar to that of other emerging markets (Bridge 2004a). In 1997, Mongolia also joined the World Trade Organization, which encouraged foreign investment and national economic development through mineral exports (High 2012).

The new Minerals Laws radically restructured not only how foreign and Mongolian companies could explore for and exploit minerals, but also how Mongolian space was divided. The division of Mongolian territory into mineral exploration and exploitation leases ignored boundaries of watersheds, wetlands, and other fragile environments (Murray 2003; UN 2006). While small to mid-sized mining companies expanded operations across the country, so did illegal artisanal miners; pejoratively labeled "ninja miners."³⁷ As national pariahs, the state and national media often blame ninjas for polluting streams, rivers, and lakes, portraying them as the

³⁶ Ts. Elbegdorj was Prime Minister from 1996 to 2000. In 2009 he was elected President and re-elected in 2013. He was a journalist before joining the revolution and becoming involved with politics in the 1990s.

³⁷ 'Ninja' miners are named for plastic pans carried on their backs, reminiscent of the Teenage Mutant Ninja Turtles.

wrong kind of miners for national development (High 2012).³⁸ International institutions, state actors, and transnational corporations argue that the solution to Mongolia's economic issues and unregulated mining is the development of large scale mines such as Oyu Tolgoi, which promises to develop the national economy and bring higher environmental standards to rebuild Mongolia as a mineral nation.

Overview of Oyu Tolgoi

The Oyu Tolgoi copper-gold porphyry mine is located 80 kilometers north of the Chinese border in Khanbogd *soum* in South Gobi *aimag* (province). The company name derives from the turquoise deposits (*oyu*) that covered a hill (*tolgoi*) about 40 kilometers southwest of the Khanbogd *soum* center. Identified by socialist-era geologists, evidence of mining activities at the site go as far back as the Bronze Age. The mine is one of fifteen “strategic deposits,” which were defined in the 2006 Minerals Law as deposits “that may have a potential impact on national security, economic, and social development of the country...or has a potential of producing more than five percent of total Gross Domestic Product in a given year” (Mongol Ulsiin Ikh Khural 2006, article 4.1.11). The strategic deposits are also exempt from environmental regulations stipulated in the Law on the Prohibition of Minerals Exploration in Water Basins and Forested Areas, which Parliament approved in 2009.³⁹ Without the exception for strategic deposits, Oyu Tolgoi would not be able to mine their open pit because the ephemeral Undai River that feeds a *hailaas* (Siberian Elm) forest runs through the mining license area (see chapter 4). The exception

³⁸ To provide more information to the public, High published a book in Mongolian on artisanal mining that is available at bookstores in Ulaanbaatar.

³⁹ Also known as the ‘Long Name Law,’ it is often perceived to target artisanal miners. However, mining companies such as Canadian-owned Centerra were forced to suspend exploration and exploitation activities because of the law.

demonstrates a state preference for large-scale mines over small and medium-scale operations, which are not perceived to be as vital to the national economy, and therefore can be subject to stricter environmental regulations.

According to Rio Tinto (2013), the International Monetary Fund anticipates that Oyu Tolgoi will increase Mongolia's GDP up to 35 percent by 2021. As of mid-2014, the Canadian firm Ivanhoe Mines⁴⁰ owns a 66 percent stake and the Mongolian state-owned company Erdenes holds 34 percent. The global mining giant Rio Tinto began managing Oyu Tolgoi's operations in 2010 and acquired a 50 percent stake in Ivanhoe in January 2012. In July 2013, copper and gold exports from the open pit began, and the deep shaft cave-block mine is expected to go into operation in 2016—pending government negotiations. Rio Tinto (2013, 1) states "Estimates indicate that Oyu Tolgoi contains 2.7 million tonnes of recoverable copper and 1.7 million ounces of recoverable gold in reserves." At full production, Oyu Tolgoi's yearly production is estimated at 430,000 tons of copper, 425,000 ounces of gold, as well as silver and molybdenum by-products (*ibid*). The mine is projected to generate around \$US 30 billion in tax revenues over fifty years. A Human Development Fund was established in 2008 to redistribute mining royalties to buttress the state's legitimacy by granting public a share in the mineral wealth (see Penrose and Mole 2008).

To develop Oyu Tolgoi, Ivanhoe and Rio Tinto sought capital investments of \$US 6.2 billion for the first stage of development, with a total \$US 12 billion needed for full development of both the open pit and shaft mine (IFC 2013). In 2013, Oyu Tolgoi arranged a loan of up to \$US 1 billion from the World Bank's financial arm, the International Finance Corporation. The

⁴⁰ In August 2012, Ivanhoe Mines became Turquoise Hill, which is the English translation of Oyu Tolgoi. Because most of this narrative takes place before the name change, for clarity I refer to Ivanhoe Mines.

European Bank of Reconstruction and Development is also assembling a \$US 1.4 billion loan package (EBRD 2013).⁴¹

Yet the significance of Oyu Tolgoi is not only the size of the mine, but also the promises to develop the economy and to bring improved environmental standards to Mongolia. With billions of investment dollars pouring in, and billions more expected in the coming decades, many state and corporate actors argue that revenues from Oyu Tolgoi and other large-scale mines will bring economic development and prosperity to Mongolia—both key to nation-building in the post-socialist context. At the same time, many Mongolians express concerns that the prosperity that foreign investment promises will be compromised by corruption, non-mining sector economic stagnation, and environmental degradation. On the one hand, the promotion of Oyu Tolgoi as *the* solution to the nation's problems contributes to rising expectations of national economic development. On the other hand, there is a mounting sense of disenchantment with the promises of mining—particularly in mining-affect areas where infrastructure development poses environmental challenges to local residents.

⁴¹ Other lenders include “Export Development Canada (EDC), Standard Chartered Bank, BNP Paribas, US Export Import Bank (US EXIM), and Multilateral Investment Guarantee Agency (MIGA).” See <http://ifcext.ifc.org/ifcext/spiwebsite1.nsf/ProjectDisplay/SII29007>. The Mongolian government contributes through a loan financed by Ivanhoe Mines.

Oyu Tolgoi's Emergence as National Narrator



Figure 9 An Oyu Tolgoi van parked outside of its former Ulaanbaatar headquarters in 2010. The top phrases are "Oyu Tolgoi deposit," "natural environment," and "stable development." The slogan in italics reads "our future is near." The camel silhouetted against an orange sun is the company logo. Photo by the author.

The history of Oyu Tolgoi and the emergent contestations over nation-building begin in the late 1990s. In 1996, the Australian mining giant Broken Hill Proprietary (BHP) acquired Oyu Tolgoi from Magma Copper⁴² and in 1997 began further exploration. Due to limited results, BHP opened the mine to a joint venture. In May 2000, the Canadian firm Ivanhoe Mines acquired the rights to Oyu Tolgoi. Shortly after recommencing exploration, Ivanhoe announced expanded copper and gold estimates (Canada News Wire 2001). Ivanhoe also purchased shares in other mining companies such as South GobiSands and Entrée Gold, which were exploring for coal and gold (respectively) in the region. Thus while under regulated gold mining activities began to draw national attention to the negative environmental and social ramifications of mining (see Murray 2003; Byambavjav 2010; Sneath 2010; Upton 2010; High 2012), Ivanhoe steadily increased its control of mining leases in eastern South Gobi *aimag*.

To develop Oyu Tolgoi, Ivanhoe needed investors for the multi-billion dollar construction project. As estimates of Oyu Tolgoi's copper and gold reserves grew, Ivanhoe's

⁴² Magma Copper was an American company that became part of BHP in 1996.

chairman, Robert Friedland, became a major promoter of mining in Mongolia.⁴³ Travelling the world, Friedland presented at investment forums publicizing not only the financial rewards of Oyu Tolgoi, but also Mongolia as a new mining frontier recently opened to foreign investment. Friedland and other promoters of Mongolia, including elected officials,⁴⁴ frequently reminded audiences of Mongolia's location next to China—despite ongoing public concerns about Chinese influence and even territorial annexation (interviews, focus groups, personal communications 2010, 2011, 2012; see also Bulag 1998; Batbayar 2002).

Friedland also portrayed Oyu Tolgoi as the mine that will rebuild Mongolia. At a now infamous 2005 presentation given to investors in Florida, Friedland compared Oyu Tolgoi's activities to the role of the Guggenheims in the development of Chile's copper industries in the early twentieth century. However, as Glaser-Schmidt (1995) illustrates, the Guggenheims' investments in Chile were neither always profitable nor immune from global economic conditions (see also Girvan 1976). Nonetheless, Friedland argued that just as the Guggenheims built a railroad and other infrastructure in Chile, Oyu Tolgoi would do the same for Mongolia. Friedland stated, "we are not building a mine, ladies and gentlemen, we are building a mining country like Chile. We are working very closely in partnership with the Mongolian government, and this is definitely the place to be" (Friedland 2005, 2-3). The comparison with Chile, an economically developed nation built on copper extraction (Maxwell 2004; Taylor 2006), and the company's easy relationship with the government promoted Mongolia as an investment-friendly country. Furthermore, he clearly articulated Oyu Tolgoi as a nation-building project that contributes to material as well as imagined communities (Agnew 2004), transforming Mongolia

⁴³ And infamous in Canada and the United States. See McNish 1998.

⁴⁴ For more recent interviews with national leaders see Bloomberg (<http://www.bloomberg.com/video/71101320-mongolia-s-batbold-interview-from-june-20.html>), CNN (<http://amanpour.blogs.cnn.com/2012/09/25/whats-the-fastest-growing-economy-in-the-world/>) and Charlie Rose (<http://www.charlierose.com/view/interview/11225>).

into a mineral nation built on copper mining (see also Bridge 2000; Maxwell 2004; Muradian, Folchi, and Martinez-Alier 2004; Radetzki 2009).

However, during the same speech, Friedland made comments that by 2006 had circulated among the Mongolian public and threatened the future of Oyu Tolgoi. Despite his nation-building rhetoric, Friedland's more crass descriptions of Oyu Tolgoi's profitability led to public objections in Mongolia that Ivanhoe was deceiving the government and people. Claims that "the amount of money that this block cave can draw off is terrifying" and that "the cash flows just from Hugo [deposit]...[are] at a billion and a half dollars a year" were intended to stimulate investors (Friedland 2005, 10). But comments such as "You're in the T-shirt business, you're making T-shirts for 5 bucks and selling them for 100 dollars. That is a robust margin" and suggestions that the Gobi was an empty landscape with "lots of room for waste dumps without disrupting the populations" created a public outcry (Friedland 2005, 9; 6). Although Friedland claimed reactions to his comments were overblown, they were credited with fomenting public protests against Ivanhoe and culminated in the public burning of an effigy of Friedland, among others. In reaction, the Mongolian Parliament instituted a 68 percent windfall tax on mineral ore exports. The Mongolian public received news of the tax with mixed reactions. In interviews with business professionals and civil society leaders, Combellick-Bidney (2012) found that some felt the tax would inhibit the business environment, whereas others saw it as a way to ensure Mongolia receives its fair share from mining revenues.

Thus agreement negotiations stalled because Ivanhoe's efforts to generate investment backfired. The delayed negotiations also indicated how the public could challenge corporate power to define the terms of the agreement and the direction of national development (Bebbington and Humphreys Bebbington 2011; Okonta 2008). To improve its domestic image

and to renew investor interest, in 2006 Ivanhoe initiated a partnership with Rio Tinto. According to a Mongolian NGO leader, the purpose was to “soften” the company’s image after public relations disasters wrought by Friedland’s statements and Ivanhoe’s haphazard community relations’ efforts in South Gobi (interview 2011). Several American business development NGO leaders also argued that Ivanhoe, as a junior mining company, lacked the expertise, experience, and capacity to develop a mine of Oyu Tolgoi’s size that could spur Mongolia’s development as a mineral nation (interviews 2012). Thus similar to other large mining corporations, Rio Tinto acquired from Ivanhoe the “the conflictive and difficult community relations” generated during exploration phases (Bebbington and Hinojosa *et al.* 2008, 900; see also Tsing 2000, 2005).

In 2008, the government attempted to push through legislation to ensure the signing of the agreement before parliamentary elections, but failed because Ivanhoe and Rio Tinto would not agree to a state share of 51 percent. Then on July 1, 2008, two days after parliamentary elections, a riot erupted in Ulaanbaatar. Four people were killed by the police and one died from carbon monoxide poisoning in a fire that gutted the Mongolian People’s Revolutionary Party (MPRP) headquarters (Bulag 2009). According to Bulag (2009, 130), before the election, the MPRP “had been under heavy criticism from many quarters, especially radical social protest groups and ultranationalist groups, for rampant corruption, including the selling of Mongolian land and mineral resources to foreigners” (see also Reeves 2011). When the Democratic Party lost the election, protesters claimed the MPRP falsified the results.⁴⁵ A coalition of NGOs published human rights violations committed by the police, but the election results were not overturned. Negotiations between the government, Ivanhoe, and Rio Tinto continued, suggesting the reliance of the state on corporations to develop the nation’s mineral deposits and to transform

⁴⁵ According to American media reports, election observers declared the election fair. See Dickie 2008.

Mongolia into a mineral nation (see Bremmer and Johnston 2009; Kaup 2010; Emel *et al.* 2011; Kohl and Farthing 2012).

In January 2009, the government amended the Minerals Law to decrease state ownership in strategic deposits from 50 to 34 percent where non-state entities conducted major exploration activities (Mongol Ulsiin Ikh Khural 2009/2006, article 5.5).⁴⁶ In August 2009, Parliament voted to repeal the 68 percent windfall tax, which would take effect in 2011. However, as Parliament was creating resolutions to facilitate the agreement, two lawyers for Ivanhoe published a letter to Parliament in the *UB Post*, a Mongolian English language newspaper affiliated with the Mongolian language *Unuudur* newspaper. Ivanhoe's lawyers stressed the urgency of the multi-billion dollar Oyu Tolgoi agreement as "the first step to an exceptional leap in economic and social development" to launch Mongolia into "a new era of responsible use of Mongolian minerals resources by way of creating thousands of jobs, opening up business opportunities, and developing infrastructure" (Sumiyabazar 2009a, 1). Articulating Mongolia's future at a crossroads, they argued,

One way will attract foreign investment, develop a world-class mining sector, strengthen an independent economy and create an open economy and society. The other way will lead to a closed economy with the faith of investors and donors belied, limiting the scope of industry, and to direct dependence on its neighbors. (Sumiyabazar 2009a, 1)

In urging Parliament to hasten, the lawyers argued that failure to sign the agreement in a timely manner was a threat to Mongolia's development as a mineral nation, which Oyu Tolgoi symbolizes as a catalyst.

Parliament's response was biting. In an unofficial translation published in the *UB Post*, Members of Parliament rebuked the tone and spirit of the lawyers' letter as impatient, arrogant,

⁴⁶ For more on Soviet estimates of mineral resources and international Joint Ore Reserves Committee (JORC) standards see Tvalchrelidze (2011) and Camisani-Calzolari (2004).

and condescending. They argued that the “Oyu Tolgoi deposit has significant importance for our nation’s future development. The letter intends to intervene [*sic*] Mongolia’s internal affairs, national state, independence and way of development” (Sumiyabazar 2009b, 1). The Members of Parliament stated they are the governing, elected body of the Mongolian people and that the lawyers demonstrated a lack of ethics. Furthermore, the Members of Parliament contested the assertion that Oyu Tolgoi would usher in a new era for Mongolia. Rather, they argued the democratic and economic transformations of the last twenty years had redefined Mongolia’s future. “Therefore, we do not think that any company [*sic*] is necessary to define our nation’s road to prosperity, and State of Mongolia would like [*sic*] remind you that people of Mongolia do have the rights to make decision on their own without interference of [*sic*] foreign party” (Sumiyabazar 2009b, 1). The response concluded with a request for an apology and hope for cooperation to reach a mutually beneficial agreement. This curt response also illustrates how Members of Parliament perceive the transition to a market economy as more significant to the nation’s history than mining, which is just an extension of these processes (see Rossabi 2005; Bruun 2006; Sneath 2010).

Despite this publicized row, the investment agreement was signed on October 6, 2009. Following Parliament’s passage of resolutions to reduce the state’s share, Ministers of Finance, Resources and Energy, and Nature, Environment and Tourism signed the agreement as government representatives. Three companies representing Oyu Tolgoi also signed the agreement—Ivanhoe Mines Mongolia Inc., LLC, Ivanhoe Mines Ltd., and Rio Tinto Holdings Ltd. The agreement is for 30 years and includes a range of mine-related activities from exploration to rehabilitation, including the mine and supporting infrastructure. The state holds a 34 percent share through the state-owned company Erdenes and Ivanhoe Mines Mongolia holds

a 66 percent share. After 30 years, Ivanhoe Mines Mongolia may apply for a 20-year exploitation license renewal and the state may increase its share to 50 percent. Ninety percent of Oyu Tolgoi's employees must be Mongolian citizens under the Minerals Law; however, the agreement makes exceptions to reduce the percentages for construction and mining activities. Oyu Tolgoi is also required to conduct environmental monitoring, to publish environmental protection plans, and to establish mine closure plans and funds for rehabilitation. The agreement creates a framework for holding Oyu Tolgoi at least somewhat accountable for employment, infrastructure development, and environmental rehabilitation. The agreement promoted the idea that Oyu Tolgoi will bring Mongolia into a new era and encourage other mining companies to adopt stricter standards. Thus on the surface, at least, the agreement offers promises of nation-building including not only economic development, but also environmental regulation to avoid the teleology of resource curse (see Muradian *et al.* 2004).

In a public statement after the signing of the agreement, Friedland welcomed the signing on an auspicious day in Tibetan Buddhist⁴⁷ astrology.

This is the godfather of new beginnings for Mongolia, whose revered founding leader helped shape the history of the world. Today, there is a new, outward-looking determination rising among Mongolians, who have resolved to draw on the country's remarkable and largely untapped mineral wealth to help build an independent nation for the millennium. (Mukherjee 2009, 2)

Friedland frames Oyu Tolgoi as part of a teleological trajectory of Mongolian national history beginning with Chinggis Khan and ending with political and economic independence due to mining. Evocations of the past facilitate demonstrations of modernity while suggesting an idealized sense of shared history (see Anderson 1983/2006; Hobsbawm 1983/2000; Mitchell

⁴⁷ Tibetan Buddhism is the majority religion in Mongolia.

2002 cf Renan 1996) and renewal of the nation (Johnson 2001). Yet, Chinggis Khan⁴⁸ is not frequently evoked in Oyu Tolgoi's public relations materials. National holidays, landscapes, animals, and sunrises feature prominently, and the Mongolians in Oyu Tolgoi's materials are contemporary, portrayed as benefiting from and contributing to both the mine and national development. However, at the moment of Oyu Tolgoi's formal announcement, Friedland directly connects the mine to Mongolia's origins, marking the mine as part of the nation's destiny.

The state's reaction to the agreement was more cautious. The President of Mongolia, Ts. Elbegdorj, in a speech to Parliament on the eve of the signing of the agreement, welcomed it as a "responsible decision." The agreement, he argued, would open Mongolia's doors to a "colossal" investment. He identified Oyu Tolgoi as the solution to the realities the nation has faced since 1990, similar to Parliament, suggesting that Mongolia's adoption of capitalism has marked a new period in the nation's history in which mining plays a growing role.⁴⁹ The agreement, Elbegdorj stated, was an expression of the people's desire and will to promote national interests and security, met through national consensus.

By settling on the Oyu Tolgoi Agreement, our whole nation, our firm one family of Mongols has made a step forward together. I congratulate you all, I congratulate the people of Mongolia. (Elbegdorj 2009, 4)

However, after his congratulatory remarks, Elbegdorj expressed caution against corruption and mismanagement of resource revenues.

It's nice to have natural wealth. And it's right to utilize these resources. Yet, a question arises - how do we spend the revenues we generate from minerals, which perhaps could be the hardest challenge we may face. We have made promises to our people. We will work to translate into reality these promises. On the other hand, how do we avoid the "resource curse," an undesirable upshot, which still troubles many nations and countries? In a country with non-transparent, unjust, irresponsible public service, mining revenues become not a source of growth, but a cause of relapse. In an unjust society with biased

⁴⁸ See Kaplonski 2004 for a discussion of the proliferation of Chinggis Khan's image since the 1990 revolution.

⁴⁹ For a discussion of periodizations of Mongolian history, see Kaplonski 2004.

laws, big money creates big problems. Few enjoy prosperity, and most fall into abject poverty. (Elbegdorj 2009, 4–5)

Here, Elbegdorj articulates the dual teleologies of building a mineral nation. Rather than promoting an idealized mineral nation, built through the circulation of wealth, he expresses a sense of uncertainty about the realization of the promises of mining development. He paints a negative picture of what the nation could look like if the government unwisely manages revenues and asserts the role of the state in shaping the direction of the nation. Moreover, Elbegdorj internalizes resource curse as a state pathology, absolving corporate actions and obscuring how global capital networks create the conditions for the dangers he describes (see Girvan 1976; Bunker 1984; Pearce and Snider 1995; Bunker and Ciccantell 2005; Sawyer 2007; Okonta 2008).

However, despite this public expression of caution, many critics of the agreement argue that the negotiation process itself was not transparent and is evidence of corruption, contradicting promises of nation-building. Reeves (2011) argues that the signing of the agreement, including the lower tax rate, suggests that the state is more concerned with the country's reputation among foreign investors than the public and that the state is more interested in developing rather than regulating mining. Similar to perceptions of the failed 2006 negotiations (see Combellick-Bidney 2012), several NGO leaders and government officials I interviewed argued that the 2009 negotiations took place behind closed doors. An official from the Ministry of Justice stated that the agreement terms were kept secret from the public and even from many government ministries until the formal announcement. An NGO leader complained she could only see the agreement before it was finalized using the “friends of friends” method. Another NGO leader said that despite being told at meetings with Oyu Tolgoi and the government that civil society groups would have access to documents, they were not provided. Furthermore, despite Oyu Tolgoi's claims that local populations were involved with the process, many people living in Khanbogd

soum including several government officials and NGO leaders stated that the agreement and subsequent infrastructure permits were signed by the central government without local permission (see chapter 4). However, according to a representative from a donor institution, Oyu Tolgoi did not have to follow principles of Free Prior and Informed Consent because of the timing of the agreement and because nomadic herders are not considered Indigenous (interviews and focus groups 2011, 2012).⁵⁰ A representative from Rio Tinto later told me that the company follows guidelines to consider the traditional land resource needs of peoples such as nomadic herders, the company continues to avoid use of Indigenous in regards to Mongolia despite the use of the term by NGOs as well as scholars of Mongolia (see Sneath 2010; Upton 2010). Hence, both Oyu Tolgoi and the state's discourses frame the agreement as a product of national consensus, concealing these contestations over how and when the negotiations took place (see Bebbington and Humphreys Bebbington 2011). This perception of not just confidential, but *secret* negotiations to arrive at the agreement indicates that the public was excluded, real and symbolically, from a key decision over how the nation's nature should be used to rebuild the nation.

Amidst public ambivalence about the government's signing of the agreement and to make good on its promises, the state began distributing cash payments to the public in winter 2010, which coincided with a return of harsh weather conditions called *zud* that killed millions of livestock (see Sternberg 2010). The payments became a short-term fix to the long-term economic decline of the nomadic herding economy (see Fernandez-Gimenez 1999; Bruun 2006; Sneath 2010). While the state established the Human Development Fund in 2008 to invest mining rents in infrastructure, education, and healthcare, benefits have been distributed as cash handouts to

⁵⁰ See Szablowski 2010 for a discussion of free, prior, and informed consent.

fulfill presidential campaign promises made in 2009. Beginning in 2010, monthly payments of 21,000MNT (about \$US 15) were given to each adult and 70,000MNT (about \$US 50) to seniors and students. While some sources say that the handouts came from early royalty payments to the state from Oyu Tolgoi (Isakova *et al.* 2012), other sources were rumored to include loans given to the state by Oyu Tolgoi to develop the mine and the World Bank (personal communication 2010; see Reeves 2011). The payments continued through 2012, contributing to high rates of inflation at 10.1 percent in 2010, 9.2 percent in 2011, and 14.3 percent in 2012 (NSO 2012, 2011, 2010). Research participants in South Gobi and particularly Ulaanbaatar reported that stores raised their prices when the checks were distributed. Thus, the handouts made little difference to their standard of living and became a material sign of the failure of nation-building promises to bring development (interviews, focus groups 2011, 2012).

To many respondents, the state's secrecy during the negotiations and the cash hand-outs are legacies of Communist-era centralized decision-making coupled with corruption, which is perceived to be widespread throughout Mongolia (Fritz 2007; Reeves 2011; Zimmermann 2012). Rossabi (2005) argues economic policies implemented by the state in the 1990s in exchange for loans from international financial institutions failed to consider Mongolian customs of favoritism and nepotism, which encourage corruption. Throughout the 2000s, corruption in Mongolia grew as the state's budgets and capacity to govern declined and investment in mining increased (Fritz 2007). Not only have donor institutions been unsuccessful in "supporting the development of institutions able to contain corruption," but their lending practices created the conditions for what is understood as corruption (Fritz 2007, 202; Rossabi 2005).⁵¹ Fritz (2007) argues that mining

⁵¹ This is not to deny the existence of what is considered corruption in countries such as the United States and Canada. For example, the Citizens United case in the United States that allows unlimited campaign contributions by individuals is a form of legalized corruption.

revenues without appropriate regulatory structures promote corruption and as mentioned earlier, suspicions of corruption related to mining fuelled the deadly 2008 riots and contributes to ongoing concerns about resource curse. According to Transparency International's Corruption Perception Index, Mongolia's corruption may be in decline, or at least there is some optimism due to the Anti-Corruption Agency's efforts and state investigations of mining companies, particularly Ivanhoe's South GobiSands (see Dierkes 2012b). Nonetheless, research participants discussed *perceptions* of corruption ranging from the initial selling of the mining license to Ivanhoe, to illegal campaign donations, to permits for water and transportation infrastructure (interviews, focus groups 2011, 2012). Thus, without institutions with the capacities to manage increased revenue streams and regulate mining practices, promises of nation-building begin to ring hollow as perceptions of resource curse intensify (see Halvaksz 2006; Walton and Barnett 2008; Jell-Bahlsen and Jell 2012).

Despite promises that Oyu Tolgoi would usher in a new era, the signing of the agreement and the state and public responses that followed complicate this nation-building discourse. The discourses decontextualize the nation from its recent political economic past, which continues to assert itself. Inflationary pressures and allegations of corruption are symbolic of the failures of the state and Oyu Tolgoi to rebuild the country through mining (see Coronil 1997). But public skepticism about Oyu Tolgoi is not only related to political and economic questions as controversies over environmental impacts challenge nation-building promises, particularly in Khanbogd *soum* where Oyu Tolgoi is located.

Imagining and Transforming the Nation's Nature

Conflicting environmental imaginaries of the nation's nature emerge from Oyu Tolgoi's

portrayal of the mine and due to perceived impacts of infrastructure development (Peet and Watts 1996/2004; Yeh 2009). The potential economic and political ramifications of mining foreshadow the promises and perils of building the mineral nation at a national scale. However, the environmental implications of infrastructure construction have also been met with growing concern among affected residents and nomadic herders in particular, including fears that the cost of nation-building will be their livelihoods, as indicated by scholars working in other settings (see Bebbington and Hinojosa *et al.* 2008; Bebbington and Humphreys Bebbington 2008; Walton and Barnett 2008; Jell-Bahlsen and Jell 2012). Mining is one of the world's most environmentally destructive activities, especially open pit mining, which is necessary to access lower grade copper and gold ores (Bridge 2000; see also Muradian *et al.* 2004; Radetzki 2009). The Mongolian constitution guarantees all citizens "the right to a healthy and safe environment, and to be protected against environmental pollution and ecological imbalance" (Mongol Ulsiin Ikh Khural 1992, article 16.1.2). And as mentioned above, concerns about environmental impacts slowed-down state interest in foreign investment in mining in the early 1990s (High 2012). However, critics of Oyu Tolgoi argue that while the company's campaign to convince the public of their high environmental standards has achieved some success at the national and local levels, many of the environmental impacts violate citizens' rights (interviews 2011, 2012). Nonetheless, Oyu Tolgoi portrays itself as an organization that the state and public can trust to manage the nation's resources responsibly for economic development and suggests that nomadic herding and mining can co-exist in what some scholars call the new mining, whereby companies claim to mitigate social and environmental impacts (see Bebbington and Hinojosa *et al.* 2008; see also Bridge 2004b; Zalik 2004; Watts 2005; Himley 2013). Oyu Tolgoi thus articulates protecting the environment as defending the corporation *and* nation's future (see De-Shalit

2006).

Countering concerns that mining will ruin the environment and displace nomadic herders has played a growing role in Oyu Tolgoi's representations of nature and mining. One example is the magazine *Awakened Gobi* (*Sersen Govi*). Beginning in 2007, Ivanhoe made the magazine available for free online and in print in Mongolian and English. Although discontinued after Rio Tinto took over operations in 2010, the magazine illustrated many of the nation-building ideals that Oyu Tolgoi claims to bring to Mongolia and draws on nature to symbolize the harmony between mining and the environment, complementing stories about workers, community development activities, new technologies, and national economic development that together suggest the ideals of the mineral nation (see Coronil 1997; Watts 2004; Bunker and Ciccantell 2005; Halvaksz 2006). Moreover, as Takach (2013, 212) argues, media representations of nature are based on ideologies that "perpetuate and justify existing power relations," which in this case is the power of a transnational corporation to transmogrify the nation's nature into national economic development (see Coronil 1997; Bridge 2004b).

Suggesting the dawn of a new era, the magazine often featured sunrises including Oyu Tolgoi's logo of a camel silhouetted against an orange sun. In several editions, a two-page photo advertisement shows a ger and a camel against a sunrise with large text reading "a new life rising" (*shine amdraliin undarga*). The slogan suggests circular and linear time (see Johnson 2001; Edensor 2002, 2006), as each new dawn over the Gobi brings Mongolia closer to its destiny as a mineral nation. In an issue that featured Oyu Tolgoi's water infrastructure and the abundance of groundwater resources in the region, an image of the ephemeral Undai River, which Oyu Tolgoi diverted to prevent ground and floodwaters from draining into the open pit, reflects a sunrise (see chapter 4). In another image, the silhouette of a Siberian elm against a

sunrise provides the backdrop for improvements such as healthcare, education, human resources, infrastructure, business, and industry. Below the tree, Oyu Tolgoi is described as a “nation-changing project” whose benefits

are already being felt across Mongolia. With ongoing investments in education, health, business development and future investments planned to help develop key infrastructure, social and economic growth go hand and hand. (Oyu Tolgoi 2009a, 27)

On another page in the magazine issue, an image of the sun rising over rocky desert terrain is the backdrop for ten benefits that Oyu Tolgoi brought to Mongolia—even before the investment agreement was signed—including industrial development, jobs, infrastructure, and livelihood improvements. The tree canopy suggests that nature and culture will not be irreparably damaged and the sunrises imbue the magazines with the impression that the nation is entering a new era of history while preserving nature and herding as timeless sources of the nation (see Hobsbawm 1983/2000; Johnson 2001). Moreover, these landscapes symbolize important cultural landscapes and places in the region surrounding the mine. The sunrises suggest that the Mongolian nation and nature, including Khanbogd as a regional homeland or *nutag* (see Sneath 2010), are eternal, and will be left relatively undisturbed by mining. Thus the images displace mining’s material impacts on landforms and waterscapes to promote an image of national economic development without local social and environmental costs (see Braun 1997; Hall 2013; Takach 2013).

At the same time, the celebration of metabolic relationships between society and nature illustrated in the magazine also produce new national imaginaries (Coronil 1997; Braun 2000; Perrault and Valdivia 2010). The tagline of the magazine “The Responsible Mining Magazine” (*khariutslagatai uul uurhain setguul*) emphasizes this sense of stewardship, implying a difference from other mining operations with less salubrious reputations. The slogan at the top of each cover, “From Mineral to Intellectual Wealth” (*gazriin baylgaas oyunii undurlug ruu*),

suggests not only development beyond economic growth, but also the transformation of minerals into an educated population. With photos and articles about Mongolian workers, scholarship recipients, technological achievements, and community engagement, the magazine portrays Oyu Tolgoi as a Mongolian company that will build the nation as the Gobi “awakens.” More recent examples from 2012 include a series of billboards and youtube videos that describe how Oyu Tolgoi is responsibly managing the nation’s water and land resources.⁵² These discourses abstract the local to the national, rendering nature as a stock commodity (O’Connor 1998) ready to reproduce the mineral nation. So while the sunrises draw on specific places that symbolize *nutag* as bastions of the nation and its beautiful nature (see Sneath 2010; Hall 2013; Takach 2013), this second set of discourses rescales the local as an abstract source of national wealth (see Braun 1997, 2000; Bebbington and Humphreys Bebbington 2011). At the same time, the magazine conceals what local residents and critics articulate as the negative environmental and social impacts of mining.

Perceptions of the negative effects of infrastructure development on the livelihoods of local residents challenge the promises of Oyu Tolgoi as a nation-building project and undermine the idealistic reproduction of the mineral nation (see Bebbington and Humphreys Bebbington 2011). According to residents in Khanbogd, before the investment agreement was signed, the environmental impacts of mining were less controversial. I was told that perceptions changed once construction intensified in 2010 near Oyu Tolgoi due to observable effects on the environment and herders’ livelihoods. A retired *soum* official argued that when he was in office from the early 1990s until 2008, there were few environmental concerns. Oyu Tolgoi drilled holes within their fence and residents did not worry about water resources or road dust. Oyu

⁵² See for example <https://www.youtube.com/watch?v=2Ko70gRNG1I>.

Tolgoi built a kindergarten in honor of Khanbogd's 80th anniversary and gave money to the high school and hospital. He said of the time, "we were quiet and peaceful. We thought that if this agreement was made, Khanbogd *soum* would develop immensely" (interview 2012). But once the agreement was signed and construction began, residents began to realize that mining would complicate their lives including decreased pasture ranges through drained water resources (see Chapter 4) and road dust (see Chapter 5), thereby threatening not only their livelihoods, but their inclusion in nation-building as local access to resources diminishes (see Penrose and Mole 2008; Bebbington and Humphreys Bebbington 2011).

Before the agreement, the retired official argued, "We did not know what the disadvantages and advantages of mining were. We thought everything was fine" (interview 2012). The revelations of the impacts also changed attitudes towards other mining developments. A former resident who would like to return to Khanbogd to start an industrialized livestock company reflected a similar sentiment when he described his reaction to another Canadian company⁵³ exploring his family's winter campsite. "In the past, we would have been happy if they found gold and copper in this area. Now we are scared that this will happen" (interviews 2012). Before construction, Oyu Tolgoi represented progress and a sense that local livelihoods could go on relatively undisturbed. It was not until after infrastructure construction began that the environmental implications of mining emerged as the local costs of national economic development (see Walton and Barnett 2008; Bebbington and Humphreys Bebbington 2011).

Local residents and their advocates widely argue that mining squeezes-out herders and their livestock from the pasture, symbolizing a national loss (interviews, focus groups 2011,

⁵³ The Canadian company Entrée Gold owns mining leases surrounding Oyu Tolgoi and the Canadian company Kincora Gold is developing the Bronze Fox mine also located in Khanbogd *soum*. For a more comprehensive list of non-Mongolian companies operating in Mongolia see <http://blogs.ubc.ca/mongolia/non-mongolian-mining-companies/>.

2012). A local citizens representative and herder said he recognized that during the construction phase there would be no profits, but in the future there may be benefits for Mongolia. However, the price is “they are ruining our land and environment” and “It is definitely not going to be good for herders.... The impact is so high for herders in Khanbogd and yet the mining operation has not even started” (interview 2012). Threats to herding are thus perceived as a national loss if the environmental impacts of mining are not better regulated. A provincial environmental official said “Ever since Mongols appeared in ancient times up until now, livestock was the major resource for everything.” While herding is a sustainable lifestyle, when the minerals disappear the mining economy will end. He reasoned that mining should adapt to herding, not herding to mining (interview 2012). Thus from his perspective, mining is *not* the teleology of the nation. Rather, the continuity of nomadic herding and the conservation of the environment to ensure that herding practices can continue in South Gobi province remain central to his vision of nation-building.

The relationship between mining-affected residents and the company also suggest fractures in the unified, cohesive image of satisfied Mongolians that Oyu Tolgoi promotes. Research participants in South Gobi said they attended meetings with Oyu Tolgoi where they complained about changing water levels and the effects of dust on their livelihoods, but most contended they never saw any results (focus groups 2011, interviews 2011, 2012). Oyu Tolgoi consultants and employees also discussed the successes and difficulties of gaining public support during the construction phase (interviews 2011, 2012). Both an Oyu Tolgoi environmental staff member and an official from the Ministry of Environment argued that development and construction are messy, but that when the dust settles (literally and figuratively) public perceptions would improve. A former Khanbogd resident and conservationist argued that while

many people in Khanbogd do not like Oyu Tolgoi, once the mine begins production, benefits will increase, and the relationship will improve (interview 2012). Nonetheless, several NGO and foreign business leaders argued that Ivanhoe failed early-on to fully explain to the Mongolian public the environmental effects of mining, and thus the controversies remain (interviews 2011, 2012; see Bebbington and Hinojosa *et al.* 2008).

What these perceptions of the environmental impacts of building a mineral nation illustrate is a sense of disenchantment with Oyu Tolgoi. Local residents and critics contest the teleology of Oyu Tolgoi as the nation's destiny and the idea that mining and herding can peacefully co-exist in South Gobi province's mining-affected areas. They also contest the degradation of local environments to reproduce Mongolia as a mineral nation—or what is sometimes referred to as Mine-golia.

Mine-golia?

The confluence of nation-building discourses and contestations over what the Oyu Tolgoi agreement means for the nation are highlighted in debates over the idea of Mine-golia. The neologism is frequently used to describe how the nation's development potential is intricately linked to mining (see minegolia.com). While Mongolia has been naturalized as a country in need of foreign investment to develop mining industries and rebuild the nation, Mine-golia remains contested. In 2009, the global strategist Parag Khanna presented a TEDTalk on the future of national borders where he described how Mongolia is transforming into Mine-golia (see also Khanna 2008). Tied to China's economic expansion into new resource bases, Khanna argued Mine-golia represents the buying of spaces, not territorial conquest. This portion of the talk is

available on Youtube with Mongolian subtitles.⁵⁴ In 2010, Khanna appeared on Mongolian TV in an interview with the popular economic journalist, Jargalsaikhan. In the interview, Jargalsaikhan suggested that Mine-golia does not sit well with many Mongolians. Khanna reassured viewers that nobody wants to be owned by another country. However, he argued this vision of Mine-golia should not be viewed as ‘ominous’. Khanna contended,

When I say Mine-golia... in Mongolia, people should not react and say that is a horrible thing. That’s not true. First of all, there are fifty or sixty or seventy countries in the world that would *beg* to be called Mine-golia because it is a *brand*. And it is a true statement that Mongolia has vast natural resources to offer the world. (Jargalsaikhan 2010; my emphasis)

Khanna identifies Mongolia’s ability to bond the nation’s nature (minerals) to the nation as the envy of other countries. However, while many Mongolians are optimistic that mining will bring new opportunities to rebuild the nation, Mine-golia remains a question. Thus contestation over Mine-golia crystallizes the articulation of the dual teleologies of mineral nations, the promises *and* the perils of mineral nations discussed throughout this chapter.

For example, an online article from the Mongolian website *gogo.mn* titled “Mongolia or Mine-golia?” discussed how listing companies such as Oyu Tolgoi on the Hong Kong stock exchange will continue to wreak ecological devastation, something that angers many Mongolians. The author argues “A Mongolian national ‘Mongolia’, not ‘Mine-golia’ is possible depending on who profits and what kinds of problems arise because of the above-mentioned issues” (Enkhdelger 2012, 3, my translation). Another article from the online version of the daily newspaper *Orloo* asks “New Mongolia? Or Mine-golia?” (Bayarmaa 2012). The author describes how Mongolia’s GDP growth is expected to double in the next decade. Conversely, Bayarmaa (2012, 2; my translation) contends that as inconspicuous consumption in Ulaanbaatar increases

⁵⁴ For a translation into Mongolian of a 2010 interview with Khanna on the American network ABC see http://www.mining.mn/NewsDetails_2288.aspx.

and “thousands and thousands of students strive to work for Oyu Tolgoi,” herders in the Gobi region are suffering. Diminished water resources, desertification, and shrinking pasture create difficulties for herders as mining development expands. She also raises the specter of Dutch Disease, which has entered Mongolian popular discourse as concerns about inflation and lack of investment outside of the mineral sector are linked to environmental concerns (interviews, personal communications 2010, 2011, 2012; see also Reeves 2011). To counter these fears, state officials have begun to promote Mongolia’s more diverse national industries and visions.⁵⁵ A televised debate in fall 2012 between Ganbaatar, MP and critic of Oyu Tolgoi, and Bayarstogt, who participated in the agreement negotiations as Minister of Finance in 2009, is another example of a highly publicized forum through which the nation’s future and state decision-making was questioned.⁵⁶ Thus the reproduction of Mongolia as a mineral nation remains contested and debated as the Mongolian state and public remain ambivalent about the promises of mining, and Oyu Tolgoi specifically, as a nation-building project.

These critiques of Mine-golia from Mongolian news sources⁵⁷ connect Oyu Tolgoi to broader concerns about mining and challenge the ability of the company to create a unified narrative about the direction of the nation in cooperation with the state and public. While none of the research participants referred to Mongolia as Mine-golia, they implicitly critiqued the “mine”

⁵⁵ For more on Prime Minister Altanhuyag’s call to diversify national branding strategies at the 2013 Mongolian economic forum (<http://ubpost.mongolnews.mn/?p=3235>). Elbegdorj also expressed similar concerns in a 2012 interview with the Financial Times (<http://www.president.mn/eng/newsCenter/viewNews.php?newsId=718>).

⁵⁶ In Mongolian: <http://www.youtube.com/watch?v=nbjNbxRn10>. For a summary in English see <http://www.themongolist.com/blog/parliament/36-the-debate-november-23-2012.html>.

⁵⁷ Other examples of Mine-golia from Mongolian online sources include a summary of the American National Public Radio’s 2012 series on mining in Mongolia (<http://mongolnews.mn/i/32494>) and a series of reports called “Mine-golia, the Truth Collection” on Tsag.mn. (http://tsag.mn/index.php?option=com_content&view=article&id=1123:-minegolia-3&catid=91:ulstur&Itemid=751)

in Mine-golia when they questioned who owns the mine, who benefits, and raised the potential environmental ramifications of becoming a mineral nation.

Conclusion

This chapter has illustrated how a transnational corporation facilitated by global capital networks promises to transform Mongolia and how state and non-state actors challenge the reproduction of the mineral nation. While Oyu Tolgoi claims that the mine will rebuild the nation through economic development and limited environmental impacts, state and non-state actors express caution that the rent-seeking actions of a transnational corporation have already begun to produce symptoms of resource curse and Dutch Disease. The state's solutions to public dissatisfaction with the development of Oyu Tolgoi include offering cash handouts and demanding greater stakes in strategic deposits, but the public remains skeptical of how mining is taking place and degrading the environment.

Although Oyu Tolgoi attempts to naturalize mining as Mongolia's future and to depoliticize the transformation of nature into minerals, the impacts of the agreement negotiations and infrastructure development have politicizing effects. Ongoing public concerns about how revenues are distributed and the environmental impacts of mining confront Oyu Tolgoi's narrative that mining brings development and will renew the nation. The billboards shown in the introduction to this chapter show a unified vision, yet as this chapter illustrates, Oyu Tolgoi's relationship with the public remains divisive. How the company conceptualizes the nation's teleology conflicts with the state and public's more cautious approaches to mining, particularly because of the economic upheavals in the 1990s and perceptions of environmental impacts. While Oyu Tolgoi reproduces the mine as part of a teleological movement towards an ambiguous

stage of development, the public ambivalently accepts this vision. The state has more directly accepted this image, but at times also negotiates for control on its own terms, demonstrated by state claims for higher taxes that stalled the agreement negotiations. However, as will be shown in the two chapters that follow, the central state has been less interested in pressuring the company to improve its environmental impacts that threaten local livelihoods.

This chapter enriches the literature on resource sovereignties and nation-building to illustrate the powerful role of transnational corporations in the reproduction of national discourses and their influence on public perception and debate. Oyu Tolgoi reframes nature, nomadic herding, and echoes of socialist and ancient pasts to recreate mining as the destiny of the nation. The appropriation of national symbols generate a sense of familiarity with the mine, rendering it symbolically Mongolian while the majority share of the company remains foreign-owned. Yet, particularly in mining-affected areas, the mine remains deeply contested and is rescaled as a symbol of struggle over the direction and definition of the nation, as the Mine-golia debate suggests.

Meanwhile, the potential for environmental concerns to galvanize the Mongolian public create the possibility for alternative directions for national development that avoid the teleologies of resource promise and resource curse. While Oyu Tolgoi continues to challenge notions that mining is implicitly bad for the environment, concerns about the co-existence of nomadic herding and mining in regions such as Khanbogd are mounting. The following chapters, *Water* and *Dust*, offer more details regarding controversies related to infrastructure development and perceptions of environmental impacts that challenge Oyu Tolgoi as a nation-building project and the reproduction of Mongolia as a mineral nation.

CHAPTER 4: Water

Without the water they don't have a mine. The minerals aren't worth anything without the water.

—Environmental Consultant for Oyu Tolgoi, 2011

What should we do? Water is a big problem. [Oyu Tolgoi] will take the groundwater. The surface water is drying out. How can we live without water? How do they think we should live?

—Herder from Khanbogd living in Ulaanbaatar, 2012

Even if those mines are far away, there still could be effects. The interaction between humans and nature has changed.... We are connected with our land, but we are not doing the right things towards our nature. All these problems [with water quantity] are coming as a reaction from nature to what we have done. That's how I see these [water] problems. We should appreciate what we have—the sun, land, water.

—Manlai shop keeper, 2011

Questions of where water flows, for what purpose, and for whose benefit saturate contestations over Oyu Tolgoi not only as a mine, but also as a nation-building project. Water, relatively scarce in the heart of Mongolia's mining boom in South Gobi province, is essential to mines such as Oyu Tolgoi that promise to drive the nation into a new era of prosperity. As the scholarship on hydrosocial natures suggests, water is imbued with social power (Swyngedouw 2004; Bakker 2010; Linton 2010) and water infrastructure for nation-building channels national imaginations and promises of belonging to modern visions of the nation (see Kaïka 2006; Biggs 2010; de Pater 2011). As discussed in the previous chapter, Coronil (1997) argues that Anderson's (2006/1983) imagined communities derives in part from the metabolism of nature, producing not only rents, but also new visions and symbols of national economic development. Throughout Mongolia, deep and shallow wells were integral to the transformation of landscapes, including the Gobi Desert, into habitable pasture in the 20th Century (Bruun 2006; Upton 2009). In the 21st Century, groundwater represents a new frontier of the nation and global capital (Bakker 2010), essential to the expansion of Mongolia's mining industries in arid environments.

However, fears that the Gobi will be drained dry shroud the pipes constructed to redirect water for mining. While Oyu Tolgoi argues that their mining-related water infrastructure poses minimal risk to local communities, critics, particularly nomadic herders, contend that water levels are decreasing and that the company is destroying culturally significant water resources.

In this chapter, I argue that water and mining come together to recreate Mongolia as a modern nation with potentially devastating consequences for local populations, overriding previous visions of the nation. Only a handful of geographers have considered the relationships between water and mining (see Budds and Hinojosa 2012; Sosa and Zwarteveen 2012), heeding Bakker and Bridge's (2006) call to theorize the interaction of multiple resources. Moreover, missing from the literature on water is attention to the roles that corporations play in nation-building, particularly since intensified implementation of neoliberal policies in the late 20th and early 21st Centuries. This chapter brings the literature on water and nation-building into conversation with the literature on neoliberal water governance to better understand how Oyu Tolgoi's water infrastructure challenges the legitimacy of mining as a nation-building project. Furthermore, through two examples of Oyu Tolgoi's water infrastructure, I demonstrate how mining not only places pressure on water quality and quantity, but also transforms rights to and power over water (see Bebbington, Humphreys Bebbington, and Bury 2010), reconfiguring belonging to the nation. Water infrastructure is thus a lens through which to examine the tensions between different visions of Mongolia as a modern nation, specifically as an emergent mineral nation.

I begin with an examination of the critical literatures on water that intersect with nation-building and neoliberal natures. Then, I discuss the geographical and historical context of nation-building and water in South Gobi. Finally, I discuss controversies over the Gunii Hooloi aquifer

pipeline that diverts industrial-use water to Oyu Tolgoi and the Undai River diversion that diverts water away from Oyu Tolgoi's open pit to illustrate how the redirection of water resources reveals tensions over mining as a nation-building project in Mongolia.

Water, nation-building, and mining

There is a substantial literature that clearly establishes the harnessing and control of water as nation-building projects (Cosgrove *et al.* 1996; Swyngedouw 1999, 2007; Baviskar 2004; Desbiens 2004a/b; Biggs 2010; Banister 2011; Forest and Forest 2012). During the 19th and 20th Centuries, ideologies of national improvement of citizens (Bakker 2010), conquering nature (Kaika 2006), and putting unused or infertile nature to use for nationalist goals (Caprotti and Kaika 2008; Gasteyer *et al.* 2012) provided political motivations to transform not only waterscapes, but also to demonstrate belonging to the modern nation and the legitimacy of the state (de Pater 2011). Water infrastructure such as large-scale dams (Desbiens 2004a/b; Kaika 2006; Baviskar 2007; Bakker 2010), reservoirs (Gruffuld 1990; Cosgrove *et al.* 1996), irrigation systems (Banister 2011), canals (Biggs 2010), the draining of wetlands and polders (Caprotti and Kaika 2008; de Pater 2011), and rescaled administrative districts (see Swyngedouw 2007, 1999; Alatout 2008; Harris and Alatout 2010) contributed to new visions of the modern nation and legitimized state power.⁵⁸

To conceptualize how modern states harnessed water resources to build nations, scholars draw from Scott's (1998) "high modernism" to examine the centralized management of water

⁵⁸ Scholars also discuss the relationships between water, irrigation, and social power among pre-modern societies. Wittfogel's (1957) conceptualizations of "hydraulic empire" and "Oriental despotism" describe how empires in China and India gained power through irrigation networks. Worster (1985) and Linton (2010) have critiqued and built upon Wittfogel's ideas as early incarnations of what is now described as the social nature of water.

infrastructure as processes of “simplification, standardization, [and] homogenization” (Bakker 2010, 40) that transformed water into a resource that provided the material basis for nation-building (Swyngedouw 2004; Bakker 2010; Biggs 2010; Linton 2010; Forest and Forest 2012). Linton (2010) calls this process “modern water.” Separated from environmental and social contexts, modern water is abstracted both materially and discursively in ways that radically transform the meanings of waters into a single form: water. Decontextualized, universalized, and naturalized, modern water renders all waters the same, transforming them not only to reproduce capital (O’Connor 1998; Bakker 2010), but also the nation, washing away alternative values and visions. With the advent of modern water as something measurable and countable (see Foucault 1991; Mitchell 2002; Linton 2010), it was put to work through water infrastructure, transforming relationships between society and the environment while also producing new visions of a modern nation including urban development (Kaïka 2006), industrialized landscapes (de Pater 2011), extended irrigation networks (Alatout 2008), and mining. Moreover, with water redefined as national, water infrastructure in the 19th and 20th Centuries was built to strengthen national economies and enabled states to “lay claim to vast stretches of territory” (Desbiens 2004b, 352). Yet these technical solutions also obfuscated power relations and depoliticized control including the definition, value, and direction of not only water, but also the nation itself (see Swyngedouw 2004). As I discuss, water infrastructure in Mongolia has been implemented to create visions of a socialist nation in the 20th Century and a mineral nation in the 21st Century.

During the 20th Century in particular, Bakker (2010, 33; 52) suggests that water infrastructure “represented the sinews of the nation-state” that territorialized state power and demonstrated the political and economic significance of water supply infrastructure as “material emblems of citizenship.” While securing water resources became essential for national economic

growth, access to water also “came to be depicted as a precursor for the production of modern citizens,” which international institutions such as the World Bank supported through large-scale projects such as dams (*ibid*, 55). Kaïka (2006, 294) argues that the Greek state’s modernization drive was channeled through the development of Athens’s water network as part of a broader movement in the 20th Century when “water engineering...became arguably the most important aspect of technological innovation through which the geography of the fatherland could be ‘enhanced’ and a nation could realize its full economic, social, and cultural potential.” Thus water infrastructure symbolized the nation’s entry into a new era of development, realization of Western modernity, the power of the state, and citizens’ share in the nation’s resources (Cosgrove *et al.* 1996; Penrose and Mole 2008). However, as I show in this chapter, mining-related water infrastructure reveals not only the power of the Mongolian state to create visions of the nation, but also the devolution of nation-building to non-state actors since the 1990s.

Although water resources exist locally, flowing through place, nation-building projects also rescale local water resources as national, extending state power over local resources to enroll waters and the territories through which they flow into national development plans (Desbiens 2004a/b; Alatout 2008; Biggs 2010; Harris and Alatout 2010; Banister 2011; de Pater 2011). Scholars argue that rescaling water resources renders them targets of national security and development policies, as has been the case with Israel and Turkey’s scarce water resources (see Alatout 2008; Harris and Alatout 2010). At the same time, when water resources are rescaled as national, the local costs of water infrastructure development may be downplayed or even obfuscated in the name of nation-building (de Pater 2011; Gasteyer *et al.* 2012). Thus Biggs (2010) contends that struggles over nation-building must be assessed from the sites where such projects take place. When water resources are rescaled to the national to justify Mongolian

national development and security policies, as I explain below, local objections and claims to water resources reveal the contradictions of nation-building promises that may cost the livelihoods of affected populations.

While states rescale water to render resources accessible to nation-building projects, water is often imagined as a static, unchanging source of the nation (Desbiens 2004b; Linton 2010). At the same time, Desbiens (2004a/b) argues that the development of water infrastructure for industrial purposes naturalizes the teleology of the modern nation. Thus states reference the nation's past to articulate visions of the future (see Cosgrove *et al.* 1996; Kaïka 2006; de Pater 2011; see also chapter 3). For example, in the Netherlands in the 19th and 20th Centuries, de Pater (2011) argues that the waterscapes of traditional fishing villages became a dual target of nation-building discourse as places in need of modernization and as bastions of national heritage. And in 20th Century Athens, urban water infrastructure was designed to evoke ancient Greece (Kaïka 2006). The state constructed these large-scale water infrastructure projects to evoke the imagined collective past that would remind citizens of the promises of modernity to renew the nation (see Anderson 1983/2006; Mitchell 2002). However, the single-use purpose of mining infrastructure contradicts the symbolism that these large-scale nation-building projects promote (Barham and Coomes 2005; Bunker and Ciccantell 2005). Furthermore as McCarthy (2007, 316) argues, the structural violence associated with extractive industries, such as local residents' decreased access to water resources, when articulated with "historical identities, emergent grievances and other problems" undermines the legitimacy of not only the state but also visions of nation-building through extraction.

The literature also explores how water infrastructure obstructs alternative visions of the nation, despite resistance from affected populations (Desbiens 2004a/b; Kaïka 2006; Linton

2010; de Pater 2011). Changing and impeding water flows to increase water supplies and to keep water within national territories are at the core of visions that reproduce the modern nation through engineering projects—often at the cost of pre-existing waterscapes (see Swyngedouw 1999, 2007; Desbiens 2004a/b; de Pater 2011; Dallman *et al.* 2013). There are many examples in the literature from the 20th Century that illustrate perceptions of local costs and the obstruction of alternate visions of the nation. In England, for example, Cosgrove *et al.* (1996) contend that despite the displacement of several villages located in flood zones, the state received widespread support for a reservoir system that generated electricity for industry and the public. Furthermore, Gruffudd (1990, 172) argues that while hydo-electricity in Wales was initially contested and even subject to sabotage, it “became less controversial as electricity distribution improved in rural Wales” and the infrastructure became normalized elements of the rural landscape. However, Israel’s channeling of water to irrigate the *kibbutzim* became a means to claim territory for the Jewish population that materially reproduced discourses of “making deserts bloom” and “the land of milk and honey” as means to exclude Arab populations from nation-building (Alatout 2008; Gasteyer *et al.* 2012). Yet in Canada, as Desbiens (2004a/b) and Linton (2010) argue, First Nation’s have made waters visible to the Canadian public through their protests and fights to protect and control water resources. While modern Western ontologies view water as distinct from land (Howitt 2001), claims to the non-economic values of water resources supply Indigenous groups in the Americas and Australia with the means to challenge how mining companies and acquiescent states channel water (see Bebbington and Williams 2008; Barber and Jackson 2013; see also Dallman *et al.* 2013) thus providing fertile ground to make claims for alternative visions of the nation (Desbiens 2004a/b).

Recently, the water literature has shifted focus to the proliferation of actors, which is relevant as I demonstrate below because multiple actors are transforming Mongolia's waterscape to facilitate mining. While 19th and 20th Century visions of modernist nation-building projects produced images of states as monolithic entities, scholars argue that states often failed to fulfill the promises of these visions (see Scott 1998; Bakker 2010). In the early 2000s, within the context of failed modernist projects and threats to state legitimacy, the critical scholarship on water began to focus on how state failures provided the material and discursive foundations for the adoption of neoliberal policies to privatize, commercialize, and commoditize water resources in the late 20th and early 21st Centuries (see Bakker 2003, 2005, 2010; Prudham 2004; Swyngedouw 2004; 2007b). Thus the "neo-liberal turn in environmental governance" is reflected in the approach that scholars take to examining contemporary water-related issues (Mehta *et al.* 2012, 198) ranging from urban water service provision (Bakker 2003; Kaïka 2003; Swyngedouw 2004), to transboundary negotiations (Norman and Bakker 2009), to the proliferation of multiscale actors (Swyngedouw 2004, 2007b), to water quality concerns (Prudham 2004), to the governance of water resources to facilitate mining (Budds and Hinojosa 2012; Sosa and Zwarteveen 2012). Curiously, the focus on nation-building in the critical water literature falls out of view in the analysis of these contemporary water projects as neoliberal policies over the last several decades has led to the proliferation of many actor, displacing the state from the center of analysis.

While this trend in the literature contributes to our understandings of how the materiality of water and structural reforms expose the false promises of neoliberal ideologies (Kaïka 2003; Prudham 2004; Bakker 2005) and how "neoliberal reform is both a cause of environmental change and a product of changes in the way we interact with the environment" (Heynen *et al.*

2007, 11), because the focus has turned to the proliferation of actors beyond the nation-state, the literature leaves the question of the nation under examined. As Peck and Tickell (2002) argue, contemporary states advance neoliberal agendas including a broad range of policies that transfer power to transnational corporations and international institutions, privatize public services and goods, and introduce socioeconomic austerity measures (see also Bakker 2003, 2005, 2010; Kaïka 2003; Budds 2004; Prudham 2004; Swyngedouw 2004, 2007b; Heynen *et al.* 2007; Mehta *et al.* 2012). While the literature examines how transnational corporations and international institutions transfer power, nation-building still happens.

An important subset of the water governance literature that touches on and extends our understandings of processes of neoliberalism is the literature on water and mining. The literature examines the institutions and mechanisms that transfer rights and resources from states and local communities to mining corporations (see Bebbington, Humphreys Bebbington, and Bury 2010; Budds 2010; Budds and Hinojosa 2012; Sosa and Zwarteveen 2012). As Budds and Hinojosa (2012, 120) suggest, the co-production of water and mining “configures waterscapes in distinctive ways” as governance structures facilitate mining and transform hydrologic systems. States intended the modernist water nation-building projects discussed above to be permanent structures that provided long-term benefits to citizens, thereby reflecting state efforts to appear timeless (see Coronil 1997; Kaïka 2006; Bakker 2010). However, infrastructure for mining is rarely permanent and is generally not designed to directly benefit the citizens and like neoliberal policies, infrastructure forecloses alternative paths to development and limits the range of possible activities (Barham and Coomes 2005; Kaup 2010; see Peck and Tickell 2002). Moreover, Bridge argues (2005, 237) “Because taxes and royalty payments on mineral extraction generate revenue for national governments, the state frequently shares the economic interests of

mining firms who want access to national mineral resources” and when that access depends on water, states tend to favor granting water rights to mining companies over existing users (see Bebbington, Humphreys Bebbington, and Bury 2010; Budds 2010; Budds and Hinojosa 2012; Sosa and Zwareveen 2012). Barham and Coomes (2005, 160) contend that a region and nation’s “future prospects for growth” become contingent upon and propelled by infrastructure development decisions that favor mining. While nation-building projects are intended to promote unity and inclusion in a new national vision (Penrose and Mole 2008), populations negatively affected by water infrastructure for mining may feel a sense of exclusion from the promises of economic development and thus nation-building as their rights to land and water diminish (see Bebbington and Williams 2008; Barber and Jackson 2013).

In Mongolia, the state facilitates Oyu Tolgoi’s access to water resource, but local groups resist infrastructure development in South Gobi. While the company insists that their water infrastructure will not damage local hydrologic systems and that mitigation procedures are in place, residents express growing concerns that mining activities will deplete local water resources, foreclosing on alternative economic development strategies outside the vision of Mongolia as a mineral nation. They draw from pre-existing waterscape to articulate contestations against the use of local water resources for mining. As this chapter illustrates, to what extent local objections to Oyu Tolgoi’s water infrastructure have the power to transform mining as a nation-building project in Mongolia remains unknown, but how affected populations discursively rescale their local resources as national highlights the salience of the nation despite the transformed role of the state.

While addressed in the neoliberal water governance literature, the pressures that mining industries place on water resources are missing from the water and nation-building literature.

Thus this chapter brings together these two streams to focus attention on the ways that neoliberal water governance shapes nation-building processes and contestations over the redirection of water resources for mining. As the broader literature on the nation suggests, the proliferation of non-state actors in the spheres of governance does not mean an end to the nation (Woods 1999; Sparke 2005; Taylor 2006). By joining these two streams, this chapter contributes a return to the nation-state and shows how even under regimes of neoliberal governance, water is still harnessed as a nation-building project. Furthermore, the gaps in the critical literatures on water that I highlight above reveal serious implications for how mining transforms relationships between the nation, state, and outside actors through the metabolism of multiple resources. In the sections that follow, I suggest how the legitimacy of nation-building projects in the 21st century depends not only on the state, but also on non-state actors such as transnational corporations.

Water Scarcity and Rural Water Infrastructure Development

To understand the significance of water to nation-building in Mongolia and how mining relies upon and threatens local water resources, we must first understand its relative non-abundance and variability in the region and Mongolia's socialist and post-socialist rural water infrastructure changes.⁵⁹ Khanbogd *soum*, where Oyu Tolgoi is located, is the hottest *soum* in the country and receives relatively little snow and rainfall year round. During the summer, temperatures range into the high 20s °C and low 30s °C.⁶⁰ Compared to other regions of Mongolia, Khanbogd's winters are relatively mild with lows averaging in the negative teens and

⁵⁹ Unfortunately, I have been unable to locate any scholarship that describes water infrastructure during the Qing dynasty (1644-1911) in Mongolia. Therefore, it is difficult to engage in a debate about "hydraulic societies" and "Oriental despotism" as described by Wittfogel (see Wittfogel 1957; Worster 1985; Linton 2010).

⁶⁰ Meteorological data provided by T. Sternberg, a physical geographer and expert on hazards in the Gobi region (see Sternberg 2010, 2012).

-20s °C. Precipitation mostly falls from May to September, but varies ranging from below 80mm to over 170mm per year. Dust storms are frequent, particularly in the spring. Ephemeral rivers (*zadgai*) exist during rainy months in late summer and early fall, while several springs provide nearly year-round surface water sources. The most dramatic vegetation in the area is the Siberian elm tree (*hailaas*), which taps shallow underground water sources in drainage basins and ephemeral streams.⁶¹ The materiality of water resources thus influences the limited range of economic activities and wildlife that can coexist in the area.



Figure 10 Photos of *hailaas* (Siberian Elm) taken near Khanbogd *soum* center in spring 2012.

While mining in South Gobi is a more recent development, scholars have examined in central Mongolia how concerns about climate change provide an explanation for decreasing water levels and a general sense of unease about water access (Marin 2010; Upton 2009). Fernandez-Gimenez (2000, 1421) found that herders sometimes attribute climate-induced vegetation changes to “an aging earth.” The rapid decline of surface waters found by Mongolian scientists confirms herders’ concerns about water levels and vegetation as water seepage depths

⁶¹ The trees provide long-term data on climate change, but according to a dendrochronologist familiar with the region, it is too early to tell if mining will affect the trees, including those inside the mine license area that tap water from the Undai River (personal communication 2012).

in grasslands decrease.⁶² Furthermore, patterns of infrequent cold, faster, harder rain events as opposed to gentle warm showers compound perceived effects of overgrazing (Marin 2010).

In my research, many participants mentioned climate change related to drought as a cause of drying water resources, but most also expressed concerns that the intensification of mining activities in the area places too much pressure on scarce water resources, pitting herders against mining interests. Particularly in Khanbogd *soum*, herders and many local residents argue that mining and nomadic herding cannot coexist because of the demands for water resources as well as effects of dust on the pasture (see chapter 5) that make drought an ongoing issue. According to data collected and analyzed by Sternberg (personal communication 2013), during my major fieldwork period (fall 2011 to fall 2012) drought conditions in Khanbogd were moderate to mild in the context of six month to one-year drought indices. However, the four-year index revealed no ongoing drought. Nonetheless, nearly every single South Gobi resident interviewed said that precipitation, ground and surface water resources are drying out and many commented on the observable changes.

The water is reducing every year. There is almost no water on the ground's surface. So, there is no rain. If you don't have moisture in the soil, where does the rain come from, right? (elderly female herder, Khanbogd 2012)

In recent years, the Gobi hasn't had much rain. Now rain is very scarce. When I was a child, there was a lot of rain and now there is very little. (female herder, Bayan Ovoo 2011)

We also used to have surface waters around here during three seasons of a year—spring, summer, and fall. In winter, surface waters freeze. Animals drank from the surface waters. Now we don't have surface waters any more. They dried up. As the surface waters dry up, the well waters decrease. (male herder, Khanbogd 2012)

The ground water is drying out. Our well had enough water for 200 camels, but now it has water for only 20 camels....If there is no water, it is impossible to herd animals.

⁶² Healthy grasslands have average water seepage depths at about 170cm, but in overgrazed areas seepage is shallower at about 120cm, which leads to increased water runoff and soil degradation (Baasandorj 2012).

Pasture is running out too, and it will be impossible to increase the number of animals. (male herder from Khanbogd in UB 2012)⁶³

The unpredictability of water resources parallels the unpredictability of the state and economy since the transition to capitalism in the 1990s with the rapid destabilization of centralized social and economic institutions, such as the herding collectives (see Rossabi 2005; Bruun 2006; Pedersen 2011). Unfortunately, most of the research on water in the area near Oyu Tolgoi has been conducted by Oyu Tolgoi and to a lesser extent the World Bank and the Mongolian government. Little independent research has been conducted on water levels in South Gobi and therefore little information is available on what is actually happening to local water resources. Moreover, an audit report released in 2013 by Environmental Resource Management (ERM) and in a draft report released to stakeholders in 2014 by the International Financial Corporation Compliance Adviser/Ombudsman (IFC/CAO) demonstrate that Oyu Tolgoi has not mitigated the impacts of its water infrastructure to ensure the sustainability of local water resources for livestock and wildlife. While local residents, particularly nomadic herders, acknowledge that climate change affects water quantities in their wells, springs, and ephemeral rivers, their concerns that mining places increased pressure on these water resources are reflected in these independent reports. Despite these concerns, as I will illustrate, Oyu Tolgoi maintains that their technologies mitigate any long-term impacts and the state currently facilitates the movement of water towards large-scale mining development to recreate Mongolia as a mineral nation. However, during the socialist era, the state drew upon a very different vision of the nation through water infrastructure.

⁶³ Provincial and soum officials told me that the government is also concerned about drying wells and increased desertification (interviews 2012).

Mongolia's Twentieth Century Waterscape

During the 20th Century, the Mongolian state aimed to build a socialist nation in part through a rural water infrastructure network for nomadic herders.⁶⁴ Expanding the pasture was central to national modernizing projects from Mongolia's socialist revolution in 1921 until the democratic, and ultimately capitalist, transition in the early 1990s. While the first attempts at collectivization failed in the 1930s in part because herders refused to hand all of their livestock over to the state, the second attempt was more successful. By 1959, the *negdel* (herding collectives) had integrated all of Mongolia's herders into a centralized system that permitted herders to keep some livestock for personal use (Bruun 2006; Upton 2009, 2010).

During the socialist era, the state is estimated to have built over 40,000 "shallow hand wells, semi-mechanical and deep mechanical wells" throughout Mongolia that not only opened new areas to livestock herding, but also facilitated "the rationalization, management and intensification of pastoral production" (Upton 2009, 79). The increased water supply was part of state efforts to improve livestock husbandry, which contributed to the Mongolian national economy through domestic food production and exports to COMECON states (Dupuy 1970).⁶⁵ Although the lifestyles of nomadic herders are often romanticized as timeless and without technological modernization (see Tavares and Brosseau 2006), the Soviet-influenced expansion of pasture through well building demonstrates how nomadic herders were integrated into high-modernist visions of the Mongolian state (Rupens 1979; Sneath 2003a; Bruun 2006; Upton 2009;

⁶⁴ Using state power to expand the pasture by building wells was not a 20th Century development. The practice of digging wells to build the nation is shown in Mongolia's origin story *The Secret History*, which narrates how Chinggis Khan united the Mongols in the Twelfth and Thirteenth centuries. In the story, Chinggis Khan's son, Ogodei Khan, decrees that his third deed after he killed the Jaquits and created a national post-station system "was to have wells dug in places without water and to bring [the water] forth, I provided the people [of] the nation with a sufficiency of water and grass" (Onon 2001, 277).

⁶⁵ As discussed in chapter 3, mineral exports to COMECON states also contributed a significant share to Mongolia's national economy.

see also Scott 1998; Bakker 2010; Biggs 2010; Linton 2010). Together with winter shelter construction, building wells regulated the mobility patterns of herders to increase livestock production and to reduce overgrazing (Upton 2009).

The well building initiative also signified control over the environment (Kaïka 2006), making the desert a more fertile place for livestock. In Baasan's (1990/2010) book on Gobi geography, the following passage appears as part of a description for the Zag-Sujiin desert in Bayan Ovoo *soum*, which is located west of Khanbogd *soum*.

A long time ago, large intestine worms,⁶⁶ Przewalski's wonder geckos, and so-called yeti, considered a savage family of animals that do not exist, lived in this waterless, desolate place. During the Socialist era, wells were created and animal families settled so that they could take advantage of resources throughout the pasture. (Baasan, 1990/2010, 184; my translation)

Baasan explains how the supernatural creatures that once lived in the desert gave way to *ail am'tan* (animal families that *do* exist) as wells were drilled across the desert. The idea that water infrastructure such as wells could domesticate and modernize the Gobi reflects Pedersen (2011) and Humphrey's (2005) contention that Soviet-era infrastructure was designed to increase state power by controlling people and, in this case, the environment. Furthermore, Kaplonski (2004, 9) argues that national narratives and national public spaces under the Socialist regime had to be controlled to support and legitimize the "right to rule."⁶⁷ As water resources became more visible to Gobi residents, so did state power and belonging to the nation. The wells thus transformed "this waterless, desolate place" (Baasan 1990/2010, 184) into national space that could be accessible and integrated into the state's centralized planning models (Braun 2000; Desbiens 2004a/b).

⁶⁶ Known as death worms in English. See chapters 2 and 6.

⁶⁷ Although as Kaplonski (2004) argues there is always resistance to these kinds of state and nation-making projects, this dissertation is unable to address how water resources during the socialist era were sites of contestation.

To make these spaces visible, during the 1960s the Mongolian Water Economy Ministry produced “pasture-capability maps” that drew from hydrological surveys conducted by state, Soviet, and Eastern European scientists (Dupuy 1970, 15). The 1961 to 1966 five-year plan included the improvement of “spring-fed pools” and 994 new wells. By 1970, 8,500 more well sites were to be constructed, 6,000 wells were slated for repairs, and 600 springs were to be dammed. The goal of the national plan was to make water available for 300 million acres of pasture nationwide (*ibid*, 15–16).

The process of extending the pasture through wells was particularly acute in the Gobi provinces where surface waters are scarce and residents depend on shallow and deep wells for domestic and livestock use. According to Dupuy (1970), by the late 1960s, 60 percent of Mongolia’s Gobi pasture had water access and Hungarian geological surveys had revealed aquifers with fresh water, 90 percent of which were less than 500 feet deep. A former resident of Khanbogd, who was an environment officer for South Gobi province in the 1970s, argued that building new wells was a state imperative and that they were not concerned about decreasing water levels.

I was an officer who was in charge of the water and pasture. In the 1970s, water levels were not decreasing. We had a lack of wells. At that period of time, we desperately wanted to have wells drilled in a wide area of pasture. (interview, 2012)

The wells drilled by the Mongolian state with assistance from the Soviet Union expanded the available pastureland in the Gobi, which allowed the state and herders to enlarge family and collective herds.⁶⁸ Water availability determines the size of the herds and how far herders can migrate with their livestock away from water resources and *soum* centers. Therefore, wells were integrally tied to the productivity and strength of the Mongolian socialist state.

⁶⁸ Under the *negdel* system herders cared for small family herds (around 50 animals) in addition to the collective herds (see Bruun 2006).

However, increasing the number of wells, particularly near *soum* centers, had observable negative effects on surface waters. Two elderly herders described what happened in the 1960s when the state built more wells in Khanbogd *soum* center.

Herder 1: I heard there used to be a river by the *soum* center. Every corner of the river used to have spring water. Each spring had water that was good for one disease—eyes, internal organs, etc. So, because of people’s wrong actions, the springs are long gone and now we are losing the water.

SJ: When did this happen?

Herder 1: In the 1960s...I think it might have something to do with the establishment of the *soum* center. Many people started doing irresponsible things.

Herder 2: Too many wells everywhere. (Khanbogd 2012)

The two herders attribute decreasing water resources to state expansion of *soum* centers and well systems.⁶⁹ Although the first herder elsewhere in the interview expressed concern that mining is draining her well water resources, she was quick to point out that the 1960s wells had nothing to do with mining and that socialist-era modernizing projects also had negative effects on local water resources. The expansion of state power through the *negdels* and *soum* centers changed local hydrologic systems, which combined with possible impacts of climate change on precipitation patterns, as discussed above, problematizes claims that mining directly impacts water resources. However, what the herder acknowledges is that socialist-era changes to local hydrologic systems did not threaten the sustainability of nomadic herding and that local residents are familiar with the potential impact that infrastructure has on local water resources. Thus the river and springs that became desiccated in the 1960s due to increased water infrastructure development become an allegory for the fate of resources throughout the area if mining companies continue to drill wells and pump water from the ground.

⁶⁹ The former environmental officer quoted above also said that a river used to run near the *soum* center, but that it now runs dry. He said that the river’s desiccation had nothing to do with mining.

However, after the 1990 revolution that ushered Mongolia into the “age of the market” (Sneath 2003a/b), decollectivization signaled a retreat of state power from the countryside and the strength of the national well system declined. Once neoliberal reforms including privatization swept across the country in the early 1990s, the loss of technological advancements throughout Mongolian society acutely affected the rural waterscape (Upton 2009; see also Sneath 2003a/b; Bruun 2006). In 1992, decollectivization led to the privatization of livestock, vehicles, farming equipment, and most other forms of state property. While water was not privatized, equipment such as pumps did become private property—some of which were stolen (Upton 2009). During the collective era, caretakers were appointed to maintain the wells. But along with so many other state institutions, the funding for well caretakers evaporated with decollectivization. By the early 2000s, an estimated 40 percent of Mongolia’s 48,000 wells were abandoned (Upton 2009, 80, cf UNEP 2002). Moreover, according to Upton (2009), privatization debates have focused on land ownership with little attention paid to water (see also Fernandez-Gimenez and Batbuyan 2004). Thus while common access to wells is written into post-socialist legislation, water access continues to be a challenge for rural Mongolians, particularly as decreased water levels are attributed to climate change and mining pressures. Despite the devolution of water rights to herder groups and the development of community management plans in collaboration with NGOs and international institutions such as the World Bank, they have not been able to make up “for the failings of neoliberal or state-centred solutions to water scarcity” in South Gobi (Upton 2009, 96).

Currently in Khanbogd, according to a local official, the provincial Ministry of Agriculture allocates 30,000,000 tugriks⁷⁰ each year to build three new wells (interview 2012).

⁷⁰ About US\$25,000 in 2012.

Herders contribute 10 percent of the cost, slowly transferring public well ownership over to a private property regime. The purpose of the current program is to alleviate problems herders are experiencing with decreasing water levels, while at the same time enrolling herders in the commodification of water (see Bakker 2005, 2010).

An environmental official in the provincial capital, Dalanzadgad, argued that because of the amount of mining occurring in eastern South Gobi province where Oyu Tolgoi and many other large mining developments such as Tavan Tolgoi are located, the region will run out of water within the next decade. When I asked herders and residents whom they would contact if they had complaints about water issues, many in Khanbogd said Oyu Tolgoi, not the government. Thus in Khanbogd, how to manage the demands of water resources for herding and mining was once the domain of the government, but now becoming the domain of a non-state actor, Oyu Tolgoi. While extending the pasture through wells was a socialist-era state-driven activity to build the nation, as mining becomes the focus of Khanbogd's economic activities, the waterscape is changing once again, reproducing Mongolia as a mineral nation.

Oyu Tolgoi's Water Infrastructure

South Gobi's waterscape demonstrates the power of the state and a mining company to materially reproduce visions of the modern nation. Together, the Mongolian state and Oyu Tolgoi redirect water resources to build the mineral nation, while local populations contest the draining of the Gobi for the sake of national economic development. As I detail further below, in the 2000s the state introduced Water Laws that facilitated the reproduction of Mongolia as a mineral nation. While water remains state property, terms of use benefit large-scale mining companies that extract minerals from Mongolia's strategic deposits, such as Oyu Tolgoi. At the

same time, many local residents argue that infrastructure for mining redirects water not only from the nomadic herding economy, but also from Mongolian traditions and values. Thus the changing waterscape parallels broader questions in Mongolia about how natural resources should be used to rebuild the nation.

According to Oyu Tolgoi and the state, to build Mongolia as a mineral nation, water must flow towards the mine to process ores, while at the same time other water must be redirected away to prevent groundwater from seeping into and flooding the open pit. The remainder of this chapter explores two different water infrastructure projects, both of which are essential to Oyu Tolgoi's operation. The first is the Gunii Hooloi aquifer pipeline that supplies industrial-grade water to the mine site. The second is the Undai River diversion pipeline that redirects surface and subsurface flows away from the mine site. Both infrastructure projects have been locally contested because they represent threats to nomadic herders' lifestyles and the long-term habitability of the area. Moreover, the contested pipeline projects symbolize how water flows are diverted to rebuild the nation at the perceived cost of local livelihoods and environments.

Gunii Hooloi Aquifer Pipeline



Figure 11 The picture on the right shows construction of the pipeline. The photo on the right shows an approved water pumping station. Photos from fall 2011.



Figure 12 Water troughs for livestock and wildlife next to a water pumping station in Khanbogd. Photos from spring 2012.

To supply the mine with water, Oyu Tolgoi built an infrastructure system of pipelines, boreholes, and water pump stations to tap the Gunii Hooloi aquifer.⁷¹ The southwestern tip of the Gunii Hooloi basin is located 10 kilometers northeast from the Oyu Tolgoi mine site. The aquifer extends 45 kilometers to the northeast, averages 12.5 kilometers wide, with an average thickness of 185 meters. The width and depth of the aquifer increases towards the northeast. In total, Oyu Tolgoi estimates Gunii Hooloi contains 48,000 cubic million meters of water with 6,800 cubic million meters available to pump for mining (Oyu Tolgoi 2012, B6:55). Located beneath camel pasture with only a few herder wells, there are no surface discharge points such as springs or rivers. However, Gunii Hooloi may connect with the more ecologically sensitive Galbyn Gobi aquifer (Oyu Tolgoi 2012, B6:54). Oyu Tolgoi contends that a clay layer (aquiclude) separates the deep aquifer (100 to 500 meters below ground level) from shallower herder wells (5-50

⁷¹ To mine copper and gold, Oyu Tolgoi requires vast amounts of water for domestic uses at workers' camps, to operate machinery, and to concentrate mineral ores. Concentrate is a value-added product, which can be transported more efficiently than raw ores to market at the Chinese border. To concentrate copper and gold, the ore is crushed and mixed with water and chemicals to create a mud slurry. The slurry is fed into flotation circuits that separate the gold and copper from waste material. In the dry tailings ponds, water pools at the top and is recycled. The dry tailings contain 70 percent solids and the water locked within the tailings comprises the company's main water loss. Overall, Oyu Tolgoi claims that their water system recycles 80 percent of the total water used to operate the mine.

meters below ground level).⁷² Nomadic herders have some access to water at the pumping stations where Oyu Tolgoi has built troughs for livestock. According to many local residents, Oyu Tolgoi describes Gunii Hooloi as a subterranean sea with no connection to shallower herder wells. Without the Gunii Hooloi and the pipeline, copper and other mineral ores at Oyu Tolgoi would be without economic value. Thus the pipeline symbolizes the feasibility of mining Oyu Tolgoi and therefore, its ability to reproduce Mongolia as a mining nation, while the company claims that there will be little impact on local water resources.

| | Advantages | Disadvantages |
|-----------------------------|--|---|
| Gunii Hooloi Aquifer | Industrial-grade source, relatively close location, quantity, estimated clay barrier between shallow and deep ground water sources | Possible subsurface flow connection with Galbyn Gobi Aquifer |
| Galbyn Gobi Aquifer | Industrial-grade source, relatively close location, quantity | Flow under Special Gobi Protected Area B, ⁷³ possible connections between deep and shallow water flows |
| Nariin Zag Aquifer | Industrial-grade source | Small size, distance from mine site, especially brackish |

Table 5 Oyu Tolgoi's assessment of local aquifer characteristics summarized from the Environmental and Social Impact Assessment (Oyu Tolgoi 2012, B6:45).

Table 1 summarizes Oyu Tolgoi's assessment of the largest aquifers in the area. While the number of aquifers may suggest bountiful water resources, an official from South Gobi's environment department said that according to Mongolian scientists, "preliminary use of local water should not exceed more than five to six years" and that other resources, such as diverting

⁷² In Oyu Tolgoi's ESIA reports, indications of different concentrations of elements such as sodium and chloride indicate a separation between shallow and deep aquifers (see Oyu Tolgoi 2012, B6:35). According to Oyu Tolgoi, abstracting water from Gunii Hooloi will not affect local residents because the aquiclude physically separates shallow and deep aquifers and because Gunii Hooloi contains only highly mineralized, non-potable water.

⁷³ The area provides habitat to migrating bird species. Mining activities are also prohibited in Special Protected areas.

rivers from central Mongolia should be tapped if Oyu Tolgoi is to benefit the nation. Moreover, because there are multiple mines in the area, the official worries that “if these mines just use local water, then the Gobi water will only last 10 to 15 years before it completely dries out” (interview 2012).⁷⁴ Similar to other large-scale infrastructure projects that require additional resources and infrastructure to scale-up development, the long term potential of national development through mining is contingent on the discovery of other water resources and the construction of wider infrastructure networks to supply Oyu Tolgoi and other mines throughout the region. These sunk costs that channel resources and the nation towards mining (Barham and Coomes 2005; Bunker and Ciccantell 2005) represent a risk to long-term residents who believe that changing subterranean flows threaten not only wildlife and alternative economic activities, but also alternative visions of the nation.

However, more than just providing water for mining, redirecting the flow of Gunii Hooloi symbolizes Oyu Tolgoi’s power, with state support, to redirect the future of the nation. Although Oyu Tolgoi claims to recycle 80 percent of water drained from Oyu Tolgoi and promises to supply water to local populations, the aquifer pipeline construction has been met with controversy in two major ways that illustrate challenges to mining as a nation-building project. First, Mongolia’s Water Laws facilitate Oyu Tolgoi’s water access and use rights, but local residents and government officials never granted permission to build the pipeline, thus excluding them from the unifying ideals of nation-building. Second, many local residents distrust Oyu Tolgoi’s management of water resources and believe that draining the Gobi dry is the cost of not only the pipeline, but also rebuilding the nation. As I elaborate, these controversies over

⁷⁴ See also World Bank 2009 report on South Gobi infrastructure.

the Gunii Hooloi pipeline demonstrate the power to redirect the nation through the abstraction of and control over water resources.

Contested Permission

While the mine is economically worthless without the pipeline, the pipeline is worthless without institutional changes that facilitate Oyu Tolgoi's water use rights. The state has facilitated Oyu Tolgoi's access and use rights to Gunii Hooloi through the Minerals and Water Laws as well as the investment agreement. Because Oyu Tolgoi is classified as a strategic deposit (see chapter 3), it has been able to secure water access for thirty years and can extend water use rights for periods of twenty years. Other users can secure access for only twenty years and must renew every five years thereafter.⁷⁵ While strategic deposits refer to minerals, the category rescales Gunii Hooloi as a target of national interest to secure water rights specifically for mining as a major source of economic development (see Alatout 2008; Harris and Alatout 2010). Although Russian scientists investigated water resources at both Galbyn Gobi and Nariin Zag, the state considers Gunii Hooloi a "self-discovered" resource because Oyu Tolgoi funded its exploration. Therefore, according to the investment agreement, only Oyu Tolgoi has the right to access and use 'self-discovered' resources at quantities sufficient to meet the "project's operational requirements" at the state-approved volume, which is 870 liters per second (Oyu Tolgoi 2009b, 6.13.1). In early 2013, President Elbegdorj made public new draft Minerals Laws that would open the strategic deposit classification to water resources, but Parliament has not ratified the new laws.

⁷⁵ The agreement terms for Oyu Tolgoi's water access thus set the precedent for water arrangements for other large-scale mines in Mongolia. Such terms are similar to other large-scale mines (see Budds and Hinojosa 2012; Sosa and Zwarteveen 2012).

According to the Water Laws, if Oyu Tolgoi makes future water discoveries that are in excess of the project's requirements, the state may sell access to those resources to other economic entities. It is therefore in the state's interest to support Oyu Tolgoi's exploration of water resources to collect fees from users such as other copper and coal mines in the area (see Bridge 2005). The rights to water as a shared resource are thus channeled by the state to mining interests, transforming water from a place-specific, culturally and ecologically defined flow into an abstracted economic good (see Bakker 2010; Linton 2010). Thus belonging to the nation is reconstructed using a matrix that determines rights to water depending on economic activities and ultimately, profitability for the nation, demonstrating the erosion of customs of obligation and reciprocity in Mongolia at the state scale (see Buyandelgeer 2008; Pedersen 2011) and alternative visions of the nation (see Desbiens 2004a/b; Dallman *et al.* 2013).

However, while Oyu Tolgoi has the right to build and own water infrastructure such as pipelines, boreholes, and water treatment facilities, the water itself remains public property and land possession does not equal water rights (Mongol Ulsiin Ikh Khural 2004, 23.3). Oyu Tolgoi must pay fees to the state and share water resources with local populations. But in the investment agreement, water use fees are tax deductible (Oyu Tolgoi 2009b, 6.14).⁷⁶ A clause in the Water Law states that water users who fund exploration activities, ensure higher quality standards, and use "environmentally friendly technology shall be rewarded" (Mongol Ulsiin Ikh Khural 2004, 35.1.4). The tax deductible water fees are thus not only a reward for finding water resources, but also an example of how the Mongolian state subsidizes mining through water access and use rights. Rather than reinvesting fees in rural water infrastructure, the state requires the company to

⁷⁶ In 2004, the Water Law was amended to include fees for specific mining operations' water use. The fees for using groundwater for gold mining are 100 to 150 tugriks (\$US0.07 to 0.12) per cubic meter and 50 to 150 tugriks (\$US0.4 to 0.12) per cubic meter for copper mining. There are provisions in the Laws on Water Fees for reducing or even exempting entities from paying fees. Exemptions include "circulation of water for technological requirements of production" (Mongol Ulsiin Ikh Khural 1995, 8.1).

provide public access. Thus the state devolves management to a corporation to improve public water access, demonstrating the central role of private actors in not only building, but also managing symbols of belonging to the modern nation (see Kaïka 2006; Swyngedouw 2007; Bakker 2010; Biggs 2010).

Although the Mongolian state remains highly centralized, the Water Law does provide local governing bodies some measure of authority over the management of water resources, but appears to have had little effect in decision-making regarding the Gunii Hooloi pipeline. Citizen representatives, for example, have the power to monitor legislation, approve budgets, and set fees. The *soum* governor may even “terminate water utilization for industrial purposes” and prohibit water usage during shortages (Mongol Ulsiin Ikh Khural 2004, 16.1.2). Moreover, applications for water use are made to *soum* governors and contracts for water use must include their decisions. However, when a water user requests more than 100 cubic meters per day (100,000 liters), the decision to grant water rights is made by the central government’s Water Authority.⁷⁷ Thus local governments only have control over smaller requests for water resources. Larger industrial projects, such as mining, require application to the central government for permission, overriding local decisions, symbolizing local exclusion from nation-building. Moreover, to facilitate mining, the pipeline and rights to tap Gunii Hooloi rescale local water resources as national (see Alatout 2008; Harris and Alatout 2010), illustrating how state power is used to facilitate corporate interests, a defining feature of neoliberalism and rebuilding Mongolia as a mineral nation in the 21st Century (see Peck and Tickell 2002; Heynen *et al.* 2007).

However, Oyu Tolgoi’s critics identify the pipeline as a threat to local livelihoods and wildlife as well as alternative visions of a more inclusive nation-building project. Many residents

⁷⁷ At 870 liters per second, even if Oyu Tolgoi pumps water only twelve hours a day, the company extracts about 37.5 million liters per day or 37,584 cubic meters per day.

and NGOs argue that Oyu Tolgoi did not have permission from the local government to construct the pipeline. A citizens' representative told me that the local *khural*⁷⁸ banned the use of land for the pipeline. He said that he and three others protested against the pipeline by advocating for local rights to determine how and who uses local water resources. They told company officials "they can run their mine however they like, they can mine the gold and copper, but we didn't want them to use our water. Get their water from somewhere else." He also described how Oyu Tolgoi attempted to gain local support for the pipeline.

There was this public meeting to get local people's buy-in to the water pipelines. They even brought some government officials to show their political power. They tried to force us to agree. We didn't come to a solution even though that meeting lasted a really long time, from 10 am until 4 am of the next day. But they managed to get approval from the governmental officials later on. (interview 2012)

A worker for a contractor with Oyu Tolgoi described how he thought the central government was able to gain approval for the pipeline.

Actually the governor of Khanbogd didn't like the idea of installing pipes. But from higher-up someone in the Parliament approved it. The local governor is just symbolic. The decisions are made by the Parliament members and they push it. He's always driven by powerful political people. (interview 2011)

Both the citizens' representative and the worker argue that in the case of building the Gunii Hooloi pipeline, local opinions did not matter and the central government ignored local opposition. Moreover, local confusion regarding the legality of the pipeline also implies a lack of consultation. Thus, as is often the case in nation-building projects, the central state has imposed its will over local objectives, stifling alternative visions of the nation, such as widespread support for nomadic herding lifestyles reflected in the policies of previous eras (Sneath 2010; see Desbiens 2004a/b; de Pater 2011).

⁷⁸ Governing council or committee.

But the story of permission for the pipeline appears to be more convoluted. In fall 2011, a herder took me to see the pipeline construction. He said that Oyu Tolgoi started digging the pipeline in February 2011, but that the company did not receive permission from the Central government until May 2011. Between February and May 2011, although Oyu Tolgoi had no permission, the company began digging. When the *soum* governor did not agree, the central government sent someone who was not from South Gobi to represent the local government. The Central government's representative subsequently signed off on the pipeline on behalf of the *soum*. According to the herder, even by fall 2011 the *soum* governor would not give permission. I was told in an interview with a resident who works with one of Oyu Tolgoi's construction contractors that the person sent by the government to sign off on the pipeline has a company that was awarded a construction contract in the area. When the herder took me to the water collection station in fall 2011, he said the station had local permission but that not all of the stations had received permission despite ongoing construction. He and many other local residents expressed frustration that they could not participate in negotiation processes. Hence, the use of state power to facilitate mining demonstrates local residents' exclusion from building a mineral nation and how the proliferation of actors that result from neoliberal policies do not necessarily lead to empowerment through local control over resources (see Swyngedouw 2004; Norman and Bakker 2009).

What is most striking about this timeline between permission and construction is that it is also evident in the ESIA that the IFC and EBRD required Oyu Tolgoi to produce as part of a loan package (see chapter 3). Although construction for the Gunii Hooloi pipeline was nearing completion when Oyu Tolgoi released the complete ESIA for public comment in 2012, the document consistently refers to construction in the *future tense*. For example, the first line of

chapter D7 of the ESIA states “This Water Resources Construction Management Plan is designed to ensure the protection of water resources in the areas surrounding the Oyu Tolgoi Project *during the Construction Phases of the Project*” (Oyu Tolgoi 2012, 2; my emphasis). However, by the time the ESIA for the construction phases were released and public comments were received, the Gunii Hooloi aquifer pipeline construction was nearly complete. The construction of the pipeline illustrates how speed of development has been a nation-building imperative that trumps public rights to decide how water resources are managed. Furthermore, state institutions facilitate the construction of infrastructure that local residents and critics fear will drain the Gobi dry. These discrepancies in the timeline represent intertwined, yet contrasting, teleologies of nation-building in Mongolia that state water laws support, one where the nation is rebuilt through mining and another that costs local residents their livelihoods (see Desbiens 2004a/b; Linton 2010; de Pater 2011; Dallman *et al.* 2013).

Draining the Gobi Dry

Contestations over the pipeline are not only due to the failure of the central government and Oyu Tolgoi to secure local permission. Local residents are concerned that the Gunii Hooloi pipeline will drain the Gobi dry, rendering it uninhabitable for future generations. According to the investment agreement and Water Law, Oyu Tolgoi must share water resources with the public. Moreover, the agreement states that the company must “not reduce from the current level the quality and quantity of the existing potable and livestock water supplies used by existing users at the date of this Agreement within the water resources area defined in the EIA Reports” (Oyu Tolgoi 2009b, 6.19.2). Thus Oyu Tolgoi decides according to its own baseline research, public documents, and self-defined mining-affected areas whether water resource levels have

changed. Although the Water Authority monitors South Gobi province's water levels from Ulaanbaatar, including some of Oyu Tolgoi's boreholes, the language in the investment agreement suggests that it is up to Oyu Tolgoi to decide whether or not mining operations are affecting local water levels. This is a deviation from the Water Law (Mongol Ulsiin Ikh Khural 2004, 32.2), which states that South Gobi's governor in collaboration with the Central Organization of Nature and Environment determines what water levels indicate drought and desertification each year. Here, the state grants increased rights to local water resources to Oyu Tolgoi to facilitate mining and to redirect power over the nation's nature to a private company (Budds 2010). Moreover, the state abstracts the value of water from its social and environmental contexts to render water an economic good and material basis of nation-building to support the vision of Mongolia as a mineral nation (Bakker 2010; Linton 2010; see also Coronil 1997; Taylor 2006).

However, local residents remain skeptical of Oyu Tolgoi's information and claims that Gunii Hooloi does not connect with the shallower groundwater supplies upon which herders depend—a belief that the company is well aware of.⁷⁹ At the time of my research in 2011 and 2012, nearly all residents and former residents stated that they had experienced or heard about decreased water levels in herder wells.⁸⁰ While Oyu Tolgoi tells residents throughout the region that their well water levels are steady, the majority of herders interviewed said that they must ration water by watering fewer animals at one time, by rotating which days they bring animals to

⁷⁹ For example, in a 2007 study that Oyu Tolgoi commissioned from the Center for Policy Research, 68 percent of Khanbogd residents believed there would be a negative impact on local water resources and 32.2 percent responded that they do not trust Oyu Tolgoi to ensure herder water levels will not decline, while 45.7 percent said they were not sure whether or not Oyu Tolgoi could ensure water levels would remain stable for herders. In Oyu Tolgoi's 2010 amendment to the Gunii Hooloi aquifer EIA, the company found that of local residents 32.5 percent approved, 30 percent disapproved, and 37.5 percent were unsure of the company's water management practices.

⁸⁰ This was the case not only in Khanbogd, but also in surrounding soums where mining is occurring (Tsogtsetsii and Khatanbulag) and where there was no mining at the time of interviews (Bayan Ovoo and Manlai).

wells, or by decreasing the size of their herds (interviews 2011, 2012; focus groups 2011). A citizen's representative who said he has benefited from a nearby Gunii Hooloi water station, nonetheless describes Oyu Tolgoi's attitude towards herders as patronizing.

In elevated areas the groundwater has reduced a lot. In other words, a well that used to water 300-400 camels easily before, now, it doesn't even have enough water for 10-20 camels. But Oyu Tolgoi explains on television that those changes have nothing to do with Oyu Tolgoi because those wells are so old they are filled with dust and sand.⁸¹ That's why the water is not coming out anymore. We Mongolians know and are educated well enough to have maintained many wells in our nomadic lifestyle for centuries and we clean that silt from erosion. We are not so stupid that we would destroy our wells by ourselves and try to blame it on others.... We know how to take care of wells. We've been doing this forever. So, when Oyu Tolgoi shows up, there's no way that we stopped knowing how to maintain our wells, right? (herder, Khanbogd 2012)

He rescales the herders' water infrastructure as part of Mongolia's national history and landscape that define alternative visions of the nation (Alatout 2008; Harris and Alatout 2010) and reasserts the social, historical, and ecological contests of local waters (Linton 2010; Bakker 2010; Dallman *et al.* 2013). Although scholars argue that nomadic herders have experienced a degree of technological loss from the pre-socialist and socialist eras (see Sneath 2002, 2003a/b, 2010; Bruun 2006; Upton 2009), the citizens' representative links Mongolian identity to nomadic herders' local management of water resources including maintenance and knowledge of wells. He challenges not only the promise of nation-building, but also how Oyu Tolgoi frames decreasing water levels as caused by herders, not mining. According to local residents and NGO representatives, the sudden loss of water in just a few years suggests that well disrepair alone cannot account for the majority of wells experiencing decreased water levels across the region (interviews, focus groups, personal communications 2011, 2012, 2013). While Oyu Tolgoi claims to recycle 80 percent of water extracted from Gunii Hooloi, Sosa and Zwarteveen (2012)

⁸¹ In a 2013 audit report, Oyu Tolgoi reported that the company is not sure why some well levels have dropped. The document sites climate change and herder overuse, but does not express these causes with any certainty (see ERM 2013).

argue that company discourses that claim limited net loss obscure varied effects on the hydrological system as a whole that could account for changing water levels. In interviews with Oyu Tolgoi staff and in company documents, the company largely denies any major changes in water levels that might affect the livelihoods of local residents. By downplaying the sense of water loss experienced by nomadic herders, Oyu Tolgoi demonstrates a lack of interest in how local residents understand and value water resources (see Howitt 2001) and contributes to a growing sense of distrust that threatens the legitimacy of both the company's activities and, more broadly, mining as a nation-building project (see Horowitz 2010; Barber and Jackson 2013).

While local residents see possible benefits from mining including electricity, employment, and a regular salary, the depletion of local water resources is seen as a major barrier to the region's future habitability as nation-building through mining consumes vast quantities of water. Despite Oyu Tolgoi's claims that water levels are not decreasing for the majority of wells, many herders argue that they can no longer water as many animals and that future generations will probably not become herders (interviews, focus groups 2011, 2012). A retired *soum* official explained how the pipeline is the cost of mining as a nation-building project, which local residents bear.

If this underground pipe water will be used only for the operation of Oyu Tolgoi, the future of the people who live here now and in the future will be significantly affected. We will be a casualty of the Mongolian economy. Is that right? It is necessary to develop Oyu Tolgoi for Mongolia. Is that right? It is necessary, isn't it? It is necessary for the development of Mongolia, the Gobi region, and the improvement of peoples' lives. But if they use the underground pipeline water, our lives will be severely affected. That is why Mongolians have to re-negotiate water issues. (retired *soum* official, Khanbogd 2012)

He conveys a paradox that is unraveling throughout Mongolia: the desire for development that mining promises while also a desire to conserve natural resources for future generations (see chapter 3). He rescales Gunii Hooloi as a national issue that concerns the fate of the several

thousand long-term Khanbogd residents. He also articulates how mining abstracts water into a national cost-benefit analysis and redirects water from its social and ecological contexts (see Bakker 2010; Linton 2010; Dallman *et al.* 2013). Similarly, the provincial environmental official argued that while herders would like to see Oyu Tolgoi shut down, the country must remain united. He argued, “we are located between two big nations and there are things that we need to think about to keep Mongolia independent,” including locating new water resources to support the central government’s decision to pursue mining as a nation-building project (interview 2012). Thus Gunii Hooloi is rescaled as a national security as well as development issue as Mongolia balances between China and Russia (see Alatout 2008; Harris and Alatout 2010). Yet as a consultant for Oyu Tolgoi’s Cultural Heritage Program suggested, “I don’t know how they’re going to mitigate the environmental impacts so that you can still be a camel herder and that’s sustainable” (interview 2013).

Thus the materiality of scarce water resources is at the crux of the double vision of the nation. Unlike the 20th Century water infrastructure projects that aimed to improve citizens, unify the nation, and legitimize state power (see Cosgrove *et al.* 1996; Kaïka 2006; Caprotti and Kaïka 2008; Bakker 2010; de Pater 2011), the Gunii Hooloi pipeline fails to achieve these goals locally. Rather, local residents perceive the pipeline as infrastructure that threatens local livelihoods *without* providing sustainable alternatives. To local residents, the pipeline represents the downloading of risk onto the state and people that scholars argue are integral to neoliberal policies (Peck and Tickell 2002; Prudham 2004; Heynen *et al.* 2007; Emel and Huber 2008; Mehta *et al.* 2012). Thus symbolic water infrastructure such as the Gunii Hooloi pipeline suggests that neoliberal nation-building depends on short-sighted rather than sustainable, long-term visions of how natural resources should be used to build the nation.

To further explore tensions over diverting water to rebuilding the nation, I turn now to a parallel water infrastructure project, the Undai River diversion.

The Undai River Diversion



Figure 13 Photos of the Undai River, taken in summer 2013 by N. Bayarsaikhan.

The redirection of the ephemeral Undai River away from Oyu Tolgoi's open pit is a controversial infrastructure project that local residents and critics contend threatens local water supplies and destroys culturally sensitive sites.⁸² Similar to the Gunii Hooloi pipeline, the central state has facilitated the redirection of the Undai to support the vision of Mongolia as a mineral nation. In this final section, I briefly discuss the diversion plan, the cultural significance of the river, and how herders discursively contest the diversion by drawing on alternative visions of the nation.

The Undai River begins northwest of the mine and runs south through Oyu Tolgoi's mining lease, including through the planned open-pit area. The river flows year round below ground for about 120 kilometers and the catchment area is around 1,000 square kilometers (Oyu

⁸² The river diversion also requires Oyu Tolgoi to rebuild the Bor Ovoo spring. See Schneider 2013 for herders' reactions to the spring replacement.

Tolgoi 2012, B6). During a mapping exercise in Khanbogd, a local resident explained the flow of the Undai.

There used to be a little spring right close by where Oyu Tolgoi is now, called Bor Ovoo. It has dried out now. Mark that on your map... It comes from the Undai River, which runs from *Built*. That means it comes from a place called *Luit* in the territory of Bayan-Ovoo soum. When that lake fills up, the Undai River runs for almost a week to 10 days. Then the Undai comes to the Gobi and flows out to China...It goes by Javhlant *bagh*.⁸³ It's about 30km to the border. It's not a permanent river. It flows only when there's a flood. (Khanbogd focus group, 2011)

Although ephemeral, the Undai's underground flows are accessed by shallow herder wells,⁸⁴ feed smaller ephemeral streams, a *hailaas* forest, and the sacred Bor Ovoo spring. The river, forest, and spring have historical and cultural significance to local herders. The spring, for example, was an almost year-round water source as well as site of *Naadam* (national sports festival) events. However, during my fieldwork, local residents said that the river had been cut and part of it had been fenced off, which is why the Bor Ovoo spring was dry at the time of the research. Furthermore, the cultural history of the Undai, as I will discuss further, is also remembered locally as a resource of national significance because it saved the lives of many of Chinggis Khan's soldiers and their horses.

Despite concerns about the long-term environmental and cultural effects of the river diversion, Oyu Tolgoi cannot operate the open pit without diverting the Undai's surface and subsurface flows because the eastern edge of the open pit mine lies within a flood plain. The waste rock dump also cuts across the river's course, but according to an independent reclamation expert there is not enough space within the mining license area to relocate the waste rock (personal communication 2013). Because of the year-round subterranean and seasonal surface

⁸³ A *bagh* is a political division within a *soum*.

⁸⁴ In spring 2013, as part of organizing around the Undai diversion, one of the Mongolian NGO leaders I work with asked herders to make a list of wells that are located along the Undai. When she asked them about water levels, only 3 out of 53 wells had sufficient water. Of the remaining 50, there were 27 without water and 23 with low or decreasing levels (personal communication 2013).

flows, in late 2012, the company began construction of an underground pipe to channel the water away from the mine. According to Oyu Tolgoi's construction phase ESIA, impacts of the diversion of the Undai include

potentially increased evaporative losses, significant changes in the sedimentation and/or erosion in the downstream sections of the watercourses. Diversion of the watercourse may also result in changes to the recharge regime in the downstream aquifers; any decrease in the recharge to aquifers downstream could impact the sustainability of local springs and herder wells as well as impacting local fauna and groundwater dependent flora. (Oyu Tolgoi 2012, C5:70)

The diversion of the Undai River has potentially major effects on the waterscape located along the path of the river and its underground flows.⁸⁵ To avoid increased evaporation associated with a lined surface diversion channel, Oyu Tolgoi installed a subsurface pipe that redirects the subsurface flows. A company official reassured me that the 100 millimeter-wide pipe would be sufficient to carry the subsurface flows even during 1,000-year flood conditions (interview 2011). According to the ESIA, due to the pipeline, 6.2 kilometers of the Undai will become dry and Oyu Tolgoi is uncertain whether or not the diversion will have long-term impacts on downstream groundwater resources and vegetation (Oyu Tolgoi 2012, B6 and C5; see also ERM 2013). The pipeline also diverts water to a recreated Bor Ovoo spring at the confluence of the Undai and Khuren Tolgoi Rivers (*zadgai*), about 500 meters south of the mining lease area.⁸⁶

The goal of the river diversion and the reconstructed spring for all downstream wells and springs, according to Oyu Tolgoi, is “to have at least the same level of reliability as currently exists” (Oyu Tolgoi 2012, C5:22). To maintain community relations, the company builds infrastructure that it argues will allow nomadic herding to continue in the area and to facilitate

⁸⁵ Potentially including the Galbyn Gobi aquifer that runs beneath the river's subterranean flows.

⁸⁶ In winter 2013, a Rio Tinto community development staff member said Bor Ovoo was flowing without any issues. However, a local NGO leader reported that in spring 2014 Bor Ovoo was dry. According to an American mining reclamation expert, due to lack of attention to underground geological formations, the rebuilt Bor Ovoo spring may be draining into the soil rather pooling at the surface as it did in its original location (personal communications 2013, 2014).

some level of wildlife conservation. By rebuilding the Bor Ovoo spring outside of the mine license and by stating that the impact on downstream wells will be minimal, Oyu Tolgoi claims to meld pre-existing visions of the nation with mining (see also chapter 3). The company asserts that their efforts to mitigate downstream impacts on water resources ensure the sustainability of nomadic herding lifestyles, despite the claims of nomadic herders and independent reports that suggest otherwise (see ERM 2013). However, changing local hydrologic systems by diverting the Undai River symbolizes the power to redirect not only water, but also the nation. Using a technical solution, Oyu Tolgoi replaced a site of significant historical, cultural, and ecological significance, thereby physically and emotionally decontextualizing water from local values attached to place. By rebuilding the spring, the company imposed a Western ontological split between water and land that assumes the economic value of water outweighs non-economic relationships to the waterscape and naturalizes mining as the nation's teleology (Howitt 2001; see also Johnson 2001; Linton 2010; Barber and Jackson 2013; Dallman *et al.* 2013).

The state has facilitated the redirection of water and the nation through institutional changes that grant mining companies' the right to divert rivers, but not without some revisions. According to the Water Laws, mining operations cannot damage riverbanks and channels (Mongol Ulsiin Ikh Khural 2004, 25.1) and special protected zones extend around water resources where a variety of activities including mining are banned (*ibid* 31.2).⁸⁷ However, companies can apply to the State Administrative Central Organization of Nature and Environment to divert rivers (*ibid* 31.7). Nonetheless, the state undertook measures to protect water resources in summer 2009, when the Mongolian Parliament passed the Long-Named

⁸⁷ The sanitary zone is 100 meters and the 'ordinary' zone is 200 meters. The government's system of Special Protected Areas are also organized around water resources (interviews 2012).

Law.⁸⁸ In the late 1990s, the state granted mining exploration and exploitation licenses without taking into account watersheds, forests, and other sensitive ecosystems (Murray 2003; UN 2006). Through the Long Name Law, Parliament attempted to redress growing national concerns over environmental degradation due to mining.⁸⁹ Hence the state has been to some degree responsive to mounting public concerns that the price of nation-building through mining is the destruction of natural landscapes and water resources (see chapter 3).

Oyu Tolgoi, however, is exempt from the Long Name Law due to the strategic deposit classification. Without the strategic deposit classification, Oyu Tolgoi would be prohibited from mining parts of the planned open pit because of the Undai River and the hailaas forest it feeds. Thus, the strategic deposit classification institutionalizes the rights of Mongolia's largest mines to transform waterscapes over the rights of smaller mines and local population's objections. Similar to the laws that facilitated Oyu Tolgoi's access to Gunii Hooloi, the exemption from the Long Name Law simultaneously rescales the Undai as a national water resource and renders the river as an abstract factor in a national cost benefit analysis (see Alatout 2008; Harris and Alatout 2010; Bakker 2010; Linton 2010). At the same time, the cultural significance of the river and the forest it feeds are potentially irrevocably lost with the pipeline installation (see Sosa and Zwarteveen 2012; Dallman *et al.* 2013).

With central government authorization, the company began to divert the river in late 2012. However, not without protests from local residents who discursively reframe the river as national. Local residents conceive of the flows beyond abstract measurements of volume and

⁸⁸ The Law to Prohibit Mineral Exploration and Mining Operations at Headwaters of Rivers, Protected Zones of Water Reservoirs and Forested Areas. At the 2011 Discover Mongolia international mining forum, several audience members argued that the law was designed to target illegal artisanal miners. The Canadian mining company Centerra is attempting to have the Gatsuurt mine listed as a strategic deposit to exempt the mine from the law.

⁸⁹ As discussed elsewhere (see Byambav 2010; Sneath 2010; Upton 2012), in the early to mid 2000s, the Onggi River Movement instigated national debate and institutional changes to protect water resources and the movements' leaders have sought to protect the law, although not without controversy (see en.minewatch.mn).

speed, as the Undai carries many cultural meanings (see Linton 2010; Dallman *et al.* 2013). These meanings are not address in Oyu Tolgoi's ESIA and are only briefly mentioned in the company's Cultural Heritage Program design document (Gunchinsuren *et al.* 2011). Yet it is precisely these historical and cultural meanings of the Undai that reveal how mining threatens pre-existing visions of the nation and demonstrate claims to waters as sources of the nation (Linton 2010).

Local residents use discourse in their fight against the diversion to articulate their claims to water resources. According to residents, the river is not only an economic good that feeds wells throughout the area, but also a source of national strength based on an ethos of environmental protection. An elderly herder I interviewed told me the national significance of the Undai River, which she tied to controversies over the diversion plans. In a story that recounts how the Undai quenched the thirst of soldiers and their horses, she weaves together Mongolia's imperial past, a national philosophy of environmental protection, and the struggle to protect the river from mining.

It is said that they are going to block the river. We are protesting against it. The river is about 100 km long with 4000 trees. Oyu Tolgoi is planning to divert the river and have it flow to the Gobi. But it will disappear. Then, thousands of *hailaas* trees are at risk of extinction. A long time ago, the river had flowing water. In the past, *khar tsereg* [mercenaries] were fighting enemies and returned to their country by crossing the Gobi....They came back across the Gobi. The Gobi was stretched out. They and their horses were tired and thirsty. They saw the Undai River and it quenched the soldiers and horses' thirst. There was a huge *ovoo*⁹⁰ on the steppe in the south of Javkhlant *bagh* and it still is there....Each soldier brought a rock and put them on the steppe, building the *ovoo*. It is a huge *ovoo* that marked the victory. But I don't know if it really happened. The soldiers went back to the government and told them that there was this big river that quenched their thirst, saving many lives. The government had a worshipping ceremony performed for the river every year and offered silver *yembuu* [bullion] to the river. One time, a messenger was greedy and took the silver. He did not offer the *yembuu* to the river. Then, the river water disappeared and stopped flowing. (interview 2012)

⁹⁰ Ovoos are stone cairns placed at mountain passes and other sacred sites where offerings are made.

Similar to other stories I was told, she describes myths about the interconnections between rocks, minerals, and water resources as sources of local and national lore. Moreover, she says that the Mongolian state sought to protect the river because of its role in saving the lives of the soldiers and their horses. Although she does not specifically mention the river as sacred or inhabited by water spirits (*lus*), the contrast between respect and greed in the story illustrates how she sees an erosion of the national ethos of environmental protection due to mining activities and the state's new priorities. In Oyu Tolgoi's Cultural Heritage Program (Gunchinsuren *et al.* 2011), the Undai is mentioned in reference to hideaways used by traders, mercenaries, and guards who were charged with preventing Chinese from polluting the river. Combined, these stories rescale the Undai as part of the national waterscape (Alatout 2008; Harris and Alatout 2010), tying the river to national values of protecting nature as well as a long history of trade with and animosity towards China (see Bulag 1998, 2002). Thus local residents articulate local resources as national to challenge the abstraction of water into a necessity of economic development while reframing water within local contexts to make waters more visible not only to domestic, but also international actors (see Linton 2010).

Similar to the Gunii Hooloi aquifer construction, local residents argue that the company began diverting the Undai without local permission. Gobi Soil, a local NGO in cooperation with OT Watch, an Ulaanbaatar-based NGO, together submitted a complaint to the International Finance Corporation (IFC) and the Multilateral and Investment Guarantee Agency (MIGA) Compliance Advisor and Ombudsman (CAO) on behalf of protesting herders.⁹¹ During the

⁹¹ The IFC, the lending arm of the World Bank, signed off on a loan package for Oyu Tolgoi in 2013 worth over US\$1 billion. The CAO is an independent mechanism that attempts to:

- Address the concerns of individuals or communities affected by IFC/MIGA projects
- Enhance the social and environmental outcomes of IFC/MIGA projects; and
- Foster greater public accountability of IFC and MIGA (see <http://www.cao-ombudsman.org/about/whoweare/index.html>)

mediation process, the CAO identifies the sources of the complaint and stakeholders' shared interests.⁹² The CAO coordinates to resolve the complaints, which could alter how Oyu Tolgoi manages water resources and how the state facilitates mining interests by overriding local claims to the nation's nature. Moreover, the involvement of the CAO illustrates how a supranational actor participates in nation-building and claims to be an independent actor even though the CAO is part of the World Bank, an institution that represents the interests of capital as a lender for nation-building projects such as Oyu Tolgoi. Thus the proliferation of nation-building actors in Mongolia includes supranational actors with power over not only Oyu Tolgoi, but also the power to transform the Mongolian state into the neoliberal actor that it is today, as suggested in the previous chapter (Rossabi 2005; see Peck and Tickell 2002).

The NGOs first filed the complaint about the Undai diversion in October 2012 before construction began and a second complaint in February 2013 after construction began.⁹³ The 2013 complaint details how nomadic herders living near the Undai River are concerned that the diversion plan will deteriorate surrounding pasture and may result in over twenty families losing their livelihoods. The complaint also cites the significance of the river stating "we local herders worship, love and protect the river as sacred because the river saved lives of Chingis Khaan's soldiers with its waters" (Gobi Soil 2013, 2). Citing Chingis Khaan evokes the national significance of the river, referencing the story I cited above about the silver offerings. The herders also claim that they had not been "properly informed and consented about [Oyu Tolgoi's] activities and potential negative impacts" during the exploration stage that began in 2002 and the construction phase that began in 2006 (Gobi Soil 2013, 3). Although the herders

⁹² See also Szablowski 2002 for a discussion of the CAO complaint procedures related to displacement and resettlement.

⁹³ See <http://www.unuudur.com/?p=24818> and Gobi Soil 2013.

have approached the company and government with their concerns, they state that no one “has stood out to help us and protect our interests and rights” (Gobi Soil 2013, 3). Thus, the complaint encapsulates many claims to alternative visions of the nation, including re-scaling the river as national (Alatout 2008; Harris and Alatout 2010), the reconfiguration of the state to promote the interests of corporations (Peck and Tickell 2002; Heynen *et al.* 2007), abstracting water from its local and national cultural and historical contexts (see Bakker 2010; Linton 2010; Dallman *et al.* 2013). The herders evoke previous state institutions that favored environmental protection to sustain Mongolia, in part, as a nation of nomadic herders. However, rather than evoking the past as a way to articulate a modern future (Anderson 1983/2006; Coronil 1997; Mitchell 2002; Kaïka 2006; see also chapter 3), herders reference the past as a means to assert a pre-existing vision that values the conservation of water resources.

According to the CAO assessment report released in July 2013, “For the portion of the project to be constructed outside the mine license area, [Oyu Tolgoi] confirms that it needs approval by the local Governor and therefore has not started construction on this portion of the project” (8). As of winter 2014, the diversion of the main river channel was complete, but the final CAO decision was not due to be made until March 2014.⁹⁴ According to several NGO leaders, springs downstream from the river have dried out and herder wells have reduced water levels or are dried out completely (personal communications 2013, 2014). Yet according to one Gobi-based NGO leader, the IFC has done nothing to improve the situation and the herders do not believe that the complaint will bring any positive changes (personal communication 2014). Local actors experience frustration and disempowerment and express distrust in the mining company (see Bebbington and Williams 2008; Horowitz 2011; Barber and Jackson 2013), but

⁹⁴ A draft version was released in spring 2014, but it has not yet been agreed upon by all stakeholders.

they also a lack of trust in state and international institutions. Thus, corporate interests appear to dominate nation-building efforts at multiple scales (see Peck and Tickell 2002; Swyngedouw 2004; Bakker 2010).

While Oyu Tolgoi and state officials mark the mine as a national resource that warrants the redirection of water, nomadic herders claim that the Undai River diversion will destroy a pre-existing national waterscape. Moreover, what the story about the soldiers and the values that it represents suggest is a national ethos that promotes living alongside the environment rather than conquering nature through water infrastructure (see Kaika 2006). Many herders envision a continuation of a different kind of modern nation that is perceived to conserve water resources. Contestations over the Undai and Gunii Hooloi pipelines reveal underlying tensions over how mining radically transforms not only the physical landscape, but also what kind of nation water infrastructure builds. Moreover, the examples illustrate how Oyu Tolgoi's water infrastructure rescales and abstracts water into a national economic good that simultaneously excludes local residents from the promises of nation-building.

Conclusion

The examples of Gunii Hooloi and the Undai River demonstrate how Oyu Tolgoi's water infrastructure redirects water from pre-existing visions of the nation, constructed well by well over centuries to extend the pasture. Examining local struggles over water access and infrastructure development provides insights into national debates over scarcity in Mongolia (see Upton 2009) as well as a "more dispersed, situated view of nation-building" that moves analysis away from the designers, to consider how "new possibilities for local histories, the landscape, and individuals living in these areas...play into the broader narratives of modernization" (Biggs

2010, 156–7). While nation-building is often conceived of as a state-driven activity (Penrose and Mole 2008), the corporate interface is central to the production of the vision and implementation of Mongolia as a mineral nation (see Coronil 1997; Swyngedouw 2007; Biggs 2010). At the same time, we see new roles for local actors and non-state institutions to participate in nation-building. By examining corporate involvement in nation-building, this chapter bridges a major gap between nation-building and neoliberalism in the critical literature on water.

While water infrastructure construction for mining provides some local water access, it is built specifically for mining and not for urban or herder use. Once mining operations are complete, the Gunii Hooloi and Undai River pipelines will no longer serve any purpose for local residents. While the herding and *soum* well infrastructure was intended to increase pasture availability, productivity, and resiliency, Oyu Tolgoi's pipelines represent a nation-building vision that dominates and extracts nature within a specific period of time, which is perceived to be relatively short compared to the longevity and sustainability of nomadic herding. Thus redirecting water flows to build the mineral nation come at the cost of other activities and environments that rely on well water and pasture. The temporary purpose of the water infrastructure thus suggests the teleology of nation-building through mining comes at the cost of local livelihoods. In the future, further research may provide new insights into the ability of herding economies to adapt to the water infrastructure for mining, not only near Oyu Tolgoi, but also throughout the region and Mongolia. Government plans to redirect larger water flows from the Orhon River in central Mongolia to South Gobi *aimag*, for example, suggest broader implications for mining on national water resources.

The Mongolian state granted permission to Oyu Tolgoi to divert water flows to facilitate mining, which local residents perceive to be a violation of their rights to water resources and

rights to make decisions about local resources. Both the democratic rights of residents as well as their cultural rights to water have been abstracted by the state and company into a singular national vision of development (see Linton 2010), which critics argue strips herders of their right to follow traditional livelihoods. Moreover, state institutions facilitate the flow of water towards mining, which is often perceived to be at the expense of local populations. Through the strategic deposit classification, state institutions extend to Oyu Tolgoi special rights over water resources and landscape transformations. The failure to secure local permission to build the Gunii Hooloi and Undai River pipeline illustrates how the central state extends power over local governing bodies to facilitate interests of non-state actors rather than to provide direct services to citizens (Peck and Tickell 2002), which was a central purpose of 20th Century nation-building water infrastructure projects (Kaika 2006; Bakker 2010). However, if President Elbegdorj's proposed new Minerals Laws that includes water bodies as strategic deposits are enacted, this may change how state institutions facilitate water access for mining companies, but is as yet unknowable.

While discourses of strategic and national interest facilitate institutional changes, local populations evoke the draining of water resources as a means to challenge visions of mining as a nation-building project. The discourses that contest mining development draw on Mongolia's past and its leaders who sought to build the nation by extending the pasture. With the dearth of critical scholarship in English on water in Mongolia (Upton 2009; Hawkins and Seager 2010), more research is vital to document and assess how the mining boom changes relationships with nature to reveal anxieties over the nation's future due to drained water resources.

What this chapter illustrates is how water is a lens through which to examine tensions over contested visions of Mongolia as a modern nation. The pre-existing vision saw the institutionalization and expansion of a national herding and *soum* well system during the 20th

Century. While Mongolia received assistance from the Soviet Union to construct the landscape, the *negdel* and *soum* waterscape built upon existing values and systems that maintained a national ethos of environmental protection (see Sneath 2010; Upton 2009). While Oyu Tolgoi has conducted research on local perceptions of water and tangible and intangible heritage, mining infrastructure such as the Gunnii Hooloi aquifer pipeline and the Undai River diversion disconnect water flows from cultural, social, and ecological contexts and channel abstracted, commoditized water resources into a singular national vision of development. Ultimately, what these pipelines demonstrate is a new political geography of water in Mongolia, where the nature of the nation is channeled, redirected, and restricted to produce the minerals that promise to drive the nation into a new era of prosperity. In the next chapter, I explore how dust further highlights anxieties over the material transformation of Mongolia into a mineral nation.

CHAPTER 5: Dust

Before the mining boom began, herders say the Gobi was clear and endless. But now, a fine dust coats the pasture, particularly near South Gobi province's unpaved mining roads. As mineral export and supply trucks track across the pasture, the desert soil is ground to a powder. Dust plumes rise behind trucks, momentarily blinding drivers and any nearby herders, livestock, or wildlife. Everyone coughs—a symptom of “dust filled lungs” (uushig toosjikh). When livestock are slaughtered, their internal organs are choked with dust, discolored, and plastic in texture. Herders now throw away the organs and wonder what is happening to their own kidneys, livers, lungs, stomachs, and hearts. Dust encloses the pasture up to several kilometers from each unpaved road, forcing families to shrink livestock herds as the amount of food the herd can provide decreases with each discarded organ. As lines of dust cut across the pasture, unease about the direction of the nation circulates. Responsibility for paving the roads remains unsettled, and dust clouds the promise that mining will rebuild the nation.
—Fieldwork observations from 2011, 2012

Throughout Mongolia, patterns of interweaving unpaved roads and natural tracks are common. The unpaved roads fragment pasture and habitat, compact the soil, increase water runoff, and remove surface soil, processes that scholars and herders argue harm Mongolia's nomadic herding economy and wildlife (Sneath 2003b; Batjargal *et al.* 2006; Li *et al.* 2006; Damdinsuren *et al.* 2008; Keshkamat *et al.* 2012; Pedersen and Bunkenborg 2012; Keshkamat *et al.* 2013). However, how people experience road dust, particularly from mining roads in South Gobi, is absent from the scholarly literature on roads, including the literature that focuses on Mongolia. Hence, this literature overlooks what I describe in the italicized paragraph above—the consequences of dust from the development of unregulated mining roads in Mongolia's South Gobi *aimag* (province). While state and mining company officials at times argue dust is a sign of development, no one denies the profound effects of dust on the lives of people and animals living in mine-affected areas at the heart of the nation's mining boom in South Gobi *aimag*. As roads penetrate and permeate Mongolia to facilitate mining development, soil is pulverized into dust that penetrates and permeates the lives of residents of South Gobi *aimag*'s mining-affected areas.

In this chapter, I argue that although mining development promises progress, mining roads produce dust, an undesirable by-product that challenges the legitimacy of mining as a nation-building project. The road dust excludes local residents from the promises of a nation renewed through mining as the dust infiltrates their daily lives. Pedersen and Bunkenborg (2012) have explored how mining roads in eastern Mongolia act as “technologies of distantiation” that disconnect local residents from Chinese oil company employees, but I demonstrate how the materiality of the roads, namely dust, brings local residents into intimate contact with the political and economic processes that drive Mongolia’s mining boom. At the same time, road dust disconnects affected residents from the promises of nation-building. The key contribution of this chapter is to explore how dust as a specific kind of materiality of roads challenges the legitimacy of mining as a nation-building project. The dusty roads in South Gobi *aimag* thus present a compelling lens to examine broader tensions over mining infrastructure development and nation-building. Unlike the two previous chapters, this chapter does not focus exclusively on the Oyu Tolgoi copper-gold mine, but expands out to include Oyu Tolgoi, Tavan Tolgoi and the multitude of mining roads that crisscross the region. Although multiple mines operate in the region, Oyu Tolgoi draws the most national and international attention, particularly when it appears to fall short of its promises to bring development to Mongolia and mining-affected *soums* in South Gobi *aimag*.

I begin with a review of the literature on roads as nation-building projects and the literature on dust to frame the theoretical and empirical contributions of this chapter. Next, I discuss road building in Mongolia since the early 1990s and current debates about how contested responsibility for paving mining roads in South Gobi produces dust. Then, I discuss the local

effects of dust, including how dust shapes memories of the past, daily tasks, and the health of people and livestock, threatening the legitimacy of mining as a nation-building project.

Mining Roads, Nation-Building, and Dust

In the first chapter of *Speed and Politics*, Virilio (1977/2006, 30) asks, “Can asphalt be a political territory?” Because the materiality of roads is at the center of debates about how transportation infrastructure for mining development affects local populations in South Gobi and the legitimacy of mining as a nation-building project, Virilio’s question is a useful starting point to consider the politics of roads, including relationships between states, the nation, and external actors. While my focus is on roads as nation-building projects rather than territory per se, Virilio’s question highlights two major themes in the literature: 1) How road building extends state power to unify the nation and 2) How the materiality of roads shapes perceptions of belonging to the nation. Furthermore, as I discuss, because roads are an upfront cost of mining with diminishing returns (Barham and Coomes 2005; Bunker and Ciccantell 2005), paved roads should not be taken for granted as infrastructure that facilitates speed and legitimizes the state and nation-building. To understand how the materiality of mining road dust threatens nation-building, I briefly explore how mining roads challenge assumptions of nation-building through roads. Then, I examine literature on the power of dust to disrupt the promises of nation-building.

Road Building and the Materiality of Nation-Building

People’s relationships to roads both reproduce and challenge the omnipresent state power that Virilio (1977/2006) describes as the delimiting politics of highways (see Merriman 2004).

As Dalakoglou (2010) convincingly argues, the literature on roads over the last decade challenges contentions of Virilio (1977/2006) and other critics of modernity⁹⁵ that highways are solely spaces of control, domination, and homogenous “non-places.” While scholars continue to critique how roads render spaces and populations visible and subject to greater state control (Scott 1998; Thevenot 2002; Williamson 2003; Wilson 2004), they also examine how people perceive and relate to roads as drivers (Edensor 2004; Merriman 2004) and as residents both connected (Dalakoglou 2010, 2012; Williamson 2003) *and* disconnected from centralized states (Campbell 2012; Harvey and Knox 2012; Harvey 2005; Wilson 2004; Thomas 2002).

Harvey and Knox (2012, 523) propose that road building in Peru embodies three promises of modernity: “speed and connectivity,” political freedom, and economic prosperity. The three promises create a vision of improved state space through daily interactions with roads. But their critique of the three promises strikes at the heart of Virillio’s question. They argue that the materiality of unpaved and unfinished roads in Peru simultaneously reveals how confidence in the state diminishes while at the same time the desire for the promises of roads remains constant (see also Harvey 2005; Harvey and Knox 2008). Nevertheless, Harvey and Knox (2008) fail to fully explore the role of the nation and specifically road building projects as part of larger nation-building strategies and contestations over the direction of the nation. However, Kezer (2009, 514) argues that “infrastructural projects are concrete expressions of power,” drawing peripheral regions into the state’s field of vision and the nation itself. Roads also make resources more accessible, complementing processes that “geologize” the nation to encourage mining development (Braun 2000). Moreover, as Campbell (2012, 496) argues, “roads achieve the appearance of always having been so” and serve as symbols of state and national triumph over

⁹⁵ Such as Lefebvre, Harvey, and Augé (see Merriman 2004).

distance and disconnection with a kind of “history making power.” Here, Campbell suggests how roads as expressions of power symbolically reproduce the nation as timeless, which in the case of mining roads connects mineral extraction to the teleology of national progress and development. Hence, according to state planners, roads represent promises to transform the nation, fulfilling desires for connectivity and inclusion in nation-building (Harvey 2005; Waters 1998, 2006; Harvey and Knox 2008, 2012). However, memories of landscapes before roads and the disruptions caused by building roads may remain in the collective conscious of residents and passed on through stories and recollections of life before mining. As I discuss further below, the production of dust from roads can create temporal and physical boundaries to the connectivity and inclusion that nation-building promises.

Scholars also look beyond how roads create a sense of familiar national space to consider how transportation infrastructure enrolls frontier and peripheral regions into the national economy and global networks of capital (Thenevot 2002; Thomas 2002; Wilson 2004; Harvey 2005; Nyíri and Breidenbach 2008; Knox and Harvey 2011; Campbell 2012; see also Kezer 2009). External actors, such as the World Bank, use loans to encourage governments to increase commodity flows and population services in peripheral regions (Thenevot 2002; Dalakoglou 2010; Knox and Harvey 2011). Yet this system of loans reproduces power asymmetries within the nation and global economy (Wilson 2004; Dalakoglou 2010), particularly as mining roads are built largely for export rather than to connect the country.

Thevenot (2002, 8) who asks, “What counts, or should count, as a ‘good road’ and what is the reality of such a road?” Knox and Harvey (2011, 143) argue, “Good roads promote a sense of enhanced security and appear to materialize a kind of liberal social ordering.” Yet, when roads are unfinished, unpaved, muddy, or dusty, the spatial metaphors of unity, belonging, and

development that roads are intended to communicate begin to crumble and decay (Campbell 2012; Harvey 2005; Thomas 2002). The conditions of roads, part of their materiality, contribute to discontinuous and uneven travel experiences as well as disconnections and miscommunications between the state and nation (Harvey 2005). Thus while smooth road journeys create the impression of an unmediated state presence and national inclusion (Edensor 2004; Williamson 2003), bumpy journeys remind travelers of the limits of the state's reach (Harvey 2005) and are "a tangible reminder of its false promises" (Thomas 2002, 380; see also Harvey and Knox 2012). Similar to Harvey's (2005, 126) bumpy mountain roads in Peru, as I show below, South Gobi's dusty (and bumpy) mining roads "reveal the weakness of the national communication infrastructure and the very limited possibilities for the exercise of political control by a centralized administration" and how "state control of the roads is far from absolute."

Virilio (1977/2006) argues that paved roads promise progress and simultaneously threaten to ruin progress (see also Harvey and Knox 2012; Knox and Harvey 2011; Williamson 2003) and the potential for deadly accidents is one sign of this false promise along South Gobi's major mining routes. However, the dust from mining roads also damages local ecologies and livelihoods, threatening alternative visions of the nation that existed before the mining boom (see chapter 3 and 4). Dusty roads thus symbolize how infrastructure channels and delimits not only governance regimes (Hannah 2000) and regional economic activities in the future (Barham and Coomes 2005), but also the meaning and direction of the nation.

Bunker and Ciccantell (2005) illustrate how mining infrastructure exemplifies the contradictions of progress that Virilio argues that roads, and I argue its dust, represent. Through a history of trade-dominant nations, Bunker and Ciccantell (2005) describe how extractive industries' transportation infrastructures contradict the promises of progress through mining

development. They argue that as global mining industries' economies of scale increase, so do "diseconomies of space." As countries and corporations seek resources in peripheral regions, new transportation technologies are required to move larger amounts of material around the world at faster and faster rates. Bunker and Ciccantell (2005) contribute speed and transportation to O'Connor's (1998) conceptualization of the second contradiction of capitalism—which can be understood via the concept of "metabolic rift." A metabolic rift occurs when a society exhausts its own local supply of resources such as fertilizer, fisheries, or copper and must seek new sources to continue to grow its industries; while at the same time wastes accumulate creating toxic environments (see Foster 1999; Moore 2000; Clausen and Clark 2005).⁹⁶ Thus transportation technology not only maintains and extends circuits of capital, but also facilitates the destruction of environments that provide the raw materials for development and that could absorb the unwanted by-products of modernity.

States collaborate with private companies to build transportation infrastructure for mining, which serves competitive interests to expand mining industries in an area (see Girvan 1976). However, while state and private interests benefit from road development these interests do not "wish to assume the costs of building the necessary infrastructure" (Bunker and Ciccantell 2005, 14-15). Over time, mining becomes more expensive as resources are depleted (O'Connor 1998; Bunker 1984). Thus companies and states often decide to forgo upfront capital investments in transportation infrastructure where physically possible (Barham and Coomes 2005). As I

⁹⁶ Foster (1999) explains the metabolic rift through the demands for more agricultural products in England as cities were industrializing. When agricultural products left rural areas, the wastes that once fertilized the fields were removed. To improve soil fertility, England began importing guano from Peru; Chilean nitrates replaced the guano when supplies were exhausted. Despite technological innovations to synthesize fertilizers, phosphate mining continues to expand across the globe, leading to environmental devastation in Nauru and shelved proposals to mine phosphate in and around Mongolia's Lake Khuvsgul.

discuss, local residents living in dustier and dustier environments pay the price for state and corporate attitudes towards transportation infrastructure development.

The materiality of South Gobi's mining-related transportation infrastructure contradicts assumptions that road building connects and unifies the nation in several ways, revealing how dust challenges the legitimacy of mining as a nation-building project. First, road infrastructure for mining is not designed to increase the connectivity of the nation, only the connection of the nation's resources to markets. Whereas paved roads symbolize nation-building promises of connectivity, political freedom, and economic prosperity (Harvey and Knox 2012), unpaved dusty mining roads in South Gobi delegitimize these promises. Second, unpaved mining roads do not represent the nation as a timeless entity. Because mining companies and the state are keenly aware of commodity market volatility and because of the relatively flat, dry terrain of South Gobi, there are disincentives to create permanent transportation infrastructure. Thus people living in mining-affected areas see dust as a contradiction to nation-building promises that reproduce inclusive visions of mining as a nation-building project. Third, unpaved mining roads represent larger processes within the global economy to increase the pace of mineral exports without large upfront capital investments, which if required may not be recoverable when commodity prices fall. At the same time, the dusty roads delegitimize mining as a nation-building project and signal the legitimacy of the state's ongoing disinvestment in Mongolia's public infrastructure. The inability of the state and mining companies to come to an agreement over road infrastructure development highlights this tension between the role of the state and external actors in nation-building explored throughout this dissertation. Thus the roads represent a short-term rather than long-term investment in both regional and economic development,

limiting incentives to pave the roads as local residents' experiences with dust delegitimize the promises of nation-building.

While this chapter complements Bunker and Ciccantell's (2005) theoretical insights on transportation and mining infrastructure, it also pushes us to question the experience of the materiality of roads. Although Pedersen and Bunkenborg (2012) show how mining roads in Mongolia create social distance, in this chapter I show how the materiality and multiplicity of these roads bring mining into intimate contact with people's daily lives, challenging the legitimacy of nation-building. To better understand this intimate relationship with the mining boom, I now turn to the literature on dust that explores the power of the miniscule to reveal tensions over the future of the nation.

Materiality and Meaning of Dust

The existing literature on roads does not address how dust is a by-product of modernity that challenges the ideals of nation-building, specifically development and progress (Worster 1979/2004; Amato 2000; Fine and Hallett 2003; Dunham 2004; Kennedy 2005). Drawing from interdisciplinary fields, scholars conceptualize dust as a vector through which challenges to development materialize (Worster 1979/2004; Amato 2000; Fine and Hallett 2003; Dunham 2004; Kennedy 2005; Cook *et al.* 2011). They conceptualize dust as a necessary by-product of modernity that can best be understood through definitions of dust, how dust marks boundaries, and how dust physically and symbolically invades spaces.

In his seminal work on the Dust Bowl, Worster (1979/2004) argues that we can understand the power of dust not only through its effects on people's lives and the economy of the southern Great Plains of the United States during the 1930s, but also through its challenge to

national ideals of progress and development. Soil, strip-mined of its nutrients by wheat farms, exposed a fundamental flaw of an American culture that sees nature as capital to be exploited for personal gain. As Berman (1983) argues, this view of nature is a failing not just of American culture, but also of Western ideals of modernism and modernization processes that create through destruction. Thus, Worster illustrates how Berman's maelstrom of modernity can take the form of a dust storm, challenging how a nation sees itself, technology, and nature in the face of catastrophic environmental change. While these questions of modernity shape dust in the Gobi desert, the Gobi dust literature focuses on scientific analyses of the origins and global reach of dust (Natsagdorj *et al.* 2003; Chung *et al.* 2005; Zhang *et al.* 2008; Lee and Sohn 2011; Lee *et al.* 2012). Scholars often characterize China's land use policies and overgrazing⁹⁷ in Mongolia as key sources of Gobi desertification and dust storms (Natsagdorj *et al.* 2003; Batjargal *et al.* 2006; Zhang *et al.* 2008; Lee and Sohn 2011; see also Liu *et al.* 2013), but the literature neglects the *experience* of dust that Worster (1979/2004) argues defines how dust challenges ideals of development. Thus, this chapter makes an important empirical contribution to how we understand Gobi dust, not only as a global phenomenon, but also how dust affects Gobi residents daily lives and relationship to mining as a nation-building project. Furthermore, the effects of mining development are only beginning to enter conversations about the origins, movement, measurement, and toxicity of Gobi dust storms as a regional and global issue (Bonilla and Neeti 2013).⁹⁸ Hence, Gobi dust and the development of mining and related transportation infrastructure remains a relatively unexplored research avenue.

⁹⁷ Overgrazing and its relationship to desertification, winter hazards called *zud*, and the "age of the market" in Mongolia are subject to debate among scholars. See Sternberg *et al.* 2009; Marin 2010; Addison *et al.* 2012; Sternberg 2010, 2012.

⁹⁸ See Mandal *et al.* 2012 for a discussion of road dust suppression techniques around coal mining areas in India.

While dust storms may evoke an all-consuming and even apocalyptic vision of modernity (Amato 2000), scholars also examine the everyday experiences of dust that shape perceptions of development, suggesting the power of road dust to threaten the legitimacy of nation-building projects (Fine and Hallett 2003; Kennedy 2005). The more mundane aspects of dust are particularly significant for this study because while unpaved mining roads may contribute to dust storms that negatively affect local residents (Bonilla and Neeti 2013), respondents focused on daily movements of trucks that cut across pastures, generating plumes of dust. However, on a smaller scale, road dust is a common occurrence in Mongolia. For example, one of the most popular Mongolian-English dictionaries illustrates the ordinariness of road dust. A sentence explaining the meaning of dust (*toos*) includes “the car raised clouds of dust as it went down the dirt road” (*mashin shoroon zamaar oronguutaa toos manargav*) (Altangerel 2002, 231). This contrast of a “to raise clouds of dust” (*toos manargakh*) with a “dirt road” (*shoroon zamaar*) also highlights a key discussion in the literature on how to define dust.

Scholars differentiate definitions of dirt and dust through indoor and outdoor spaces. They draw from Douglas’s (1966, 2) contention that “dirt is essentially disorder” to argue that attempts to purge dust from indoor spaces symbolize modern ideals of cleanliness and visibility (Amato 2000; Fine and Hallett 2003; Kennedy; see also Scott 1998; Mitchell 1988; Foucault 1995). Outdoor spaces, however, require different distinctions between dirt and dust. Amato (2000) argues that dirt represents fertility, while dust represents sterility. Furthermore, dirt in its kinship to earth and soil suggests rootedness in place. However, dust moves. Dust is airborne, easily blown by the wind. In both indoor and outdoor spaces, the very act of sweeping redistributes dust, making it something that can never be fully controlled or contained, no matter what technological solutions are implemented (Amato 2000; Fine and Hallett 2003; Dunham

2004; Tanner 2006). While dirt carries an affectation of naturalness, dust is an undesirable by-product of modern technology and aesthetics (Kennedy 2005). In South Gobi, definitions of dust as moving freely in the air and dirt as rooted in the earth are interlinked with perceptions of pasture health and the economic survival of nomadic herders. For example, one of the herder-led NGOs involved in protesting against environmental impacts in the region is called *Gobi Gazar*, translated as “Gobi Soil” in English (see Minewatch.mn 2013).⁹⁹ Thus the name of the NGO reflects the aim of the herders: a regional claim and responsibility to protect the soil from mining impacts.¹⁰⁰

Amato (2000) argues that there is not only a definitional difference between dust and dirt, but also that dusts have different qualities, erecting boundaries that mark time and belonging. Cosmic dusts suggest the origins of the universe, cosmologies of dust suggest boundaries between life and death, and glacial dusts can define distinct climate change events and geologic eras (Holmes 2001; Broecker 2002; Dunham 2004). However, dusts also mark cultural changes (Fine and Hallett 2003). Amato (2000) argues that the Industrial Revolution’s dusts represented a movement towards a cleaner future. For example, “It increasingly became the soot, ash, and smoke that early industrialists declared signs of progress, rather than the soil and pollen of ages past” (Amato 2000, 89-90). The character or quality of dust marks cultural change, as well as something that modern science began to identify as innocuous or dangerous, tolerable or intolerable. Building on Amato, Fine and Hallett (2003) explore how the social meanings of dusts shape gender relations, along with political economic, and national boundaries. Thus, going back to Douglas’s (1966) argument that dirt symbolizes disorder, Fine and Hallett (2003)

⁹⁹ *Gazar* can also be translated as place, land, or earth. The word for geography in Mongolian is *gazarzuin*, and a geographer is a *gazarzuich*.

¹⁰⁰ The NGO also formed to protect water resources. See chapter 3.

contend that women's roles became defined by the presence of dust in the modern home, that dust defined social classes in industrial cities, and that cleanliness became a national symbol for "American" and dirtiness a symbol of "undesirable" others, including racialized groups (particularly immigrants) and hippies (see also Dunham 2004). Unfortunately, Fine and Hallett blur distinctions between dust and dirt. However, read together with Amato (2000) and Worster (1979/2004), Fine and Hallett's (2003) arguments clarify the meaning of dust at multiple scales from the home, to industrial cities, to the nation. Dust moves almost effortlessly between scales, while it forms boundaries between social groups and places. In South Gobi, dusts rising behind herds of livestock and wildlife, soot from stoves, fluff from sheered sheep and camels, and snuff are categories of dust that for local residents are distinct from the mining road dusts that erect boundaries between the herding economy and mining development in the area.

The fineness of road dust also produces anxiety as it invades intimate spaces symbolically and materially from the home to food to bodies. Kennedy (2005, 2-3) argues that dust, as a by-product of modernity, threatens to erase or at least to contaminate domestic spaces as a "paradoxical 'invasion' from within." It is the unknown quality of dust that makes it threatening (see also Amato 2000). However, as Worster (1979/2004) contends, the threat of the Dust Bowl was its power to overwhelm not only the environment and domestic duties (see also Weller 1995), but also penetrate bodies. "Dust pneumonia" and suffocated livestock were symptoms of this invasion, not unlike the silicosis that the literature on mining dusts examines (see Hart 1998; Kinnear 2001; Penrose 2011). Amato (2000) and Tanner (2006) explore the British national sanitization campaigns that attempted to reduce the health effects of dust. The dusts of development are thus considered national, which as the literature on the movement and extent of Gobi dusts illustrates is far from the truth (see Natsagdorj *et al.* 2003; Chung *et al.*

2005; Zhang *et al.* 2008; Lee and Sohn 2011; Lee *et al.* 2012). But in the case of South Gobi road dusts, what is so powerful is not only how dust blankets the pasture and invades homes and bodies, but also the symbolism of dust as a *foreign* invading force. Dust not only evokes nostalgia for a less dusty past and creates more housework, but also penetrates bodies, causing illnesses among people and livestock. Thus dust, according to local residents, threatens the health of the nation, including food sources and the resiliency of the herding economy in the face of mining development. Invasion extends beyond the symbolism of roads that move the nation's mineral wealth abroad. Dust represents a by-product of global circulations of foreign capital, the investment in the extraction of minerals, and neglect of permanent infrastructure development that invades peoples' most intimate spaces, as I will discuss in the coming sections.

As a by-product of modernity, dust resists fixity, exposes, and subverts order (Dunham 2004) to challenge how we see the promises of nation-building. The dust literature conceptualizes how mining trucks pulverize the nation's soil into something abstract, invasive, and even foreign as it penetrates daily spaces of memory, activity, and health. This chapter contributes an in-depth exploration of the invasive character of road dust as a particular kind of dust that not only disrupts daily lives, but also threatens the legitimacy of mining as a nation-building project. As the remainder of this chapter illustrates, dust from unpaved mining roads is a vector that produces ongoing tensions over the future and direction of the nation as mining development expands.

Unpaved Roads



Figure 14 The photo on the left shows interweaving unpaved lattice roads in central Mongolia. The photo on the right shows an eroded paved road in central Mongolia. Photos taken in 2009 by the author.

Unpaved roads are a national development issue throughout Mongolia that has grown in significance. Increasing mining truck traffic produces greater quantities of dust, which in turn affects pasture health. Moreover, the recent history of Mongolian road development illustrates the broader political economic transformations that the country has undergone (or not) to enter the global economy as a major mineral-exporting nation. After the end of the socialist era in 1990, road building expanded throughout Mongolia. Road construction companies were privatized, and from 1992 to 2009, the total length of paved roads increased from 1,250 km to 2,830 km (ADB 2011). Since 2005, the Asian Development Bank and the World Bank have supported the Mongolian government's building of "a formal system of paved roads across the country as a means of social and economic connectivity for its people" (Keshkamat *et al.* 2013, 435). The state, supported by international institutions, has sought to increase national mobility and connectivity to deepen the expansion of the market economy throughout Mongolia. Thus the state supports a post-socialist vision of the national economy intertwined with global markets

through transportation infrastructure (see Thenevot 2002; Dalakoglou 2010; Knox and Harvey 2011).

However, paving Mongolia's roads is a slow and expensive process. After almost 20 years of increased road building activity, by 2009, only 5.4 percent of Mongolia's road infrastructure was paved. Most of the paved roads are in Ulaanbaatar or extensions of the national highway network north to the mining town of Erdenet and the Russian border, west towards Tsetserleg, east towards Choibalsan, and south, stopping at the town of Choir, which is about halfway between Ulaanbaatar and the Chinese border. Although the Mongolian government began paving the Millennium Road that would connect the county east to west to decrease land degradation, the road remains incomplete (see also Batjargal *et al.* 2006; Sneath 2003). In South Gobi, with the exception of Energy Resources' toll road from Tsogtsetsii *soum* to the Chinese border, completed in 2011, there are no paved roads, despite the increase in mineral exports (particularly coal) since the early 2000s. For over a decade, mineral-laden trucks have been driving across the Gobi each day on unpaved and often unimproved natural track roads. Thus, every wake of dust raises the question of whether roads bring development to mining-affected areas (Bunker and Ciccantell 2005; Harvey and Knox 2012; see also Virilio 1977/2006).

Despite increasing trade with China in areas disconnected from the railroad head at Zamiin Uud, mining roads remain incidental in the state's road-paving plans. The Mongolian national transportation development strategy calls for 11,000 km of roads to be paved by 2021 to connect the provincial centers to each other and to the Russian and Chinese borders. A feasibility study of over 8,000 km of roads slated to be paved has been conducted (Bayarkhuul 2011). The project entails a 400 percent increase in the length of Mongolia's paved national highway

system, with an estimated cost of US \$1.9 billion (ADB 2011).¹⁰¹ Nonetheless, the Asian Development Bank (2011) argues that this plan is overly ambitious due to the state's neglect of Mongolia's deteriorating road infrastructure. Many of the nation's paved roads are in need of repair, as only 20 percent of needed road repairs are being made due to limited budgets (less than 0.2 percent of GDP) and human resources (ADB 2011). Furthermore, according to the government, the roads for mineral exports must be paved and maintained by the mining companies, as coal-exporting trucks are not permitted on the national highway system that the government plans to pave (Bayarkhuul 2011). However, the state does allow copper exports¹⁰² on national highways, and Oyu Tolgoi's export road is an extension of the national highway system, although it remains unpaved at the time of writing. The state does not directly integrate planning for mining transportation into its national road-building strategy and leaves transportation infrastructure development to the mining companies. This suggests that the state does not value mining roads as symbols of progress and connection that passenger vehicle roads represent (Campbell 2012; Harvey and Knox 2012). Moreover, the dependence on private companies to pave roads demonstrates a retreat, rather than an extension, of state power through South Gobi's mining roads. The state out-sources and privatizes nation-building to corporations, which themselves outsource infrastructure construction to contractors. The state's hands-off approach to mining-related transportation infrastructure demonstrates a disinclination to make investments with diminishing returns (Barham and Coomes 2005; Bunker and Ciccantell 2005).

International financial institutions are also involved in the development of Mongolia's transportation network. The World Bank and Asian Development Bank have made Mongolia's

¹⁰¹ According to a mining reclamation expert who traveled to South Gobi in summer 2013, the road from Ulaanbaatar to Dalanzadgad is being paved, but the asphalt layer is only two inches thick and is already beginning to crack.

¹⁰² This includes copper concentrate, which has not undergone smelting to remove impurities (see Bridge 2000). Oyu Tolgoi has not built a smelter and exports the unrefined concentrate to China.

lack of paved roads and the potential for economic development and national integration through transportation infrastructure to deliver minerals to markets the subject of several reports (ADB 2011; WB 1999, 2009). Although railroads are recommended for the largest coal mines, the WB (1999) and the ADB (2011) argue that smaller mines will continue to rely on roads because their shipments are too small and short-lived to justify a railroad line financially. Therefore, the ADB (2011, vi) argues that “Mongolia’s road sector can be an engine of [prosperity and poverty reduction], depending on how fast it can adjust to a new context that requires it to perform more, better, and faster.” Thus building roads is framed as a nation-building project (see Dalakoglou 2010, 2012). However, not only does the road network itself need to be extended, but also the *quality* and *materiality* of the roads need to be improved to transport minerals to foreign markets and “to connect the country in a way that fosters broad-based economic growth” (ADB 2011, vi). Here, paved roads are discursively linked to the potential development of the nation’s economy as a whole and the integration of more peripheral areas of the country into the market economy (Kezer 2009; Campbell 2012; Harvey and Knox 2012). At the same time, the report argues that the state lacks capacity to achieve its road building goals. Thus suggesting that the state is unable to unify the nation and solve the challenges that increasing dust production pose to people living in mine-affected areas.

Therefore, to increase the mobility of Mongolia’s mineral resources, the ADB (2011) makes several recommendations for changes within government institutions and focuses on improvements in heavy traffic areas, particularly in South Gobi’s mining corridors. The report reproduces the assumption that external actors are willing to risk investing in mining-related transportation infrastructure. Although the strategy suggests government oversight of road

construction by private companies, the Asian Development Bank argues that the major South Gobi mines, such as Oyu Tolgoi and Tavan Tolgoi,

can generate sufficient revenues and traffic for the private sector to finance the construction and maintenance of access roads and rail links The role of the government is central to coordinating development, granting and monitoring road concessions, or constructing the roads and recovering the costs from the main users. (ADB 2011, 6)

The Asian Development Bank argues that the government should coordinate the building of roads in South Gobi, because the state lacks the capacity to pave roads itself and is thus unable to extend its power to unify the nation. The current focus on South Gobi's road infrastructure marks a strong departure from the World Bank's 1999 report, which suggested the possibility of a southwestern rail link from Tavan Tolgoi to Sainshand, but placed the highest priority on national integration and economic growth through road development in western Mongolia. Thus international institutions' infrastructure suggestions reflect broader changes in the national direction since the late 1990s when the mining boom and promise of national renewal were in their infancy (see Sneath 2003b, 2010; Rossabi 2005).

The Asian Development Bank's focus on building state capacity is also striking, considering the Bank's role during the 1990s in radical restructuring, including layoffs, in the government sector to pave the way for free-market reforms (Rossabi 2005). The lack of paved roads after Mongolia's first decade of capitalism was often described as a policy failure by international institutions. These institutions also funded consultants, conferences, and workshops to produce knowledge products that fueled environmental and development debates instead of financing much more costly infrastructure projects (Sneath 2010). The lack of institutional self-reflection by international agencies is evident in more recent reports. For example, the 2011 ADB report does not comment on its own role in decreasing government capacity in the 1990s.

Yet the ADB's recent recommendations to increase national budgets to improve road repairs and coordinate new development imply a role for the state in alleviating transportation issues—including dust. Nonetheless, despite international financial institutions' recommendations and the National Road Authority strategy, responsibility for road building and by extension nation-building remains contested.

Mining Road Construction Coordination

Notwithstanding calls to pave more of Mongolia's roads to facilitate national unity and economic growth, South Gobi *aimag* has witnessed an increase in the number of unpaved mining roads. The Landsat and photographs below suggest the dramatic changes that the roads have brought the landscape. In addition to the Oyu Tolgoi copper-gold mine in Khanbogd *soum*, multiple companies operate at the Tavan Tolgoi coal deposit in Tsogtsetsii *soum* and other nearby mines. Roads to the border include those to and from SouthGobi Sands coal, Kincora copper in Khanbogd *soum*, and Hunnu coal in Bayan Ovoo *soum*, among others (see figure 15). The problem with road dust relates to multiple mines and multiple roads that remain unpaved. At the heart of debates over who should pave the roads for mining development is a tension between state and corporate actors over responsibility for addressing the negative consequences of mining, and therefore nation-building. Bunker and Ciccantell (2005) argue that developing countries are often coerced into investing in transportation infrastructure to lure mining industries. In these situations, exporting countries assume the costs of infrastructure development, which weakens states' bargaining positions, decreases rents from extraction, and increases foreign debts while decreasing corporate costs (Bunker and Ciccantell 2005, 55). However, in Mongolia, the state has taken a different approach. According to the government,

each mining company is responsible for building its own transportation infrastructure (Bayarkhuul 2011). In eastern Mongolia, government officials told Pedersen and Bunkenborg (2012) that they wanted the Chinese oil company to pave its own roads. Similarly, in South Gobi, a retired Khanbogd *soum* official explained to me that because Rio Tinto will make billions of dollars of profits from Oyu Tolgoi, the company should be willing to pave more roads to reduce the amount of dust that local residents must tolerate. Although stakeholders agree that companies and the state should coordinate to reduce the number of unpaved mining roads across the desert, many political challenges impede the development of permanent transportation infrastructure and threaten the legitimacy of mining as a nation-building project (see Thomas 2002; Harvey 2005; Campbell 2012; Harvey and Knox 2012).¹⁰³

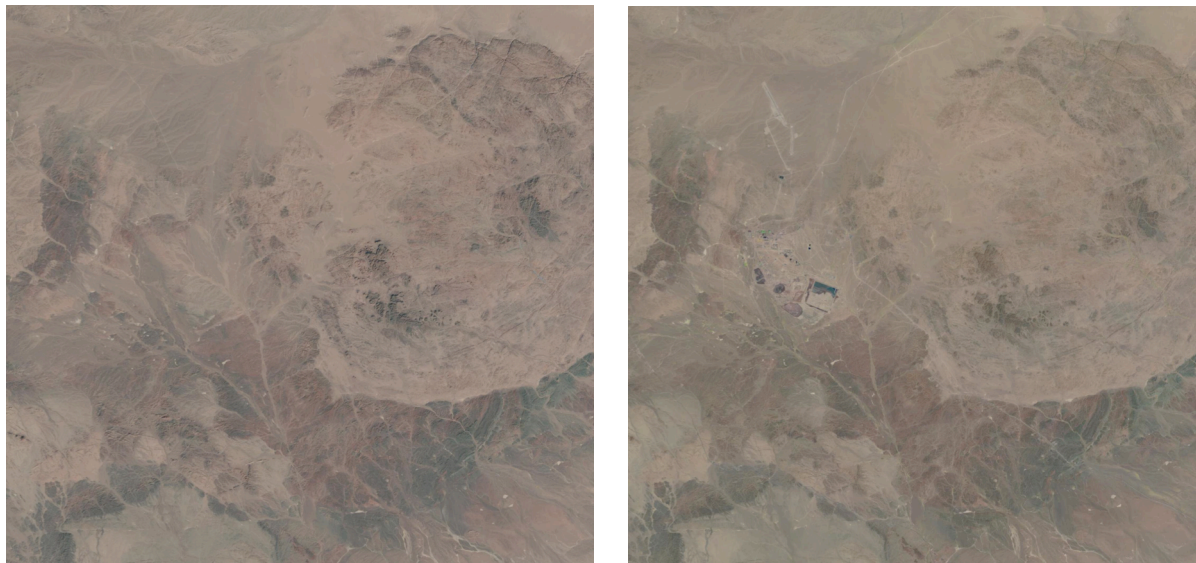


Figure 15 On the left, a Landsat image from 2000 of the Oyu Tolgoi site at the early stages of exploration. On the right, a Landsat image of the Oyu Tolgoi site from 2013, near the end of the construction phase. The increased number of lines crossing the landscape suggests the growth in truck traffic between *soum* centers, mines, and the border.

¹⁰³ Although Energy Resources is now building a railroad from Tsotsetsii to the Chinese border to export coal, the research was conducted while the railroad was in the planning stages. It is not certain whether the trucks driving on unpaved roads will be replaced by Energy Resources' railroad if other companies are unwilling to pay the tolls. The coal deposits at the border can be seen in figure 3b.



Figure 16 On the left, a Landsat image from 2003 of the current location of Gashuun-Sukhait/Tsagaan Khad border crossing. On the right, a Landsat image from 2014 of the Gashuun-Sukhait/Tsagaan Khan border crossing. The black spots in the upper half are stockpiles of coal, to be transported across the border. The dark spots in the bottom half are located in China.



Figure 17 The coal road on the way to Tsogtsetsii from Khanbogd, fall 2011.



Figure 18 On the left, a toll station located between Tsogtsetsii and Bayan Ovoo on Energy Resources' road while under construction, fall 2011. On the right, driving towards the Chinese border on Oyu Tolgoi's unpaved road, spring 2012.

For example, the Oyu Tolgoi (2009b) investment agreement describes how the government must form the South Gobi Regional Development Council to coordinate regional

development. The Council board is to include government officials, civil society representatives, international institution representatives (such as the Asian Development Bank and the European Bank of Reconstruction and Development), and members of the private sector—including Oyu Tolgoi. The duties of the council include “resolving matters of urban planning and development,” such as road infrastructure (Oyu Tolgoi 2009b, 14). Oyu Tolgoi must also prioritize supporting regional social and economic development activities to uphold the agreement. However, according to an Oyu Tolgoi regional development official, the Council was “politically hijacked” by Mongolian political parties and therefore the company could not participate as of fall 2012. He argued that the governance structure in South Gobi is “not very robust” and that international institutions such, as the Asian Development Bank and the European Bank of Reconstruction and Development, will only participate when the Council “has its act together.” Here, external actors blame the Mongolian state for a lack of capacity to develop institutions and infrastructure to unify the nation. At the same time, while actions to develop the regional economy are put on hold, mineral-laden trucks continue to track to and from China, delivering clouds of dust to local residents along the way. Thus the promises of modernity dissipate into the air with each passing load (see Worster 1979/2004; Berman 1983; Kennedy 2005).

A planning consultant for Oyu Tolgoi also argued that the company should not be blamed for the road coordination problems because it does not contribute as much dust as the coal companies generate. Furthermore, he argued that

The government has to do better in terms of planning and regulation. They say “whatever, just give us tax.” They are too busy dividing Tavan Tolgoi, and in the meantime, people just started exporting without roads. I think the government is to blame. In this country, everything happens according to its own rules. The government passes a law, but the government doesn’t do anything. The invisible hand just does its work. (interview 2012)

While Bunker and Ciccantell (2005) argue that *someone* must build infrastructure to move minerals, the physical characteristics of South Gobi decrease incentives to take action to build roads. Because the terrain is relatively flat and lacks dense vegetation, drivers can relatively easily create new dirt tracks (see Keshkamet *et al.* 2012). Thus mining transportation in South Gobi mirrors the all-terrain vehicle tracks that Virilio (1977/2006, 78) argues escape “the old linear trajectories of the road or railway,” creating new geometries of speed that have potentially devastating consequences that become visible in the form of dust clouds (Amato 2000; Fine and Hallett 2003; Kennedy 2005). Or as Oyu Tolgoi has done, the roads can be graded with gravel and in select locations sprayed with water to reduce dust, but residents argue that even these improved roads still release dust. Oyu Tolgoi publically stated in ESIA documents that its road to the border would be paved (Oyu Tolgoi 2012, B3). However, when exports began in July 2013, the road remained unpaved. NGOs submitted a letter of complaint to the Mongolian government and to Oyu Tolgoi that the export road must be paved to reduce social and environmental impacts from the heavy trucks and traffic.¹⁰⁴ Nonetheless, the road remains unpaved. Critics argue that the companies and government are slow to react to the immediate implications of unpaved roads—namely dust. Their slow reaction times are juxtaposed against the speed with which mining development is taking place, as dust materially contradicts discourses of mining as a nation-building project (see Virilio 1977/2006; Worster 1979/2004; Berman 1983; Amato 2000; Thomas 2002; Harvey 2005; Kennedy 2005).

Local residents have also taken more drastic actions to draw attention to problems with unpaved roads. In September 2012, several South Gobi herder NGOs, including Gobi Gazar, staged a roadblock. The protest took place on the main coal road that begins at the Tavan Tolgoi

¹⁰⁴ See <http://en.minewatch.mn/2013/07/submission-of-a-demand-by-the-undersigned-ngos/>

coal deposit in Tsogtsetsii *soum* and continues south through Khanbogd *soum* to the west of Oyu Tolgoi to the Chinese border crossing Gashuun-Sukhait (also called Tsagaan Khad colloquially). The protesters demanded that the government shut down exports until the roads were paved. Although the coal company Energy Resources built a paved road from its mine at Tavan Tolgoi in Tsogtsetsii *soum* to the Chinese border, the road toll in 2012 was approximately 200,000 tugriks (US \$150) per one-way trip for mineral-bearing trucks and 20,000 tugriks (US \$15) per one-way trip for passenger cars. Because the tolls are so high, only Energy Resources' trucks drive on the road. According to one of the protest organizers, truck drivers who use the unpaved roads joined the two-day roadblock because they want to drive on a safer paved road. Thus the materiality of the road united herders and drivers to make claims over roads as national spaces where they could challenge the implementation of mining as a nation-building project, as seen in previous studies (see Campbell 2012; Harvey and Knox 2012).

When the truck drivers joined the protest, they blocked the Energy Resources paved road. Forty-nine people blocked the roads for two days. They stopped after several of the blocked companies demanded that the protesters pay them back for lost profits.¹⁰⁵ Nonetheless, at first the protest appeared successful. Officials from the office of President Elbegdorj told participating NGOs in Ulaanbaatar that the government was developing a proposal to prohibit mineral exports on unpaved roads (personal communications 2012). An official in the Ministry of Justice who in a 2011 interview told me that road dust violates citizens' constitutional rights to a clean environment, corroborated the story that in fall 2012 the government was considering curtailing exports until the roads were paved (personal communication 2012). But the government did not stop exports on unpaved roads. Rather, the failure of the protesters to have their demands met

¹⁰⁵ I was also told that permission for the protest had not been obtained from the government.

demonstrates the power of inertia among state and corporate actors and reveals their disinterest in realizing the promises of nation-building (Campbell 2012). Thus dust remains a growing concern as mining development and exports increase, threatening the legitimacy of mining as a nation-building project, bringing people into intimate contact with the mining boom.

Dusty Effects



Figure 19 A massive dust devil approaching the road to the border to the west of Oyu Tolgoi. Photos from 2012.



Figure 20 On the right, Khanbogd soum center on a clear day. On the left, tracks and footprints on a dirt road in the soum center. Photos from fall 2011.

Because most of the roads that connect mines, such as Oyu Tolgoi, to *soum* centers, Ulaanbaatar, and the Chinese border remained unpaved during my fieldwork, local residents complained about dust, which functioned as a constant reminder of the mining boom. For the

remainder of the chapter, I discuss how dust evokes memories, changes daily activities, and raises health concerns among residents living in mining-affected areas, challenging the legitimacy of mining as a nation-building project.

Dustless Memories

Dust creates boundaries not only between present and future visions of the nation, but also with the past (Amato 2000; Fine and Hallett 2003). Residents' memories of a dustless life before mining expansion illustrate how dust disrupts a sense of belonging to a place and the nation. Lunstrum (2010, 132, author's emphasis) argues that the power of memories of spaces of daily routines can be "a fertile political reservoir for place-*maintaining*." The dust marks loss of belonging to the nation and the time before broader political economic changes brought mining and the roads to South Gobi. Recalling the landscape before mining roads coated the pasture with dust thus challenges portrayals of mining as a nation-building project (see Bebbington and Bebbington Humphreys *et al.* 2008).

When I asked people living in Khanbogd and other *soums* affected by road dust about memories before mining expanded in the early 2000s, they often described the look of the landscape. A former herder (who now works for Oyu Tolgoi) and a herder he was visiting camped near Oyu Tolgoi discussed the limitless appearance of the Gobi before the roads.

Worker: You could say there was boundless desert¹⁰⁶ wherever you looked, and camels were grazing. You could say it was a beautiful place. Right now . . . I remember it. Now, wherever you look, you see vehicles bringing a lot of dust.

Herder: Yes, that is right. We had water, lakes, plants, and neighbors and the steppe was full of animals grazing. Now, it is full of dust. Animals are forced to share a small area of pasture since the pasture is bounded, and it is impossible to cross the rest of the pasture due to drilled holes everywhere. (interviews 2012)

¹⁰⁶ *Gobi* in Mongolian is a general word for desert. *Umnigovi aimag* translates literally to Southern Desert Province.

Before the mining roads and unreclaimed exploration holes, the space of the Gobi appeared to be without limit, and people could herd many more animals. Now, due to the mining roads and dust, the competition for herding space has increased—something about which herders and Oyu Tolgoi agree (see Oyu Tolgoi 2012). Furthermore, nature is now framed, or in this case sliced, by roads (Thevenot 2002). Just as in the case of water resources (see chapter 4), dust forces herders to decrease their herd sizes. The mining roads and the dust they produce erect boundaries around the pasture, and herders try to avoid areas that they once used, but are now cut by roads. Once imagined as boundless, the mines and roads that connect them to the Chinese border and Ulaanbaatar now define the pasture. Dust represents an enclosure of the pasture (see Harvey 2003; Peluso and Lund 2011), marking new boundaries in time and place as the dust from roads redraw lines of belonging to the national economy up to several kilometers wide, according to some residents, as space for the herding economy shrinks (see Amato 2000).

Participants also attribute dwindling wildlife populations to dust. A herder camped between Oyu Tolgoi and the coal road described how he remembers the landscape.

There were wild animals like *zeer* (gazelle), *khulan* (wild ass) and *argali* (wild sheep) running and raising dust in this area. There were no vehicles driving around creating this much noise and dust. Now, these wild animals are gone. The pasture was fine and it was not covered with dust. It was really nice. (interview 2012)

The herder compares the dust of wild animals to the dust of machines. Several people living in the area around Khanbogd argued that there used to be herds of gazelle in South Gobi that have been scared away because of noise and dust. Now only five antelope are seen in the *soum* gazelle in Khanbogd, but they must all be the same sex because they are not reproducing. One herder told me a story about how in his youth he once mistook a herd of baby gazelle for his baby goats and sheep. Implicit in these narratives is the construction of herding as more conducive to

ecological conservation. Many herders argue that mining and herding are incompatible, and scholars identify a common discourse among nomads that herding activities maintain natural landscapes (Fernandez-Gimenez 2000; Upton 2009, 2010). Herders are also sometimes considered the custodians of the nation. For example, in a World Environment Day forum I attended in 2012, one scholar argued that herders are part of Mongolia's cultural immune system and must be protected (see also Marin 2008). Furthermore, programs such as The Nature Conservancy grassland conservation program rely on traditional herding methods¹⁰⁷ to maintain the grasslands in eastern Mongolia (interview 2012). Descriptions, such as the one above, evoke bucolic images of the past with more ecologically diverse landscapes that support their claims as stewards of the environment. The contrast between images of the past and the present also demonstrate how the proliferation of road dust is a temporal as well as geographic boundary between institutions and infrastructure that supported nomadic herding and those that support mining. The dust signifies changing visions of the nation that materially exclude nomadic herders as the unpaved mining roads proliferate. Dust thus marks boundaries of temporal and cultural change as the dust raised by wildlife suggests a fertile landscape, whereas the dust raised by mining trucks suggests the increasing infertility of the pasture as mining dominates local life (Amato 2000; Fine and Hallett 2003).

¹⁰⁷ I frequently encountered the discourse of traditional nomadic herding as integral to the health of the steppes. The Nature Conservancy excludes commercial activities (such as raising goats for cashmere) from their definition. According to a Protected Areas Officer for the Ministry of Environment, the government does not use the legal definition and just considers four yearly migrations as traditional. Because of the impacts of mining, herders are reported to be migrating more frequently into protected areas. At a World Environment Day forum, when I asked participants (Mongolian academics, government officials, international institutions and environmental NGO representatives) to explain what they meant by traditional herding, a heated debate ensued.

Dusting

Dust and nostalgia for dustless landscapes have come to define the landscapes of mining-affected areas. However, dust also transforms relationships to spaces of daily life that provide insights into the mundane effects of mining as a nation-building project for local residents. For example, dust infiltrates indoor spaces and types of work, redefining gender and class relations (Fine and Hallett 2003; Weller 1995). Despite the prevalence of dust in South Gobi, it is still “out of place” inside *gers* (Fine and Hallett 2003, 3, cf. Douglas 1966), and women’s duties include maintaining the cleanliness of the *gers*. Before heading out to round up her livestock, a herder camped near Khanbogd *soum* center described how road dust changes her daily routine.

The pasture around here is destroyed due to vehicles running back and forth. Drivers drive anywhere, but the roads destroy all the plants The wind blows here in South Gobi from the northwest. There is a road over there, and its dust comes here. Now, they go right outside the *ger*. This road was not here before. Now, the road is right in front of the *ger* door. In the morning I dust my home and in the evening it becomes dusty again. (interview 2012)

Located downwind from the major mining roads,¹⁰⁸ the herder connects the increase in mining traffic with destruction of vegetation and increased housework. As was the case for women living in Kansas during the Dust Bowl, she has “to address the problems associated with the dirt” (Weller 1995, 215) inside and outside the home. Furthermore, there is no way to “seal out” the dust (Worster 1979/2003). Hence, dust becomes not only a noun, but also a verb integrated into daily routines, signifying the radical material transformations the mining boom brings to the lives of local residents (Cook *et al.* 2011; Fine and Hallett 2003). Dust as something miniscule and uncontrollable inside her home becomes a metaphor for not only the lack of coordination of mining transportation infrastructure discussed above, but also for the lack of regulation over the

¹⁰⁸ The herder was camped east of Oyu Tolgoi and near the road to Oyu Tolgoi. Bonilla and Neeti (2013) found that areas located southeast of South Gobi’s major mining areas experience the highest incidence of dust.

proliferation of mines throughout the region. Furthermore, the dust signifies the invasion of not only dust, but also the promise of modernization through mining and all of the political economic, social, and environmental changes it brings to Mongolia (Douglas 1966; Worster 1979/2004; Amato 2000; Kennedy 2005).

Dust plays a similar role in transforming spaces of work in urban contexts. When I asked a former Khanbogd resident about dust, she said that growing up in South Gobi, she did not have to dust. It annoys her that she has to dust her office and home in Ulaanbaatar every day. She sees dust as a new activity in her life. Her sister runs a shop in Khanbogd where the unpaved roads are thick with dust. She told me how her sister jokes that dust is another mining commodity.

My younger sister runs a small convenience store in South Gobi, and she has to clean the dust every morning. Otherwise it would be too dusty to sell her products. There is a funny story about that. Some important Oyu Tolgoi officials came to her store to buy some things. They noticed the products were covered with lots of dust. When they complained about the dust on a product, she said, “Well, gold and copper are not the only things we have here in the Gobi, we have some dust too.” (interview 2012)

This story reveals two important details about dust. The first is that her sister’s workload increased because of the dust. She must dust every day, but even that is not enough to please some customers. Second, for the local population, dust is another product of mining development. Here, I refer to product in two senses of the word—as something created and something to sell. The storekeeper reminds the company officials that mining does more than just produce copper and gold. This dual production of dust mirrors Amato’s (2000) analysis of dust’s explanatory power to reveal how the Industrial Revolution transformed spaces. While dust was swept into “the gutters and margins of urban experience,” it also “revealed what society made and consumed” (Amato 2000, 90). Dust represents the leavings, or as Latour (2005) would call them, the *tracings* of mineral extraction that not only demonstrate the negative impacts of mining, but also serve as daily reminders of how the effects of mines outlast their operations,

often leaving local economies with little more than dust, rendering the pasture infertile (see Amato 2000; Malin and Petrezelka 2011). While the state and mining interests promote the wealth potential of Mongolia's mineral resources, local residents experience dust as a product of nation-building. Moreover, living with dust marks a socioeconomic boundary between those living in proximity to mining roads and those who live elsewhere and profit directly from the exploitation of minerals (Amato 2000; Fine and Hallett 2003; Kennedy 2005). Living with road dust thus undermines the promises that mining will rebuild an inclusive Mongolia.

Dust in Lungs

Dust is not just a trace that is out of place indoors and something that generates nostalgia for pre-existing landscapes and visions of the nation. The most controversial effect of road dust in South Gobi is on the health of people and livestock. Although cleaning dust inside homes and shops is a nuisance, most people I talked to about road dust were primarily concerned about health effects on people and livestock, symbolizing the invasion of mining into the bodies of local residents (see Kennedy 2005).

A herder from Khanbogd described his problems breathing when he stayed with a family located near one of the busier roads.

Because of the dust, there is air pollution, and the grass is ruined. Grass is supposed to be green, but along the road, it looks gray. I spent a night at one of those *ails* (families) along the road while I was herding my livestock. I could not sleep there because I was coughing really hard from the dust. My nostrils were full of dust. (focus group 2011)

He describes a transformed landscape and difficulty breathing and sleeping because of the dust.

The dust from mining roads reflects a larger pattern of dust-related respiratory issues. For example, Worster (1979/2003) describes how the storms during the Dust Bowl caused silicosis—

a disease often associated with mining in unventilated shafts (Hart 1998; Kinnear 2001; Penrose 2011). Local residents often expressed concern that the dust must be harming their respiratory systems. However, studies of the effects of air pollution in Mongolia are limited to Ulaanbaatar, which has dangerously high levels of pollution, particularly in the winter months. Unfortunately, little information is published on the potential long-term health effects of the fine particles on populations living alongside dusty mining roads in South Gobi. Claims that road dust causes illnesses in humans and livestock remain largely unsubstantiated by public health institutions. The Mongolian National Veterinary Center published a brief report on preliminary research results of an analysis of livestock “dust-filled lung” illnesses (*uushig toosjikh*) from major mining areas in South Gobi. However, the report focuses more attention on coal dust than road dust (see Orgil *et al.* 2011).¹⁰⁹

Dust is also perceived to affect food resources. For example, an Oyu Tolgoi service worker told me that livestock herded near mining roads cannot fatten up enough for the winter (interview 2011). Many herders said that they travel much farther to reach pasture without dust, which depletes the livestock’s fat reserves. At the same time, herders argue that the availability of pasture overall is shrinking because of the road dust (interviews and focus groups 2011, 2012). The most frequent concern about the dust I heard were the changes seen in the internal organs of livestock. An elderly herder described the situation.

It is too dusty here. Animals are eating plants that are covered with dust. For example, their lungs are sick, and the dust is affecting the other internal organs as well. When we butcher our animals to eat, we can see that their lungs are not healthy. It is obvious that they eat and drink dust—as do people. We breathe the same air, so our lungs are not healthy, either. This spring, our eyes hurt. People’s and animals’ eyes hurt. People’s and animals’ lungs hurt too. Of course, they hurt since they eat dusty grass that was ground down by trucks. It affects us greatly. (interview 2012)

¹⁰⁹ For research on health effects of Gobi dust outside Mongolia, see Bennett *et al.* 2006.

Her description of the illness affecting livestock, particularly during Mongolia's windiest season (spring), is similar to the results of a preliminary study reported by Orgil *et al.* that cites mining road dust as a cause of the illnesses (2011). Local residents described other effects on internal organs including black spots, unusual colors, and a plastic-like texture, as well as lungs filled with liquid since traffic on the mining roads has increased (interviews and focus groups 2011, 2012). Temporary blindness also occurs when dust clings to moist eyelashes. These perceptions of dust affecting livestock and human health are widespread among local residents throughout the region (interviews and focus groups 2011, 2012). The dust symbolizes what is wrong with mining and the lack of paved roads. Moreover, the dust brings mining development—or at least the form it takes in South Gobi—into people's most intimate spaces, their bodies. On the one hand, the materiality of the road demonstrates a disconnection between resource extraction, local residents, and the promises of nation-building (see Thomas 2002; Harvey 2005; Campbell 2012; Harvey and Knox 2012). On the other hand, the materiality of the road brings the mining boom not only into the indoor spaces of local residents, but also into their bodies (see Kennedy 2005).

Dust thus represents a sacrifice of individuals as well as mining-affected regions for the health of the national economy. Although Foucault (1978/1990) suggests that the modern state gains power through the control and management of the health of the national population, the road dust demonstrates the lack of capacity of the Mongolian state and initiative among international financial institutions such as the World Bank to act. At the time of the research, the state neither enforced regulations that require companies to pave roads nor was there the political will to study the effects of mining road dust on local populations of people, livestock, and wildlife. Mining companies thus continue to export resources on unpaved roads producing dust with impunity. Local residents contend that they now bear the costs of nation-building as road

dust infiltrates their most intimate spaces, with few means to alleviate the symptoms of dust that disrupts their lives and livelihoods.

Without scientific investigation, the cause of livestock illnesses remains a subject of debate. When I interviewed a wildlife expert from an international conservation organization and a government agricultural official, both suggested caution when making causal links between the problems experienced by livestock and the road dust. The wildlife expert argued that the black lung in livestock is a “scare factor” and that “These are ever present in people’s minds, and it becomes attributed to things that may have other causes” (interview 2012). Similar to Australia’s experience with mining-related dust diseases in the early 20th century, the dust from South Gobi’s mining roads has a status as a hazard “in the absence of medical or scientific consensus regarding the nature and exact causes of dust-related illnesses” (Kinnear 2001, 66; see also Malin and Petrzalka 2010). Although the wildlife expert does not deny that the livestock have health problems, she argues that not enough research has been conducted to establish the causes of internal organ discolorations. Thus, as with experiences in Australia and the United States, the social and political context may push the Mongolian government and medical community to legitimate the claims of local residents that mining-related road dusts cause health problems (see Kinnear 2001; Malin and Petrzalka 2010; Penrose 2011).

A *soum* official with the Ministry of Agriculture expanded on why the understudied effects of dust contribute to a sense of distrust of mining development.

There’s nothing scientific, but herders have identified some symptoms It has nothing to do with Oyu Tolgoi It is Tavan Tolgoi and Tsagaan Khad.¹¹⁰ The dust is from those coal mining areas. Herders have a hypothesis that the dust is causing livestock diseases It will stop when the dirt roads become paved roads. (interview 2012)

¹¹⁰ Coal companies, such as South Gobi Sands (an Ivanhoe Mines owned company) and Erdenes Tavan Tolgoi (the state-owned company), stockpile coal for sale at the Chinese border at a place colloquially known as Tsagaan Khan.

The official reflects Kashkamat *et al.*'s (2012) contention that paved roads will improve pasture health and herders' livelihoods. Although he defends Oyu Tolgoi (despite their many unpaved roads), he places blame on coals mines. Nonetheless, beyond the symbolism of the road, the dust itself becomes an explanation for the problems faced by herders. Although the fine particles produced from the mining trucks may be the cause of livestock and human ailments, not enough research has been conducted on the effects of the road dust on livestock or human health. This lack of time to study the potential health impacts of mining on local populations (human, plant, and animal) is reflected in other aspects of mining impacts in South Gobi.¹¹¹ In its ESIAs, Oyu Tolgoi also describes the size of the dust particles and the effects of dust on human health, but *not* on livestock health (Oyu Tolgoi 2012, B3).¹¹² Oyu Tolgoi's studies of dust are also limited to areas that surround the mine lease and not along major roads of complaint, such as the road between the mine and the Khanbogd *soum* center. Oyu Tolgoi argues that the population densities were not high enough to warrant concern. Yet scholars have found that since decollectivization, herders now camp closer to roads and *soum* centers, where they have better access to services and markets (Fernandez-Gimenez 1999; Sankey *et al.* 2012).

Despite a lack of consensus on the effects of dust, decreasing pasture and unhealthy animals shape how local residents imagine their futures and relate to questions about time and the nation. At the end of interviews and focus groups, I always asked local residents what kind of future they would like for their children. Many herders responded that they would like their children to be herders, but that they probably will work for mining companies. The herder

¹¹¹ Mongolian and foreign academics who study climate change and vegetation argue that it is too early to tell how mining will affect desertification and particular species of plants, including dust from roads, tailings, and open pits (WED forum 2012; personal communications 2012). For research on health and safety of mine workers in Mongolia, see Lkhasuren 2012.

¹¹² The potential impacts of the road dust are more significant on livestock and wildlife than people because the animals noses are close to the ground, breathing in the fine particles of dust as they eat plants covered in dust.

camped near Oyu Tolgoi who described her memories of the landscape before mining above, has several young children. When I asked her what she wanted for their future, she said, “I want them to be herders only if the animals survive. If animals survive this dust, they will continue herding. If the situation stays as it is, it is difficult to say if there will be any surviving animals” (interview 2012). Because of the effects of the dust, without any changes, she doubts there will be livestock to pass on to her children. They will have to find different kinds of work and lifestyles, illustrating a decrease in the number of choices available to mining-affected residents. Responses to “What would you like your children and grandchildren to do?” also suggest a movement away from nomadic herding towards mining, marking a boundary of economic and cultural change (Amato 2000; Fine and Hallett 2003). Scholars report similar attitudes among herders in other regions of Mongolia (see Bruun 2006; Marin 2008). As an elderly herder visiting Manlai *soum* from Dornogovi *aimag* (East Gobi) told me, “Herding is just becoming too difficult” (interview 2011).

What the perceived affects of mining road dust on livestock demonstrate is a sense that mining excludes local residents, especially nomadic herders, from the nation-building, at least in mining-affected areas such as eastern South Gobi province. Not only do roads cut the pasture creating new landscapes and spaces of belonging, but the dust also delimits the space and possibility of pre-existing economic activities and relationships to the nation’s nature. The new boundaries of inclusion and exclusion to nation-building drawn by mining roads penetrate the bodies of people living in these areas. As long as the roads remain unpaved and the health effects remain understudied, state and corporate actors will continue to be perceived as betraying the promises of nation-building. Thus miniscule particles, accumulating on the pasture and in people and animals’ lungs threaten the legitimacy of mining as a nation-building project.

Conclusion

Road dust penetrates memories, indoor spaces, and bodies, challenging the promises of mining development and the legitimacy of nation-building in two substantial ways. On the one hand, road dust generates a sense that the state cannot protect the people from the negative impacts of mining. On the other hand, companies are not willing to expend the capital necessary to fulfill promises of development. Dirt roads do not bring a sense of improvement. Rather they demonstrate a desire to extract the region's mineral resources as quickly as possible without attention to the long-term consequences of haphazard coordination and development of infrastructure. Ultimately, the experience of road dust disconnects local residents from mining as a nation-building project. Thus, the materiality of roads represents a different interpretation of what Pedersen and Bunkenborg (2012) call "technologies of distantiation." The roads and the speed of extraction separate local residents from the state and the improvements in daily life that both companies and the state promise mining will bring to the nation.

These disconnects support Virilio's (1977/2006) contention that roads are contradictory symbols of modernity and Worster's (1979/2004) claim that dust reveals the false promises of development. While roads are built to increase connectivity, political freedom, economic prosperity (Harvey and Knox 2012), the materiality of South Gobi's unpaved mining roads frustrate these nation-building aims. The unpaved mining roads also illustrate a contradictory means of extending state power to rebuild the nation. The state facilitates investment in mining to produce faster rents by not requiring permanent infrastructure development, but at the same time the resulting dust jeopardizes the long-term health of local populations and economies. This represents larger challenges to the legitimacy of nation-building through mining without the investments in infrastructure necessary to promote long-term economic development throughout

the country, which would provide mining-affected residents with a sense that they have access to the nation's resources—namely pasture and symbols of connectivity (see Penrose and Mole 2008; see also chapter 3).

Transportation infrastructure in South Gobi also illustrates the importance of terrain in mining infrastructure development. While Bunker and Ciccantell (2005) argue that transportation technology advancements are vital to the expansion of global markets further and further into the “frontier,” the quality of South Gobi's terrain does not appear to demand heavy investment in transportation infrastructure to ensure that minerals reach markets at the Chinese border. At the same time, the government argues that mining companies must be responsible for their own roads. How the new railroad being built by Energy Resources may change these dynamics is unclear. Nonetheless, this chapter illustrates how new technologies are not needed to promote new forms of enclosure (see Peluso and Lund 2011). Road dust as a by-product of changing political and economic regimes has the ability to radically transform not only economic institutions, but also spaces of the nation.

Finally, this chapter also illustrates how the experience of mining road dust in South Gobi bridges a gap between the literatures on nation-building, the materiality of roads, and dust. The materiality of roads and specifically dust demonstrates not only the power effects of the state (Harvey 2005; Harvey and Knox 2012), but also implications for the nation. Road dust brings Mongolia's integration into the global economy through mining development into residents' most intimate spaces, erecting boundaries to inclusion in the promises of mining and ultimately threatening the legitimacy of state efforts to rebuild the nation. This contributes to knowledge concerning an under examined aspect of landscape alteration arising from mining booms. As

such, it works alongside literature on both extractive industries literature and Gobi dust literature, providing new avenues to consider the power of dust to transform the nation.

This chapter concludes the theoretical and empirical exploration of contestations over mining as a nation-building project in Mongolia. To explore more imaginative interpretations of what mining could mean in Mongolia, the next chapter considers the themes of this dissertation from a magical realist perspective visualized in the graphic novella *Altansar and the Death Worms*.

CHAPTER 6: Altansar and the Death Worms

Preface

I first heard about Altansar and the Death Worms while on a train crossing the Gobi Desert. A mysterious passenger, a young woman in a long leather jacket, told me the story over cups of tea. As we rode through the night, she told a tale of great changes. These changes, she said, must be remembered. When I told her I was writing about some of these changes, she said that she wanted more people to hear the story she has to tell.¹¹³

The tale I will tell you is one of in/appropriation.¹¹⁴ The Mongol lands, the waters, and the cultures were for the most part conserved for centuries by the Khans, the Qing, and the Soviets. But now, as the Mongols fuel engines of capital, the lands, the waters, and the cultures are undergoing multi-dimensional transformations. As the soils are peeled to reveal treasures, the waters are changing their courses and giving birth to new monsters. Some monsters speak of progress and a new golden age, a sun once again dawning on an empire. Other monsters are merely transformed through accidents. Many monsters, like the death worms, are hybrids of folklore and tales of foreigners who come to take Mongolia's precious tailings.

But who am I, walking with you along these tales? In part I feel obliged to retell this tale because I am writing as someone from a similar landscape, a place called Color Red.¹¹⁵

Captivated by the Death Worm, this tale reminds me of similar battles fought at Color Red, on

¹¹³ Benjamin (1963) argues that memory is the soul of all epic stories. He says both storyteller and listener are conscious of their desire to hold onto the memories of stories so that they can be retold.

¹¹⁴ Haraway (1992) takes Trinh Minh-ha's "inappropriate others" from the realm of the post-colonial into science and technology studies. Haraway argues inappropriate/d others are "neither modern nor postmodern" but amodern (*ibid*, 299). In other words, inappropriate/d others have the potential to map "where the *effects* of difference appear" that blur dualistic conceptions of nature and society found in modernist thought (*ibid*, 300).

¹¹⁵ Colorado means 'color red' in Spanish and refers to the red rocks found throughout the mountainous parts of the state.

the cool slopes and plateaus of my homeland. There too rivers cry when the mountains' treasures are revealed.¹¹⁶ Personal connections continue between my home and that of the Great Khan by way of the Color Red-Red Hero¹¹⁷ network. As symbols, images, and icons feed these chains, monsters illustrate my re-imaginings of Mongolia's romantic frontier of capitalist dreams and harshly lived realities.

As devilish others and nomadic ahistorical others to so much of the world,¹¹⁸ I have no desire to inappropriately the Mongols. Nor do I wish to reduce the characters and themes of this tale to representations of others in other lands.¹¹⁹ Rather, this story follows semi-real actors (including me and you) and the actions that weave us together. But I must ask *us* if we are becoming another kind of monster: Imperialists and orientalizers. The Lady Spivak warns,

No perspective *critical* of imperialism can turn the other into a self, because the project of imperialism has always already historically refracted what might have been an incommensurable and discontinuous other into a domesticated other that consolidates the imperialist self.¹²⁰

She speaks around a central question we must ask: Is this tale a reflection of the mirror that imperialists create to know themselves through a homogenized other? This possibility exists and you may be shouting back at me *yes, how could it be any other way, you orientalist gazer!* I do not think that I can get away from your accusations. I think that you might be right. I am a person

¹¹⁶ A recent example is the use of heap-leach gold mining at Summitville, Colorado that resulted in arsenic contamination of the Alamosa River. Robert Friedland, now head of Ivanhoe Mines and foremost booster of the Oyu Tolgoi mine, earned the moniker "Toxic Bob" through the incident.

¹¹⁷ Ulaanbaatar means red hero in Mongolian. Red represents the compass direction South in Mongolian shamanism and is also considered a good color as opposed to North, which is black and represents the afterlife (Purev and Purevee 2008). Red was also used to represent socialism in Mongolian national symbols throughout the Soviet era (see Bulag 1998). The use of Red Hero in this story refers to both Mongolia's capital city, Ulaanbaatar, and to the centralized Mongolian state. Prior to Mongolia's communist People's Revolution in 1921, Ulaanbaatar was called Urgaa (legacy) and before that Khuree.

¹¹⁸ See Bulag 2002.

¹¹⁹ Said 1978.

¹²⁰ Spivak 1999, 130; author's emphasis.

with a particular perspective in a particular time and place—I cannot escape this reality.

Nonetheless, I hope that this story can help us reconsider the world and ourselves.

To illustrate my conscious complicity in this unveiled attempt at an orientalist project, you must know that the tale also includes anthropomorphization. As a storyteller, I am a sort of ventriloquist despite Lady Haraway’s warning against using inappropriate/d voices to amplify one’s own.¹²¹ Here, I give the monsters names and stay with them for a brief time through words and pictures on the page. In this way we can see the monsters that are the twin paradoxes of modernity and its children: development and progress.¹²² Please consider these monsters and their meanings as we explore together lives and landscapes transformed.

Drying Lands and Turtles

Born to a family of camel herders near one of Mongolia’s many Red Rivers¹²³ (*Ulaan Gol*), the day after an earthquake of retreating Red soldiers,¹²⁴ Altansar¹²⁵ grew-up through a series of aftershocks. For her first ten years, the pastures where her family’s herd grazed became stressed. New herding families, who lost their jobs through shock therapy,¹²⁶ returned to the countryside to the nomadic lifestyles of their forebears. But disagreements began to arise over

¹²¹ Haraway 1992.

¹²² Mary Shelley’s *Frankenstein*’s monster comes to mind. See also Spivak 1999.

¹²³ The general term for river is *gol*. The term for ephemeral rivers like those in the Gobi is *zadgai*, but the names of ephemeral rivers use *gol*, such as Undai Gol and Ulaan Gol, for example.

¹²⁴ Soviet troops withdrew from Mongolia in 1989 as tensions decreased between the USSR and China. Soon after in 1990, a democratic revolution swept through Mongolia and the age of the market ensued.

¹²⁵ *Altansar* means golden moon in Mongolian. I saw a golden moon rising one night in the Gobi while driving to a small town to begin my research. Because I saw the moon after I began to write down this story I took it as an auspicious sign.

¹²⁶ “Shock Therapy” refers to the economic restructuring programs imposed on post-Soviet countries such as Mongolia to more speedily integrate former socialist economies into the global capitalist economy. The experiment resulted in economic instability, social disintegration, and corruption across many of the former socialist economies, particularly Russia. For specifics on Mongolia, see Bruun 2006 and Rossabi 2005.

access to pasture between families, friends, and strangers. When Altansar was seven years old, her family arrived at their usual spring pasture to find it chewed to dust. That year, the camels' humps began to droop. Two years later, when she was nine years old and the *zud*¹²⁷ hit, her beloved camel, Tsereg,¹²⁸ was one of only a few of her family's camels to survive the winter. Without help from the decollectivized collectives, millions of livestock perished over several successive years of *zud*. Many of Altansar's cousins left Red River for the city, Red Hero, to seek his protection and to restart new lives herding taxis. Many other families found their nomadic roots dried out and lifeless. They too left for the Red Hero.

Aware of these hardships, Altansar grew frustrated with her plans for the future. She wanted to be a herder and was fond of the few new goats her family began to raise for their hair. She loved to comb the cashmere from the goats, which her mother sent north to the Red Hero. As she combed, Altansar once said to her mother "I want to go the Red Hero and see what happens to our cashmere." Her mother replied, "You will have to go the Red Hero to go to school. Life is too hard here. You have to get an education if you want to do anything with your life."¹²⁹ "But Eejee¹³⁰! I want to stay here with you and Aavaa¹³¹ and the livestock!" Her mother replied, "It is your choice. But there may be no future here with the livestock."

For several more years Altansar lived with her family tending to what was left of their herd and going to school in the nearby *soum*. When she was fifteen, Altansar was sent to school in the *aimag* capital while her parents and older brother continued to tend the livestock. At her

¹²⁷ *Zud* are unusually cold and wet winter conditions that often follow summers of drought. The ice-crusted snow makes it difficult for livestock to find food.

¹²⁸ Tsereg means soldier in Mongolian.

¹²⁹ See Bruun 2006. In interviews in Arkhangai *aimag* (province), Bruun found that herders are now encouraging their children to pursue education. Many herders see a dim future for their children in nomadic herding without increased state support. Marin (2008) found similar results. Most herders I interviewed said it is their children's choice, but that there is little future in herding in mining-affected areas.

¹³⁰ Mother.

¹³¹ Father.

new school, the majority of students were girls. The boys were assumed to be stronger and better able to take care of themselves as herders. The girls were told they required an education to secure better futures.¹³²

On her first visit home after her sixteenth birthday, Altansar noticed that the camels, especially Tsereg, looked ill. Their humps drooped and their once beautifully clear eyes were fogged and bulging. She asked her father, “What has happened to Tsereg? Why does he look like he cannot weep?”¹³³

Her father replied, “We are not sure. The rains are changing and grass no long grows on camels’ backs in the summer. Red River flows less and less. But something has also happened to the water. After it does flow and the mud dries, the wind blows dust with strange smells and colors. I think the dust is bad for the liver, kidneys, stomach, lungs, and heart.”

On her second visit home, she rubbed her mother’s aching back and asked, “What has happened to your shoulders? They were once straight and square. Now your shoulders are round and as hard as plastic. Your back feels like a turtle shell!”

Her mother replied, “It is a sign of the good luck we are having. Stop asking questions and get back to work.”

On her third visit home, Altansar was helping her brother repair his motorcycle and asked, “What has happened to your nails? And your skin is scaled like a turtle’s!”

“Strong long nails help me dig the soil and the scales protect me better than my old skin. They are a sign of luck.”

“To dig the soil? But we are Mongol herders. We do not pierce the soil.”

¹³² I have heard this from colleagues at the National University of Mongolia and Bruun (2006) also addresses the issue of unusually high rates of female enrollment in universities.

¹³³ For more on weeping camels in Mongolia see the 2003 film *The Story of the Weeping Camel*.

“The only future I have is in the treasure under the soil left by migrating death worms. Stop asking so many questions and get back to work.”

On her fourth visit home, she arrived in time for Naadam, the national summer holiday. When her father accepted snuff offered by his father, Altansar cried, “Father! What happened to your nose and mouth? It looks as though you have a snout and beak like a turtle!”

“Yes. It is time to tell you the truth. I learned as a child that the hilltops where blue and gold stones are found were home to spirits. My grandparents always told me never to take those stones because I would upset the spirits. Maybe this was just superstition. They just wanted us to protect nature and to leave the death worms alone. They said that if we were gentle with nature, left the water resources alone, the *losan am'tan* would protect us. But since our Red River turned to dust and our camels stopped weeping and the grass on their backs dried out, we began to dig the soil. You see, beneath our sacred steppes lie treasures left by death worms, which now roam freely underground. There is no choice, if we are to send you to school. And if you choose to go to university and meet the Red Hero, then you too must scrape the soil. There is no other way. There are new treasures opening every month in this region. People from other countries are coming here, begging to see what is underneath our pasture. Turning into turtles is a sign that we are lucky and that we will prosper in this new life.”

With a sunken heart, Altansar walked to the dusty banks of the Red River. There, she sat in the cool summer night, wondering how and why herders could turn so quickly into turtles.

Nobody wants to answer my questions. They say becoming a turtle is a sign of good luck. But now I don't want to go back to school. I want to know more about these death worms and how they are transforming my family. I heard someone talking at school about the death worms, but I thought it was some old story. If father says it is true, then I believe him. And if I am to stay

in the countryside and avoid a harsh life with the Red Hero, I have to find these death worms and some way to protect the soil.

She left the riverbank and walked slowly back to the campsite. There, parked outside the *ger* she noticed her brother's motorcycle draped with an old leather *deel*. She slipped on the *deel* and rolled the motorcycle about a kilometer down the road. Then she took off into the night.

The Death Worms' Tale

After riding until sunrise, she stopped to make a small fire and to sleep under an old *hailaas* (Siberian elm) tree. The next morning, she awoke in an unfamiliar *ger* and jumped off the bed when she realized she was not alone.

"Who are you? Where am I?" Altansar asked the old man tending the stove.

"I am called Nergui.¹³⁴ You are in my *ger*. Here, drink some milk tea." The old man handed her a bowl.

"I thought I fell asleep under a tree, next to a fire. And now I find myself in your *ger*. Why?"

"Too many questions. There is work to be done. Come, help me collect fuel for the fire and tend to the camels. I will explain after the chores are done."

Altansar rose from the bed and drank the hot salty milk tea. Outside the *ger*, she could see a mirage on the horizon. Several camels nipped at grasses in the dust. Cool and clear, the camels' eyes reminded Altansar of her childhood before the zuds and before her family turned into turtles.

¹³⁴ *Nergui* means no name in Mongolian, which is a name parents give their child if previous children have died. As Nergui, it is thought that the child will be concealed and saved from evil spirits.

After collecting dung and zag¹³⁵ wood fuel scraps and milking the camels, Altansar followed the old man back inside. Seated on the right side of the ger, he took out a cigarette and began to smoke. Altansar tended the fire and prepared fresh bowls of milk tea. She noticed as the sun shone through the *toono*¹³⁶ that his skin had a kind of glimmer, like the scales of a fish.

“So, where are you going?” He asked.

“I’m going to find the death worms. I hear that they have something to do with why my parents and brother are turning into turtles. They tell me they are lucky and that I can be too, but I don’t understand.”

“Turtles you say? They may be lucky now, but we don’t know what the future holds. Ah, the death worms. Some are endemic to the Gobi, but many have also been captured and released to increase their tailings production, but only after being altered. Then people follow them with massive earthmoving equipment. Where do you think you will find the death worms?”

“I’m not sure. Do you know about them?” She asked as she ladled the milk.

“Let me tell you about a special Death Worm who came here a few years ago. It may not be responsible for your family, but it is a new kind of death worm. One that foretells an uncertain future for you, the camels, the land, and the sky.”

Here is the story Nergui told.

The Death Worm’s mother was born into a “womb of theoretical reason” in a Soviet laboratory.¹³⁷ She was generated from death worms, which are cryptids native to the Gobi Desert.¹³⁸ Although no images have ever been recorded, legends of death worms captured the

¹³⁵ Saukhal is another name for the scrub zag trees that grow throughout the Gobi and provide firewood for local populations. It is now difficult to find tall zag trees outside of protected areas.

¹³⁶ A *toono* is the hole at the top of the *ger* where light can shine through and smoke escapes.

¹³⁷ Spivak 1999, 134; Haraway 1992.

¹³⁸ For a recent (2005) documentary on the search for the elusive death worms please watch the video by Robert Freeman and the Center for Fortean Zoology <http://www.youtube.com/watch?v=c1hxIQYNdgQ&feature=related>.

imagination of Soviet scientists working under cover of the Soviet panopticon.¹³⁹ While visiting the Gobi to collect samples of death worm traces to take back to the laboratory for analysis, a few scientists happened upon an unusual pool rich with death worm tailings, shining deep colors of gold, copper, silver, and coal. The tailings were caustic to the touch. Known to be capable of killing a ger full of horses in one night,¹⁴⁰ death worms shoot poisonous venom from their mouths. The scientists followed the seam and came upon a wriggling swarm. They managed to cage four baby worms freshly hatched from silky cocoons. Concealing the death worms in their laboratory cases, they took them back to the north, back to Treasure where new land-moving experiments were underway.

When the Russians opened a hole in Treasure¹⁴¹ to look underneath the steppes, they were hoping to find the vestiges of death worm digestion. Instead they found layers of earth housing ancient bones of cattle, sheep, and goats. When the scientists returned from the Gobi with their secret treasure-makers, vast cages were built and special gloves were developed to ease the handling and generation of death worms. The worms were released into the great hole to produce precious tailings for the benefit of all who worked collectively under the gaze of the Red Hero and the Red Empire.¹⁴²

Already measuring over a meter in length, the captured death worms grew plump and long on the rich northern soils. They produced massive wastes that could be used to gain goods and machinery from lands to the north and west. For some twenty years this exchange continued. As the mounds of precious waste grew, caustic venom leached into the soils. New machines were built to clean the water that fed the city that grew next to the death worm laboratories.

¹³⁹ See Kaplonski 2004.

¹⁴⁰ See Rohrer 2002.

¹⁴¹ *Erdenet* means treasure in Mongolian and is a Russian-influenced city in northern Mongolia built in the 1960s when copper mining began.

¹⁴² The Soviet Union.

The breeding program continued successfully for several years, but then the world turned upside down and a new experiment was unleashed.

Following the earthquake of retreating Red troops and the great student strikes that followed, workers in Treasure joined protests demanding that the Red Hero make changes. During the demonstrations the workers became distracted.¹⁴³ While on strike, a particularly large female death worm escaped from captivity.

Fattened by years of intensive feedings, but without Red quotas to fill, she took her time traveling south back to her native Gobi soils. Stopping to rest where great machines moved the earth, she fell in love with a mechanical caterpillar¹⁴⁴ that worked for turtles from Turtle Island.¹⁴⁵ The caterpillar's job was to peel back the earth to reveal precious death worm tailings. A foreign migrant worker, she knew he would not stay in Mongolia forever and she longed for her nutag.¹⁴⁶

Knowing she was to give birth to a hybrid death worm-caterpillar, the escaped death worm continued south leaving behind her many tailings. Pregnant¹⁴⁷ with hopes for a future in the rich desert soils of the Gobi, she carried inside her a new kind of death worm who would see dawn in the desert. This new hybrid death worm would exhibit the mythical biological properties of its mother and the mechanical endurance of its father. At the heads of many dry mountains

¹⁴³ Rossabi (2005) argues that the student protests that led to the Democratic People's Revolution in 1990 would have been unsuccessful had the Erdenet workers not joined the students in solidarity through a strike.

¹⁴⁴ Caterpillar is a global supplier of mining equipment.

¹⁴⁵ A First Nation's name for North America.

¹⁴⁶ Regional homeland.

¹⁴⁷ The death worm pregnant with the hybrid Death Worm is perhaps an example of "the thought of sexual sublimation," that sullies the purity of the mother policed for her mythical and biological qualities (Dashbalbar 2008, 299). In other words, this death worm illustrates how the policing of women's bodies is tied to discourses of national security (see Bulag 1998). As Latour argues, "the more we forbid ourselves to conceive of hybrids, the more possible their interbreeding becomes—such is the paradox of the moderns" (1993, 12). In other words, the more constraints brought to bear on the meaning of her symbolism, the more likely it is that she will transgress those constraints, to rebel, to contradict the expectations of the moderns, and to generate her own future (see Butler 2004, but not Spivak 1999 so much).

near the border of that other great Red Empire,¹⁴⁸ she reached the end of her journey. For the Gobi, as you may have heard, is an ancient death worm birthing ground.

“Hmm.” Altansar said. “Were you one of the geologists?”

“Haha! Yes, I am a geologist and I specialize in hydrogeology. I love the water, you see. But how did you know? Oh yes, my rock collection by the altar. I was one of the scientists responsible for monitoring the death worms. After they escaped, I was charged with tracking them down. We have been very concerned that they have been polluting the water and that those searching for tailings have been using too much water. We must know where these hybrid Death Worms will be born and how they might affect our land and water. Lately, we’ve seen dust rising following the paths of death worms and their tailings. You must follow the dust. If you follow the dust, you will find the death worms that may change Mongolia forever. By the way, have you taken chemistry yet in school?”

“Just one term. But I got a high mark!” Altansar replied.

“Excellent. You must know that death worm tailings are precious, but also poisonous. Be careful! Here is a list of chemicals that death worms release and the compounds that make them inert. Also, here is a water testing kit. You can never be too careful!”

“Thank you!”

“Wear this mask and know that there are others on similar paths. Now I must get back to my analysis. Good luck on your journey!”

“Before I leave, I must ask. Why is your skin so shiny, so silver like a fish?”

“I am from the north where great rivers are home to great fish. But we do not have time for such talk. We will meet again!”

¹⁴⁸ China.

Altansar left the ger. She mounted her motorcycle and took off into the midday sun.

Trees

As the sun began to set, Altansar saw one, then two, then three, then too many to count *hailaas* trees dotting the landscape along a streambed. She stopped near one for shelter from the summer sun. She saw a few *gers* on her way from Nergui's camp, but decided to keep moving to catch the last rays of sun before the cool night fell. Curled up in her brother's *deel* next to the fire, she drifted into a dreamless sleep.

The next morning, she woke up in yet another unfamiliar *ger*. But instead of rocks at the altar, she saw what looked like small cores of trees and a microscope. On top of the stove, milk tea simmered.

As she peaked out the door and saw a young man in a rough *deel* working on a motorcycle parked near her own. The *hailaas* forest was still there. The *ger* was set only a few feet from where she made her fire the night before. On the table, a book about the Gobi was opened to a page about local wells and springs. Information about a well called *zag*-deep water was highlighted.

A long time ago, death worms, wonder geckos, and the so-called yeti, a fierce strong named family of animals were said to live here. This was a waterless, desolate place. During the Socialist era a long time ago, wells were created and families of animals settled so that they could take advantage of resources throughout the pasture (Baasan, 2010/1990, 184)

Before she could read more, she saw through the open door that the stranger was approaching the *ger*. He reminded her of someone. Her brother? Her father? Her grandfather? No. Someone else. She stood up and walked outside.

"Good morning" the stranger said as Altansar walked over to her brother's motorcycle.

“Good morning. Where did you come from?” She asked as she checked her tires.

“I have always been here. You found me. Were you looking for me?” The stranger asked with a smile.

“I don’t know. How did I end up in your *ger*? I thought I fell asleep next to a fire next to the tree.”

“Perhaps you did. Perhaps you didn’t. My name is Ireedui.¹⁴⁹ What brings you here?”

“My name is Altansar. Nergui mentioned you. Do you know him? I am looking for the death worms. He told me to follow the dust, but I think I may have lost my way. It isn’t so dusty here.”

“Altansar? Your name is like the rising desert moon, red from dust. But here, no, it is not so dusty, not yet. The *hailaas* hold down the soil and bring water up from the ground. But I fear the dusts may come soon. These trees may be changing. The rains are also changing; they are harder and less frequent. They are not the gentle summer rains of my childhood when grass grew on the backs of camels. Now the rains come as infrequent downpours. But there may be something else happening. I have seen the death worm trails nearby and their thirst may harm the trees. All forests come and go, but if all the trees die, dust will fill the stream and the gazelle, who now seldom visit, may leave forever.”

“How will you help the trees? How can the dust be halted? What can I do? My family is turning into turtles and the trees are suffering! What can I do? This all seems so hopeless.”

“First, we must understand what is happening to our lands. I am studying the tree rings of the *hailaas* to learn about how they survive in varying conditions. Nature is always changing,

¹⁴⁹ *Ireedui* means future.

just like people, but we can try to understand and work with each other. How will you find the death worms?”

“Nergui told me to study what is happening to the water. He gave me some equipment to help me trail the death worms.”

Ireedui raised his eyebrow and asked, “And what will you do once you find the death worms?”

“I’m not sure, but I know that my family, my friends, and everyone who cares for the land must pay attention to what the death worms are doing. My family members are turning into turtles, but for how long? I’m worried that their luck might run out. I am frightened that I have no future or that I will have to work for the death worms. I don’t want to become a turtle. People say that the only way to pay for an education is to follow the death worms, either into the ground or through the scholarships that those who trail the death worms offer. Is this the only future?”

“Yes, sometimes it seems as though the death worms are the only future that we have. Our connection to the land is becoming subterranean, and the surface, where we live among the *hailaas*, rivers, steppes, and herds is changing. It can be hard to see a future when it all is underground, away from the blue sky our ancestors worshipped.”

“So what should I do? How can I help? I’m so frustrated!”

“Of course you are frustrated and perhaps scared. Many are concerned that the death worms have taken over our lands so quickly. But you must follow the signs. Understand what the death worms are doing and share the stories of how our people, animals, and land are transforming. Now, I must go to the trees across the stream and take some core samples. You may stay here if you like and help me, but I sense that you want to move on.”

“Yes, thank you. I need to get back to the dust. Although these trees are like a paradise.”

“Good luck, Altansar. I’m sure we will meet again.”

Ireedui turned toward the stream. As Altansar watched him walk away, he looked as though he was taking the form of a tree. Then Altansar took off down the road towards a darkening sky.

Dusty Roads

After what felt like only a few minutes back on the road, the *hailaas* trees quickly receded and made way to a flat expanse. Occasionally, Altansar passed families of camels clustered around troughs extending from hand-dug wells. The winds began to blow, whipping up hundreds of dust devils and slowing Altansar’s pace until she could barely tell road from pasture. After an hour of riding in the dust, she came upon an abandoned animal shelter. She stopped to take cover.

Barely able to breathe because of the blowing dusts, she hunkered down in a corner with her deel wrapped tight. Resigned to stopping for the night to wait for the winds to die down, she began to look around the shelter. She spotted some papers littering the floor. Faded and brittle, she could still make out some of the words.

This shelter was constructed and given as compensation for displacement for the newly built Death Worm tailings operation. Acceptance of this shelter is recognition of a fair settlement between the Death Worm tailings operation and citizen. No further legal actions can be taken regarding the resettlement of family _____ and their livestock.

On the bottom, signatures and a date, from about three months earlier, were penned. Obviously, the family did not stay long.

After a dinner of aral¹⁵⁰ and water, Altansar drifted into sleep. Her last thoughts were of her family and livestock, displaced by death worms and now perhaps by the wind.

The next morning, Altansar awoke buried under a few centimeters of sand. To her left she saw a visitor—a very familiar looking camel.

“Tsereg? Is that you?” She asked as she stood up and dusted off her hair and *deel*.

The camel coughed and wheezed. His eyes bulged and his thick lashes were clumped with dust.

“Yes, Altansar, it’s me. I got lost in a dust storm and wandered off from my family. Your family is still looking after my family, but they are so busy now with death worm tailings. I am sure that they are worried now that we have both gone missing.”

“I can’t believe it’s you!” She patted him gently on the head and brushed the sand from his sagging humps. “Even though it is summer, you should have more hair than this. And what happened to your eyes? Why do you wheeze so?”

Cough. Wheeze. Cough. “It’s those roads! There are so many. My favorite grasses are covered with dust and the air is full of powder. No one can breathe. I was separated from my family in the dust storm. We were grazing next to a road and suddenly two of my brothers were struck by one of those massive machines that drive dust into the air. I almost broke my leg when I fell into a pit next to the road trying to escape. Are we dying? I fear my lungs are filling with dust. Maybe it is for the best to leave my family. I am a burden. I will die and become dust.”

“Oh Tsereg! You can’t! I need your help. I’m following the dust to find the death worms and to help my family. I don’t want them to be turtles.”

¹⁵⁰ Dried yogurt.

“It is too late for me. I can no longer weep and my humps are almost dry. I am returning to dust, to become part of the future of our home. Dust.”

“No! I must take you to see a veterinarian! There must be some way to save you. The dust has died down, I will go to the well and wash the grass so you can eat.”

Two hundred meters from the shelter, Altansar found a well. The winds were calm and the sun shone through the haze. She dropped a pail into the well. She managed to get a half a bucket of water, which she brought back to the shelter.

“I brought you some water, but first I must test it.”

She took out the water testing kit Nergui gave her. She tested for chemicals both endemic to the area and those associated with death worm tailings.

“Looks like this water is clean enough to drink! Please Tsereg, have some water.”

Tsereg took a few sips. After a minute he appeared less distressed.

“Thank you. You have always been good to your livestock. I may need a day to rest, but tomorrow I will go with you on your journey. What is it exactly that you are going to do about these death worms? They are everywhere and everything seems to be changing so quickly.”

“Well, I’m not entirely sure what to do. But I know that we need to find out what is happening to the water. The death worms drink so much and their tailings leave so much dust! I’m sure that the well here is filling with dust. We’re just lucky that the dust is not always toxic.”

“The dust by itself is toxic to me! What else could be toxic about it?”

“There could be tailings in the dust. Death worm tailings are poisonous and maybe the road dust itself too.”

“I see. But I am just a camel. What can I do?”

“You can join me. Tomorrow let’s keep tailing this road. There is a death worm to be found and perhaps an idea will come along the way.”

Altansar settled back down into her corner and brought out a deck of cards. For the rest of the day she amused Tsereg with card games. He told her stories and together they recounted fond memories of their life together. That night they both slept deeply under a golden moon.

Water Flows

The next morning, Altansar awoke in yet another ger. This one was smaller and sparsely furnished. Outside she could hear the sounds of camels being sheared. When she peaked out the door she saw a row of camels lined up next to a small fence enclosure. A young man held down the camel while an elderly lady snipped at the camel wool with large scissors. The camel snorted, grunted, and groaned as the pair swiftly removed the shedding coat. Tsereg stood off the side, looking towards the horizon. He never made a sound while his wool was snipped off for the summer. Except once, when Altansar clipped off a little more than his hair the first time she helped her parents shear the camels.

When the herders finished shearing the camel, they noticed Altansar and walked towards her. The elderly said, “Good morning. You looked like you needed more sleep. Come. Let us have some tea.” She handed the shears to the young man, opened the gate and walked towards the *ger*.

Over tea, Altansar and the elderly woman discussed the weather and the sand storms that blinded Tsereg and all the other livestock. The woman asked Altansar what she was doing away from her family. Altansar told her about her family turning into turtles. A few minutes later the

young man entered. Then the elderly woman said, “I want to tell you a story about the river that sometimes runs near this place.”

Once, a long time ago, some soldiers and their horses were crossing the desert and became very, very thirsty. So thirsty, they thought they would die. At last they came to a river that flowed through this part of the Gobi, clear and cool. The soldiers and the horses drank from the river and were revived. To honor the river for saving their lives and the lives of their horses, the soldiers stacked many stones creating the peaks you see here. The soldiers told the Khan about the river and how it saved the soldiers and their horses from death. The Khan ordered the river to be protected and honored. When people passed this river they always left silver ingots as a sign of respect for the river. Guards were stationed in nearby caves to make sure no one, especially foreigners, polluted the river. Then one day, a greedy person took all the silver. This person had no respect for nature.

“Now that river is almost gone. The water began drying several years ago. I do not know why. Maybe the earth is drying as it ages. Maybe the death worms drank it. I heard that downstream some turtles plan to move the water that runs beneath the river. I am old and tired. The river is going away, what am I to do?”

The young man said, “But Eejee, we talk about how difficult it will be for us to continue herding. I wish you would approve of me working with the death worms. I don’t see any future here with the camels and other livestock. Each year we breed fewer and fewer camels. By the time I am your age, my family will have less than zero camels!”

“It is your choice,” the elderly herder replied. “But perhaps there is no choice. Altansar, what will you do? And have you seen Nergui? He said he would come by.”

“I am confused,” replied Altansar. “I want to be a herder, but my family tells me I must go to the Red Hero to study. But I do not want to take the death worms’ ...”

CRASH! SPLASH! THUNK!

“Help!! Bayarmaa! Altansar! Help!!”

“That must be Nergui!” shouted the elderly woman as she rushed towards the door.

Altansar followed close behind and they went over a well about 200 meters from the ger.

“That’s strange,” said the elderly herder, “this well has been dry for at least a year!

Nergui, is that you? I thought you would come by land.”

“Yes, Bayarmaa, it is I. Is Altansar with you?”

“Nergui! I am here,” Altansar called down the well. “What are you doing?” As she peered down the well, she spotted the head of a giant silver fish.

“I am studying the underground water flows, but I appear to be blocked. There must be something downstream creating a barrier. This water is very important to the herders and wildlife downstream. Bayarmaa, what can you tell me about this well?” Nergui the fish asked the elderly herder.

“The well is perhaps one hundred years old, but it has been dry for a year. Baatar cleaned out the silt, but there is very little water. So he dug a new well about 100 meters to the right. What does it look like down there?”

“Strange. The water levels are lower and the direction of the flow has changed since last year. But I have an idea. Altansar, you must follow my directions carefully. Follow the riverbed downstream. You will come to a pile of rocks and earth that the death worms removed. In the past, when rocks were moved, you would hear a great crack sound and water would be released. Somehow, the death worms have blocked that natural mechanism. The ancient pools of Gobi

groundwater must have moved. If you move some of those rocks, with Tsereg's help, maybe you can release the water. Do you understand my directions?" Nergui asked.

"Yes, but where should we move the rocks to?"

"When you find the rock piles, you will also find a massive pit. Inside there may be some death worms. Death worms are very sensitive to subtle movements within the earth. They will sense that you are shifting the rocks into the pit and they will be able to move out of the way in time. Follow my directions and we will see each other again soon. Good luck." And with a flash of his tale Nergui disappeared deep into the well.

Bayarmaa looked at Altansar. "You have a big task ahead of you. Go now before it gets dark."

Altansar thanked her host and took off following the dried riverbed towards the rocks.

Rocks

By late afternoon, Altansar and Tsereg reached the rock piles. Peeking over the edge of the pit, Altansar saw the death worms hard at work moving the earth. Multicolored stones flashed in the light. Gold, copper, silver, turquoise, sleek black, and a strange greenish color shone in the late afternoon sun. On the other side of the pit, she could see a forest of *hailaas*, gray and withered—with the exception of one tree that was still green and somehow familiar.

After she ate the dinner Bayarmaa packed for her and brushed the sand from Tsereg's coat, she settled into her *deel* to sleep. She dreamed of the *hailaas* forest restored.

The next morning she awoke in a *ger* decorated with Naadam wrestling champion ribbons. A stack of binders lay on the floor next to a man seated on a chair who was reading some sort of technical manual. But there was something strange about the shape of his face and hands and the way he hunched over his book as though he had a rounded back.

“Good morning,” he said. “I trust you slept well. There is hot milk tea on the stove.”

Altansar went over to the stove and poured herself a bowl of tea. “Who are you? My name is Altansar. What are you reading?” She asked.

“My name is Boldbaatar.¹⁵¹ This booklet contains information about repairing death worm-caterpillar hybrids. My dad was a mechanic for the army, so I grew up around machines. But these hybrids are tricky. Anyways, what are you doing here so close to the death worm layer on your own?”

“Well, do you know Nergui? The hydrologist?” Altansar asked.

“Yes. He worked with my uncle at Treasure. My dad helped him fix his jeep once after he got stuck near the river a couple of years ago.”

“Nergui asked me to move some of these rocks to let the water flow.”

“I wondered when he would figure out the problem!” Boldbaatar exclaimed. “I will help you move the rocks. I have been working with the death worms for many years, but lately, I’ve changed my mind. These manuals describe and analyze the effects of the death worms. After almost a decade working with them, I finally feel like myself again. All this time I have been working with the death worms to make holes in the ground, which we haven’t been filling in. I think Nergui’s idea to restore the river will also help restore the land.”

Suddenly, Altansar realized what had been bothering her about his appearance. He was returning to his human form. *So turtles can turn back into people.* This was the first sign that she could help her family.

“So you will help me?” Altansar asked.

¹⁵¹ *Bold* means steel and *baatar* means hero.

“Of course! Let’s go outside. I will round up a few hybrids to help us move the earth back into the pit.”

Outside the *ger*, Boldbaatar walked over to a giant four-wheel drive vehicle and said to Altansar, “This is what working with the Death Worms buys. But the dying river and *hailaas* are the cost. We will use my vehicle to push the rocks into the pit. That should get things moving again. Don’t stand in the riverbank or too close to the edge of the pit. I don’t want you to fall in!”

Boldbaatar drove over to the rock piles. Altansar and Tsereg pushed some of the smaller rocks into the pit, to warn the Death Worms to move out of the way. When Boldbaatar reached the first pile of rocks, he took out a strong rope made of horsehair. He tied one end to the back of his vehicle and told Altansar to tie the other to a rock at the bottom of one of the piles. Once she was out of the way, Boldbaatar began to try to drive away. But the pile wouldn’t budge.

“Tsereg!” Boldbaatar called. “Do you think you could help me out here? Let’s tie another rope to the same rock and see if we can pull it out together.”

“Of course, I’m happy to oblige.” Tsereg replied.

Boldbaatar took out another camel hair rope and tied one end to the rock while Altansar tied the other end to Tsereg’s bridle.

“Now Tsereg, we must pull at the same time. So on my count of three, pull with all your strength!”

“Very well.” The camel replied.

“One, two...three!!”

CRACK!!

Together, the machine and camel pulled a boulder from the bottom of one of the rock piles. Half of the rock pile tumbled into the pit. The other half slumped near the edge. The ground rumbled once, but then stopped.

“I think we need to try moving the other pile. But first, let’s push some of these loose rocks into the pit,” Boldbaatar instructed Altansar and Tsereg.

Altansar pushed a rock half her size that was teetering on the edge of the pit. As soon as the rock fell, she felt another tremor that sounded as though it came from the belly of a monster. She struggled to regain her balance. Then she glimpsed into the pit and saw only holes where the death worms buried themselves.

“Stay back from the edge!!” Boldbaatar called. “You never know when the ground might move. Now that we have this pile moved, let’s try this other one.”

He tied the ropes to another boulder at the base of the pile and then climbed back into his vehicle. Tsereg took his position alongside the machine.

“One, two...THREE!!” Boldbaatar shouted.

CRACK!! SPLASH!! “Woohoo!!” Altansar heard an enthusiastic cry as the ground began to shake and the wall of the pit opened up. More water than she had ever seen before flowed from beneath the dried riverbed over the wall of the pit, which began to fill the great hole. As the water flowed, she could see all sorts of *losan am’tan* including frogs and fish as irises suddenly sprouted along the riverbank. Across the pit, she could barely make out green shoots sprouting from the fading *hailaas*. A man appeared among the trees, but she could not see him clearly.

Boldbaatar tapped her on the shoulder and said, “Look at that abandoned well.” Three wild horses surrounded the well and she could see another trying to climb out of it. “My uncle

shot an animal near there and then the drought came. But do you see the wild horses coming out from it? The water is alive again! Now perhaps the weather will change.”

Nergui swam to the surface and shouted, “Indeed, we may now see changes in the atmosphere. The river is restored. The death worms are no longer in charge. Hopefully, this will assuage the spirits who have been so angered by the activities of the death worms. Soon the rains will return, isn’t that right Ireedui?”

“Ireedui, where did you come from?” Altansar asked.

“I was in the hailaas forest. I cannot explain what happened when the rocks released the water. The trees were dying and then all of a sudden, I heard a loud crack, the ground shook, and the trees began to change. I do not know how I am going to explain this to my research partners—it is unprecedented!”

“True,” replied Nergui. “The sudden transformation of the trees is not an old legend, but perhaps it is a new one. But we must monitor this water, we do not know if the death worm tailings will affect the *losan am’tan* or herders and their herds whose wells are downstream from the released river. I must continue on my journey to make sure that the river flows in and out of this new lake. Boldbaatar, I will come by your *ger* next week to teach you how to monitor the water. Altansar, your family must be missing you. I think it is time you go home. Now, I must go check on other endangered water systems. See you next year!” With a flash of his tail, Nergui dove under the water and was gone.

“Do you need a ride?” Boldbaatar asked Altansar. “No,” she replied. “I will go by motorcycle. Thank you both for your help. By the way Boldbaatar, you must look in the mirror. I think you will be surprised.” “Oh?” Boldbaatar asked as he looked into his vehicle’s side view mirror. In the reflection he saw a man, without any turtle-like features. Ireedui chuckled. “Now if

the gentle rains return, that would make me feel more optimistic for the future. In any case, Altansar, you are a tenacious young woman. I encourage you to come to the Red Hero to study. Here is my card. Contact me if you have questions. We are always looking for good students at the National University.”

“Thank you,” Altansar replied. “I will consider it.”

Mounted on her brother’s motorcycle, Altansar took off down the road towards Red River. But then the clouds began to gather. Worried that a pounding summer thunderstorm might pour from the sky, Altansar and Tsereg stopped at a cave near her family’s winter camp. A gentle rain soon followed, something that she had not seen since she was a little girl. After a few minutes in the cave, Altansar decided they could safely continue. As they drew closer to her family’s encampment, she noticed grass growing on Tsereg’s back.

Where the Death Worms Roam

Altansar reached her family’s summer pasture, but she arrived to a transformed home. The family’s *ger* looked a bit tattered with broken earthmoving equipment resting nearby. Her mother, standing straight, came out of the *ger* to throw the first ladles of milk tea to the sky. When she saw Altansar she cried, “Hoi! Where have you been? We need your help moving the *ger* for the fall. We need your help with the camels.”

Her brother came out from the *ger* with smooth skin and clipped nails. “Where did you go? I should have never taught you how to ride my motorcycle. You owe me.”

Stepping inside the *ger*, Altansar spotted her father seated next to an old friend who had just arrived. They were sharing snuff and Altansar noticed her father’s nose had returned to its pre-turtle state.

“Altansar! Where have you been? We were worried and we didn’t know how to find you. Nobody has seen you for weeks. All we heard were rumors about a mysterious girl riding a motorcycle around with a camel following closely behind. Was that you?”

“Hello father. I was trying to find out what the death worms are and why you turned into a turtle. I thought that once you turned into a turtle you would be one forever. I don’t understand what has happened.”

“Things have changed. Our luck with the death worms has run out. The tailings are drying up, yet we notice the water is flowing more strongly. Now, we are getting ready to move for the fall. We want to send you back to school to finish high school, but there is no more luck unless we hear of new tailings or the livestock reproduce this spring. We are not sure if you can go to the Red Hero for your education. I am sorry. This must be a disappointment. We hear rumors that all over the country people change into and out of being turtles so much that the transformations become a blur. Some say that our luck will never return. Yet, Red River may flow again this spring. If it does, then maybe everything will be better.”

“But aren’t we lucky when the air is clean, the animals are healthy, and the rivers run clear? Must we be dependent on the death worms?”

Her father coughed and said, “I understand what you say, but our land is being consumed, it is the way of this world, perhaps. Besides, I am too old to fight it. We need a leader, someone who can fight to protect those things, but it is not I. Who will it be? I heard rumors of a man who released water with stones and another emerged from a *hailaas* forest reborn. Or maybe this mysterious young woman on a motorcycle will lead us?” He chuckled. “But now stop asking so many questions and go help your brother with the camels. Then we will talk.”

That night, Altansar dreamt of Ireedui and the *hailaas* forests with new shoots rising from the dust. She dreamt of Nergui swimming in great rivers and Tsereg and his family munching on the fresh spring grasses that grew on their backs. She saw herds of gazelle and ancient soldiers splashing in a great desert oasis. In the morning, she looked to her books and thought about what to tell her friends. She thought about how to learn how to protect the water, land and her family from the death worms. She thought about who will lead the fight against a future tied only to luck of the tailings, and to fight for life in a land of death worms.

CHAPTER 7: Conclusions



Figure 21 Sundown in Khanbogd, fall 2011.

As the sun sets on the construction phase of Oyu Tolgoi, the mine and its nation-building promises remain contentious. On the one hand, Oyu Tolgoi has become a lightning rod for all that is positive and negative regarding mining and national economic development. On the other hand, Oyu Tolgoi takes on the appearance of a governing power in Mongolia, not the least through its nation-building claims. Moreover, perceptions of the immediate effects of infrastructure development on the environment demonstrate a conflict over visions of the nation. While the vision of Mongolia as a mineral nation has become naturalized through discourses that promise national economic development *if* revenues are reinvested outside the minerals sector, how infrastructure construction has taken place suggests that nation-building promises are not being realized. The draining of water resources and the invasion of dusts into homes and bodies amplify perceptions that mining is taking place in Mongolia to benefit only those who live far from the immediate impacts (see Bebbington and Bebbington Humphreys 2011). At the same

time, the dystopian vision of Mine-golia remains as local residents fear drained water resources and dusts will leave large areas of the Gobi uninhabitable.

However, the scale of the costs to the nation remains unknowable at this still early phase of Mongolia's mining boom. Therefore, what I have attempted to demonstrate in this dissertation is why this national debate will undoubtedly remain contentious for some time. Although not exhaustive, I have illustrated how the immediate material effects of infrastructure construction challenge the nation-building ideals that various actors have portrayed as the *telos* of national economic development through mining. This *telos* imagines a modern nation supported by a state that facilitates foreign investment and infrastructure constructed to export minerals. The generated wealth is then portrayed as a means to provide higher standards of living for all its citizens. Yet as I have shown, mining-related activities complicate this *telos*. How infrastructure is constructed, how state and corporate interests intensify and at times breakdown, and how local residents contest the degradation of the environment and the threats to their livelihoods demonstrate these complexities. While copper and gold suggest great wealth, the extraction processes and institutional changes pose new challenges to nation-building that cannot be solved through more exports. To conclude and provide a sense of how I addressed the questions that mining as a nation-building project poses, in what follows, I discuss key themes and contributions that run through the dissertation and offer some closing thoughts on the work.

Transnational Corporations and Nation-building

As discussed throughout the dissertation, the role of transnational corporations as national narrator and builder remains under examined in the literature. While scholars have focused great attention on corporate social responsibility discourses and practices (see Zalik 2004; Watts 2005;

North *et al.* 2006; Himley 2013), this dissertation opens a new conversation about how mining corporations actively engage in nation-building. Certainly, some of Oyu Tolgoi's promises overlap with the claims of corporate social responsibility. But their claims go beyond responsibility to include a sense of ownership over the direction of the nation, similar to what became an adage in the United States "As GM goes, so goes the nation" (Engelhardt 2009, 1). Some scholars have illustrated how boisterous corporations and states can become when promoting the promises of financial returns to investors (see Tsing 2000, 2005; Bridge 2007). Even though scholars examine mineral extraction as a nation-building process, the specific ways that corporations, not just the state and public, declare their roles as nation-builders remains surprisingly absent (see Watts 2004; Gledhill 2008; Perreault and Valdivia 2010; Valdivia and Benares 2012). Other scholars have identified the development of industries as national projects (Edensor 2002; Pickel 2003; Agnew 2004; Nakano 2004), but not the identification of particular *foreign* corporations as nation-building actors. Whether Oyu Tolgoi is unusual in its promises for nation-building remains beyond the scope of this dissertation, yet there are examples of other extractive industries that draw on the nation to persuade a skeptical public.

For example, the promises of BP after the Deep Horizon disaster off the coast of the Gulf of Mexico suggest an undercurrent of corporate nation-building in commercials that tie the company to national economic development in the United States. At the same time BP has (unsuccessfully) attempted to decrease its financial responsibility for the oil spill. Corporate sponsored advertisements and politicians who support the Keystone Pipeline that would connect Alberta's tar sands to Texas refineries and ports also draw on tropes of nation-building through infrastructure construction. At the same time, as the GM adage implies, corporate involvement in developing nation-building narratives and industries is not new.

This suggests that similar to other critiques of globalization as not new (see Wood 1999; Sparke 2005), corporate actors involved in nation-building is not new including colonial state-making entities such as Hudson Bay, Royal Niger, East India, and the Dutch East India companies. However, the entities that control Oyu Tolgoi—Ivanhoe is Canadian and Rio Tinto is Anglo-Australian—have strikingly different relationships to Mongolia than the above examples from the United States (see also Bunker and Ciccantell 2005). These corporations are headquartered in states with far greater power in the global geopolitical arena than Mongolia.¹⁵² Moreover, their governments represent other companies that are major investors in Mongolia and play dominating roles in international institutions such as the International Monetary Fund and the World Bank. Furthermore, while the Mongolian state has sovereignty over its land and resources, it remains subject to the demands of international financial institutions and foreign governments that have defined and funded the development of the nation's market economy. Mongolia's position remains similar to countries in Latin America (Eaton 2010; Kaup 2010; Kohl and Farthing 2012), Africa (Zalik 2008; Emel, Huber, and Makene 2011), and Central Asia (Domjan and Stone 2010; Palazuelos and Fernández 2012), where the state is positioned vicariously between transnational corporate interests and its citizens. This also further suggests how ideas about land rights and law travel within industries that have a global reach (Peluso and Vandergeest 2001; see also Bunker and Ciccantell 2005). What the case of Oyu Tolgoi demonstrates is how a transnational corporation has not only taken responsibility for governance activities that expose states and citizens to risk (Emel and Huber 2008), but also how a corporation performs a *symbolic* role as a nation-building actor, a role that is often attributed to state and other domestic actors (see Edensor 2002; Light 2011).

¹⁵² Canada is the second largest investor in Mongolia after China.

With the involvement of transnational corporate actors, the dissertation demonstrates how nation-building is an ongoing process. Throughout I have decentered the role of the state in nation-building; however, nation-building inevitably involves state-building (Penrose and Mole 2008). This begs the question of what kind of state mining as a nation-building project produces when so much power lies in the hands of a transnational corporation. While space does not allow for a detailed theoretical argument, what the dissertation highlights is how neither nation nor state-building projects should be conceived as monoliths and that nation-building is one more arena through which neoliberal policies facilitate the emergence of corporate power. The nation and state-building are ongoing processes of negotiation that hinge on the legitimacy of visions and implementation of, in this case, mining infrastructure. Thus the Mongolian state can be seen pushing against Oyu Tolgoi (chapter 3), facilitating the movement of water to mining (chapter 4), or relegating infrastructure development to mining companies (chapter 5). Nonetheless, as Oyu Tolgoi's discourses and infrastructure development illustrate, these transformations of national space reflect increasing dependence on mineral resources while intensifying relationships between state and corporate interests, thus suggesting the recreation of Mongolia as a mineral nation.

Materiality of Nation-building

Nation-building involves the creation of unifying narratives (Johnson 2001; Light 2011) and physical symbols of belonging including large-scale infrastructure projects (Agnew 2004). However, as I have shown, for those living in mining-affected areas, nation-building has a materiality that goes beyond infrastructure as symbols of development. With the redirection of water resources to facilitate mining and the propagation of dusts, nomadic herders are

experiencing an enclosure of the pasture (Harvey 2003). The granting of mining leases demonstrates a direct form of land grabbing that transform both the environment and peoples' livelihoods (Peluso and Lund 2011) and the reallocation of water rights to corporations also suggests a form of water grabbing (Sosa and Zwarteveen 2012). The resulting displacements illustrate what Baviskar (2007) argues nation-building accomplishes—large segments of the national population are restricted from access to resources. In the case of Mongolia, mining-induced displacements are part of longer processes that render nomadic herders vulnerable to natural disasters and global commodity price fluctuations leading to exponential growth of informal settlements, particularly in Ulaanbaatar (see Bruun 2006). Yet the lack of research and mitigation of impacts due to redirected water resources and the proliferation of dusts suggests another kind of enclosure: enclosure by neglect. Mining companies could conduct further research before building water pipelines and pave the roads. The state could require more extensive efforts to conserve water resources and shutdown exports until the companies reduce dusts. Although the draining of herders' wells and dust may seem insignificant on a national scale, these two immediate impacts disrupt the livelihoods of people living throughout the region. Thus each dried out well and plume of dust act as mechanisms of enclosure, limiting the space of nomadic herding, further channeling national development towards mining.

However, the materiality of nation-building represents more than just the enclosure of the pasture in the area. The drying water resources and dusts penetrate the daily spaces of local residents. With decreasing water resources, families must shrink the size of their herds. At the same time, dusts invade the bodies of the livestock, which herders argue renders parts of the animals' bodies inedible. Thus the materiality of nation-building contributes to declining food resources in the region. Although scholars have paid much attention to the effects of *zud* and to a

lesser extent climate change on herd sizes (Marin 2010; Sternberg 2010), decreasing water levels and dusts in mining areas in particular has received scant scholarly interest. However, the mining boom is relatively recent compared to the first catastrophic *zud* of the post-socialist period, which occurred in 1999 (see Sternberg 2010). While the decline of nomadic herding may not threaten the national food supply, the materiality of nation-building through mining amplifies concerns that nomadic herding can no longer sustain as many families and that alternative livelihoods must be pursued.

The materiality of nation-building also suggests a binary opposition between mining and nomadic herding. It has not been my intention to reproduce a monolithic incompatibility between mining and nomadic herding, which is not the case in northern Mongolia near the Erdenet mine or in the western United States where ranching and large-scale mining have coexisted for over a century. However, according to many local residents in South Gobi, mining and herding clash. They argue that the two land uses cannot co-exist in the same space. Thus the cost of national economic development and therefore nation-building is their livelihoods and the use of space in eastern South Gobi province for herding. I am not suggesting that herding will fade away throughout Mongolia, but that in drier regions where mines and herders compete for limited resources, companies supported by state institutions may very well win this clash—unless the state changes its policies and enforcement mechanisms. As the state seeks greater control over strategic deposits, it could also implement stricter environmental and social regulations that would require companies such as Oyu Tolgoi to improve their compensation and mitigation standards. However, this would also require increased state capacity to oversee mining operations and to take stronger measures to protect its own citizens based on their objections to the perceived threats that mining infrastructure poses to their livelihoods. Thus similar to the

findings of other scholars, this dissertation suggests how nomadic herding has become a more and more precarious lifestyle due to climate change, enclosure due to mining operations, and an ongoing lack of state support that leaves many families vulnerable to disasters, both natural and economic (see Fernandez-Gimenez 1999; Bruun 2006; Sneath 2010).

The materiality of nation-building also occurs at multiple scales. Each chapter addressed the rescaling of resources and the increasing distance between where the resources are extracted and nation-building ideals. While natural resources such as minerals and water have been rescaled as national, the *costs* of extracting minerals are felt both locally and nationally. The environmental effects remain localized, but the effects of inflation and corruption resonate nationally. While this dissertation does not focus on where the benefits are felt, it contributes to the literature on mineral extraction that considers how local residents and environments experience the negative effects with mounting concerns that they will not share in the benefits (see Watts 2004; Bebbington and Hinojosa *et al.* 2008; Gledhill 2008; Walton and Barnett 2008; Bebbington and Bebbington Humphreys 2011).

Environmental Changes

Thus, the chapters on water and dust in this dissertation suggest how infrastructure development designed for relatively short-term use (the life of the mine) will have long-term consequences both for local residents and the nation. At stake is how nomadic herders adapt to changing environmental conditions due to redirected water resources and the proliferation of dirt roads as the state facilitates the expansion of mining. As herders insist their lifestyles clash with mining, so do visions of the nation. Access to clean water and abundant pasture form the core of local contestations that evoke national sympathies for the struggles herders have faced

throughout Mongolia since decollectivization. These challenges to national belonging reflect similar paradoxes of nation-building, infrastructure development, and mining found for example in mineral-rich regions of South America (see Harvey and Knox 2008; Knox and Harvey 2011; Budds and Hinojosa 2012; Sosa and Zwartveen 2012).

Rather than being a new era in the nation's development, mining represents deeper and longer processes that have rapidly transformed the national economy, politics, and society to recreate Mongolia as a free-market global actor. But this transformation has not only occurred through direct policy and legal changes that privatize resources. The enclosure of public resources by the redirection of water and the proliferation of dust and roads demonstrates a slower, insidious progression of privatization that has many potential long-term environmental impacts (Peluso and Lund 2011; Mehta, Veldwisch, and Franco 2012; Sosa and Zwartveen 2012). Fears of decreasing water levels in wells and livestock illnesses as well as the diversion of the historically significant Undai River render the Gobi landscape unlivable to many local residents who contend many of the wild animals who used to inhabit the landscape are already gone.

Thus, the environmental changes that accompany mining development, which Oyu Tolgoi claims to mitigate, remain a challenge to local livelihoods and local residents' belonging to the nation. Nomadic herders continue to observe changes in their wells as water is pumped from the Gunii Hooloi aquifer and as the impacts of the Undai River diversion are realized. Although there are more paved roads in the region, according to local sources, they are of poor quality and will not be able to withstand for long the harsh weather conditions and heavy traffic of mining vehicles. Thus the physical environment of the region is changing, rendering nomadic

herders ever more vulnerable not only to the market economy but also climate change as concerns about a dryer and dryer desert expand across the region (see Marin 2010).

Critical and Magical Realisms

To frame these material and discursive changes, I introduced the concept *critical magical realism* in chapter 2 to consider an approach to research and writing where the fictions of the promise of mining and nation-building come into contact with the monsters of modernity. While nation-building suggests the development of unifying narratives and infrastructure that materially supports ideals of modernity, at the same time monsters emerge to challenge promises of a nation renewed. The monsters presented here include symptoms of Dutch Disease (chapter 3), drained water resources (chapter 4), and clouds of dust (chapter 5). While critical realism provides an approach to understanding what underpins environmental degradation and scarcity, by adding magic and fiction, researchers can explore questions of nature and environment that evoke new discourses. Yet, these magical properties are already part of literatures that explore modern nations. As scholars have shown, minerals can be transmogrified into the promises of development (Coronil 1997; Bridge 2004b) and at the same time, mining can release maelstroms of modernity (Berman 1983), leading to contestations over how nation-building takes place. These unexpected outcomes produce monsters (Latour 1993). I detailed these unexpected outcomes in the water and dust chapters through fears of the decline of herding in the region and I chose to anthropomorphize them into monsters in the story.

Read together, the chapters of this dissertation illustrate how different worldviews, including my own, can be more easily communicated, but hopefully not exploited, through

fiction. While the academic chapters attempt to focus on a single idea, the story demonstrates how multiple ideas can co-exist in one narrative and how actors transform into characters that represent the complexity of experiences of mining and nation-building. The purpose of the dissertation as a whole is to disentangle and clarify mining as a nation-building project. But through fiction (chapter 6), I wanted to allow the complexity to exist without explanation, relying on the intuition and imagination of the reader to make of the situation what they will. Thus I attempted to follow Benjamin's (1963) advice to allow the reader to interpret the story as they see fit for themselves.

Moreover, because I felt more freedom to express my interpretations of the world, in the story chapter I more openly critique mining as a destructive process, but also as a process with possibilities for alternative landscapes and futures. At the same time, the story raises questions about mining that draw on the previous chapters. Throughout Altansar's adventures and encounters, I intended to create a critique of the material effects of mining that evokes the stories I was told about protecting the environment. While I was unable to address in full detail the national ethos of environmental protection in Mongolia, the purpose of the story was to express this ethos through actions that challenge dominant discourses and the processes that transform landscapes and displace many local residents. That is where I see the power of critical magical realism as a genre. The purpose is not to simply analyze myths and stories, but to integrate them into the narrative to recreate, in this case, the multiple visions of the nation that come to the fore as mining emerges as *the* means to rebuild the nation.

Mongolian Studies

While mining is not new in Mongolia (see Rubens 1979), studies on the development and effects of mining in Mongolia remains under studied. Work by Murray (2003), Byambajav (2010), Upton (2012), High (2013a/b, 2012), Cane (2014), for example, contribute to deeper understandings of the cultural and political implications of mining for local communities and social relations. Furthermore, yearly analyses of Mongolia in *Asian Survey* consistently focus on how mining presents national challenges and opportunities (see Tuya 2006; Bulag 2009; Narangoa 2011).¹⁵³ And as I show in chapter 5, the origins and movement of Gobi dust is a topic with which numerous Mongolian scholars have engaged (see Natsagdorj *et al.* 2003; Batjargal *et al.* 2006).

However, empirical studies of mining in Mongolia remain politically charged, especially for Mongolian academics. For example, while attending the 2012 International Conference on Natural Resources and Sustainable Development on the Mongolian Plateau, there were no presentations on mining. When I discussed the issue with several colleagues, they suggested that because Mongolian university funding is controlled by the state, few academics are willing to risk their careers by criticizing the nation's major source of funding. This reflects similar issues in Mongolia related to the power of the state over its critics, despite democratic reforms. For example, the credentialing of lawyers is controlled by the state; therefore, according to a state legal official I interviewed, suing the state may result in revocation of one's license to practice law (interview 2011). Furthermore, ties to mining industries also complicate academic research as many consultants for mining companies such as Oyu Tolgoi work for the universities. Because government salaries remain low, consulting for mining companies provides a means to

¹⁵³ However, the last yearly review of Mongolia politics and economics published in *Asian Survey* was 2011.

supplement low incomes.¹⁵⁴ Thus, Mongolian academic institutions may be hesitant to support research that critiques mining. Mongolian scholarship tends to focus on pastoral issues (see Fernandez-Gimenez and Batbuyan 2004; Damdinsuren *et al.* 2008; Baasandorj 2012) and geopolitics (Batbayar 2002). Despite these issues, some excellent work is being produced by Mongolian academics on mining such as Byambajav (2010) and Lkhasuren (2012).¹⁵⁵

What I contribute to the Mongolian studies literature is an analysis of questions of national transformations at the height of Oyu Tolgoi's construction and the boom of the Mongolian economy from 2010 to 2012. The dissertation builds on previous scholarship on Mongolia and the nation-state by Bulag (1998) and Sneath (2007) to elucidate how mining intersects with constantly changing visions of the nation, which at the same time often combine ideals of progress with nomadic herding traditions. The dissertation also contributes to work that suggests how the broader political economic changes following the collapse of the USSR have launched Mongolia into a new era of capitalist development (Fernandez-Gimenez 1999; Sneath 2002; Rossabi 2005; Bruun 2006). Throughout the dissertation I have engaged with Mongolian scholars and scholars of Mongolia to demonstrate tensions over the definition of the nation (chapter 3), how water resources require more attention by scholars (chapter 4), and why scholars need to look beyond the origins and movement of dust to include lived experiences of dust (chapter 5). Chapter 6 provides a new way to think through Mongolian studies, including engagement with young adults.

¹⁵⁴ For example, one of the interviewees in this dissertation has worked in university, consulting, and government capacities in Mongolia.

¹⁵⁵ For a recent anthology with several chapters on mining in Mongolia by international and Mongolian scholars see Dierkes 2012a.

Non-endings

How Oyu Tolgoi will continue to promote itself as a nation-building entity and to what extent local residents are able to assert their claims to lost livelihoods remains unknown. Well water levels in the affected areas are decreasing and road dust penetrates the daily lives of local residents. Plans to develop an OT town appear to have stalled, but Khanbogd *soum* center now has somewhat more reliable access to electricity through Oyu Tolgoi's power agreement with China. Energy Resources is building its railroad to China and Oyu Tolgoi's road has been paved, although not to international standards according to Mongolian NGOs. However, the state continues to challenge the power of transnational mining companies including Oyu Tolgoi. In late 2012, President Elbegdorj released new draft Minerals Laws that would increase the power of the state over the nation's mineral *and* water resources, but the new laws have yet to be ratified by the Parliament.

At the same time, negotiations over the funding of Oyu Tolgoi's deep shaft block-cave mine continue. In late spring 2014, the company laid-off several hundred workers and state released an audit stating that Oyu Tolgoi was required to pay more taxes. The public also remains weary of the influence of foreign corporations in the mining sector. Survey results released in spring 2013 and spring 2014 by the Sant Maral Foundation show that the public remains skeptical of foreign ownership of strategic deposits. While around 25 percent believe strategic deposits should be 100 percent Mongolian owned, nearly 60 percent¹⁵⁶ believe strategic deposits should be at least 51 percent Mongolian owned (Sant Maral 2013). A tiny fraction of the population believes foreign entities should own more than 51 percent of strategic deposits—0.1

¹⁵⁶ In 2014, the figure decreased slightly to 56 percent (Sant Maral 2014).

percent in 2013 and 0.3 percent in 2014 (Sant Maral 2014). Thus, the national debate about how to build the nation continues.

Many questions remain that I was unable to address in this dissertation due to timing and constraints of space. Although a major goal of modernization projects includes urbanization (Ferguson 1999), I was unable to address the management of influx populations to mine-affected areas and the plans and lack thereof to establish urban settlements. Because of the success of the Erdenet mine in northern Mongolia, the comparison remains apt for more study on urban infrastructure development in the region. A longer historical account of the region and more attention to the cultural meanings of places would also expand understandings of the impacts of mining in the area. This includes more attention to concerns about the influx of Chinese workers and xenophobia, something which strikes at the core of Mongolia's national identity but which I did not have space to explore (see Bulag 1998). Finally, the development of conservation programs both by companies such as Oyu Tolgoi and by the state to compensate for environmental degradation remains under examined. The extent to which nomadic herders are and will move into special protected areas remains an area of research where false binaries of nation as natural/nomadic and industrial/mining could be further explored.

Epilogue



Figure 22 Oyu Tolgoi's concentrator seen from inside the mine license. Photo by the author, fall 2012.

As the plane that took me from Ulaanbaatar to Oyu Tolgoi descended, I looked out over the pasture where I had visited with nomadic herders several months before. I saw the new airport being built, for which the herders said they received unfair compensation. The landscape looked the same—just slightly greener after some late summer rains. When the plane touched down, tears welled in my eyes. I felt guilty for taking advantage of the opportunity given to me by Oyu Tolgoi at the company's expense to tour the mine. But the visit to the mine also provided me a sense of closure to my fieldwork. I had finally visited the place that I had read and talked so much about. Being inside the mine, rather than just looking at it from the outside, gave me a sense of the scale of the project that is supposed to transform the nation. But I also felt underwhelmed because the open pit was only partially excavated and the deep shaft block cave mines are hidden, under the surface and out of view, just like the nation's future. As we drove

through the complex and then as I boarded the plane back to Ulaanbaatar, hoping for a glance of the open pit from thousands of feet above, I imagined the death worms. I thought of them burrowing underground as a wall of water poured from a human-made cliff, generating an alternative future unknown.

APPENDIX

Sample Interview Oral Consent Script: Herders

I am reading this oral consent script to explain the research being conducted, benefits and risks, and your rights as a participant.

- The purpose of this research project is to assess the impacts of mining-related infrastructure on water access and national belonging due to the construction of the Oyu Tolgoi mine.
- The information you provide may be used in publications related to my dissertation or in future research on mining and water in Mongolia.
- The methods for the research include interviews, focus groups, participant observation, and document analysis.
- The benefits to you include opportunities to voice your opinion, participation in potentially policy relevant research, and increase your knowledge of participating nongovernmental organizations.
- We do not foresee any risks or discomfort from your participation in the research.
- Your participation in the study is completely voluntary and you may choose to stop participating at any time. If you decide to stop participating, you will still be eligible to receive the promised pay for agreeing to be in the project. Your decision not to volunteer will not influence the nature of your relationship with York University either now, or in the future. You can stop participating in the study at any time, for any reason, if you so decide. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researchers, York University, or any other group associated with this project. In the event you withdraw from the study, all associated data collected will be immediately destroyed wherever possible.
- All information you supply during the research will be held in confidence and unless you specifically indicate your consent, your name will not appear in any report or publication of the research. The interview will be digitally recorded. Your data will be safely stored in a locked facility and only research staff will have access to this information. All names will be coded to protect your anonymity. Your identity will be kept confidential.
- If you have questions about the research in general or about your role in the study, please feel free to contact me or my Graduate Supervisor, Dr. Elizabeth Lunstrum, either by telephone at (416) 736-2100, extension 46010 or by e-mail (lunstrum@yorku.ca). You may also contact my Graduate Program in the Department of Geography, N430 Ross Building, (416) 736-5107. This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, York Research Tower, York University (telephone 416-736-5914 or e-mail ore@yorku.ca).
- The interview will last between 30 to 90 minutes.
- Please accept this gift as partial reimbursement for your participation.

Written Consent Form



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Researcher: Sara L. Jackson
Research Title: Imagining the Future of Livelihoods and Environment in Mongolia's South Gobi Mining Boom
Research Advisor: Elizabeth Lunstrum, Doctor and Assistant Professor of Geography, York University
University: York University, Toronto, Ontario Canada

This is a consent form for participation. This form explains the research Sara Jackson is conducting, the benefits and risks, and your rights as a participant. **Please consider this information carefully.**

This research is being conducted as part of Sara Jackson's doctorate degree in geography. She is a student and is not and has not been associated with any government or private company.

The purpose of this research project is to understand how mining infrastructure is affecting water access, livelihoods, and national belonging due to the construction of the Oyu Tolgoi mine. The research explores expectations and perceptions of the social and environmental impacts of Oyu Tolgoi in peoples' lives and Mongolia.

The research includes interviews and focus groups with 100-150 people living in the area surrounding Oyu Tolgoi. **Your experiences, impressions, and ideas** are important to this study. There are no right or wrong answers to the questions.

In the interview, you are invited to answer questions about your access to water and your perceptions of mining in your life and Mongolia's future. The interview will last between 30 and 50 minutes. **You will not receive monetary compensation.** Sara Jackson may take notes and a trained research assistant will be present to assist with translation. Only with your permission, the interview may be **digitally recorded**. Your data will be safely stored in a locked facility and only Sara Jackson, her advisor Elizabeth Lunstrum, and trained research assistants will have access to this information.

The benefits to you are not immediate. However, participation includes opportunities to voice your opinion, to participate in potentially policy relevant research, and to increase knowledge of participating nongovernmental organizations. No risks or discomfort resulting from your participation in the research are foreseen.

The information you provide may be used in publications related to Sara Jackson's dissertation or in future research on mining in Mongolia. Potential publications include a book, academic articles, magazine articles, and a fictional story based on the research.

Results of the research will also be shared with Mongolian environmental and human rights organizations to improve their ability to advocate to the government and international community for improved environmental and human rights in Mongolia

The research is funded through the American Center for Mongolian Studies and the Canadian Social Sciences and Humanities Research Council.

Your participation in the study is completely **voluntary** and you may choose to stop participating at any time. **You can stop participating** in the study at any time, for any reason. Your decision to stop participating, or to refuse to answer particular questions, will not affect your relationship with the researcher or York University. In the event you

withdraw from the study, all data collected from you will be immediately destroyed wherever possible.

Your identity will be kept confidential. All information you supply during the research will be held in confidence and unless you specifically indicate your consent, **your name** will not appear in any report or publication of the research. All names will be coded to protect your anonymity. Your identity will be kept confidential unless you request **your name** to be used.

Before you agree to participate, please feel free to ask any questions. If you have questions about the research in general or about your role in the study, please feel free to contact **Sara Jackson** by phone in Mongolia at (976) 9529 5045 or in Canada at +1 (416) 736-5107 or **her Graduate Supervisor**, Dr. Elizabeth Lunstrum, either by telephone at +1 (416) 736-2100, extension 46010 or by e-mail (lunstrum@yorku.ca). You may also contact the Graduate Program in the Department of Geography, N430 Ross Building, +1 (416) 736-5107.

This research has been reviewed and approved by the Human Participants Review Sub-Committee, York University's Ethics Review Board and conforms to the standards of the Canadian Tri-Council Research Ethics guidelines. If you have any questions about this process, or about your rights as a participant in the study, please contact the Sr. Manager & Policy Advisor for the Office of Research Ethics, 5th Floor, York Research Tower, York University (telephone +1 (416) 736-5914 or e-mail ore@yorku.ca).

By signing below,

1. I agree to participate in the study described and to the above conditions.
2. I understand that the interview will last from 30 to 40 minutes and that I will be asked about my perceptions of water resources and mining.
3. I know that if I have any questions I can contact Sara Jackson by phone in Mongolia at (976) 9529 5045 or in Canada at +1 (416) 736-5107 or her Graduate Supervisor, Dr. Elizabeth Lunstrum, either by telephone at +1 (416) 736-2100, extension 46010 or by e-mail (lunstrum@yorku.ca).
4. I agree to allow Sara Jackson to use the information I provide in presentations and publications.

☐ I wave my right to confidentiality. My name can be used in the study.

☐ I do not wave my right to confidentiality. The researcher will keep my identity confidential and she will **not** identify me or use identifying characteristics when referencing the information I provide.

Interviewee:

Interviewer:

sign

Sara L. Jackson (976) 9529 5045
Ph.D. Candidate sarajack@yorku.ca

print

Date

Уул уурхайн салбар дахь хүний эрх: Өмнийн Говь дахь ТББ-уудаар аяласан нь

Сара Л. Жаксэн ба Т. Туул

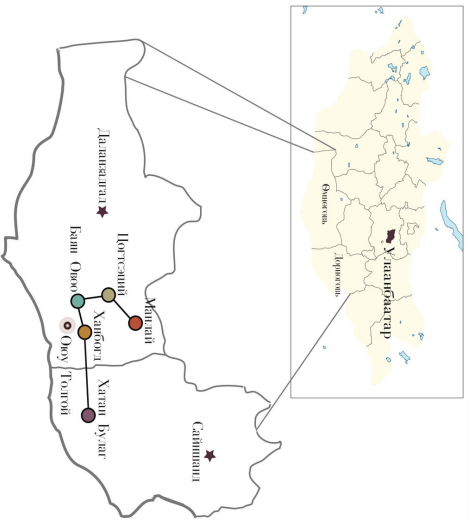
Судалгааны ажлын сэдэв

Энэхүү судалгаа нь Өмнөговьд буй алт, зэсийн Оюу Толгой уурхай хэрхэн газар нутаг, улс үндэстний үзэл бодлыг хэрхэн өөрчилж байгааг судлах юм. Уурхайг тойрсон дэд бүтэц хөгжих тусам уугуул нутгийн иртэд бэлчээрийн талбай багасгах, худлуудын ундрага багасгах, өөр газарууд нүүх гэх мэт олон эрс өөрчлөлтүүдийг мэдрч байна. Эдгээр өөрчлөлтүүд нь улс төрийн болоод хүний эрхийг Монголын болоод Олон улсын хуулийн хүрээнд зөрчиж байна.

Энэхүү зургаат хуудас нь нутгийн иртэдэд тулгарч буй гол асуудлуудыг харуулж буй бөгөөд 2011 оны намар хүний эрхийг хамгаалах мэргэжилтнүүдтэй хамт хийсэн судалгааны аялалууд нь хамгийн их өөрчлөлт тулгарч байгаа ул нутгийн иртэдийн үзэл бодлыг сонох том ажлын нэг хэсэг болсон. Байгаль орчин, эдийн засаг, соёл ба нийгмийн өөрчлөлтүүдийг иртэд уул уурхайн компаниуд болон Засгийн газар хэрхэн шийдвэрлэхийг асуусанг дүрсэлэн харуулахыг хичээв.

Арга барил

Бид гуч гаруй иртэнтэй тус бүрчлэн уулзсан бөгөөд дөрвөн тусгай бүлэг байгуулж сургалтуудыг хийсэн. Усны хэмжээ, чанар, уул уурхайг хэрхэн ойлгож байгаа тэр нь амьдралд нь яаж нөлөөлөх бол зэрэг асуултуудыг тавьсан юм. Ярилцлагын дараагаар хэрхэн санал томиллыг үр дүнтэйгээр тавих талаар гарын авлага тараасан. Ярилцлага өгсөн хүмүүсийн дийлэнх нь малчид эсвэл урд нь мал маллаж байснаар үл баран уурхайн салбарт өөрөө эсвэл тэр бүлийн хэн нэг нь ч ажилладаг тохиолдлууд байв. Нутгийн засгийн газарт ажилладаг тусгай бүлийн зарим гишүүд бас байсанг дурдъя.



Малчдын асуудлууд
 *Сүүлийн 5-6 жилийн туршид багассан худгийн ундрага
 *Худгийн усны чанар (давсархат)
 *Замын шороо бэлчээрийн өвсөг бүрхэж бэлчээрийг багасгах
 *Уурхайтай холбоотой ажил хайсан шилжилт хөдөлгөөн

Потгэснийн Асуудлууд
 *Худгийн усны чанар: ташуун, давсархат, гэдэс өвчлөлт
 *Замын шороо бэлчээрийн өвсөг бүрхэж бэлчээрийг багасгах, усны бохирдол
 *Баян ядуун ялгаа ихсэх
 *Нүүн ирж ажиллаж буй ажилчид
 *Уурхайнууд хэлтэрхий их үс хэрэглэж байгаа байдал

Хатан Булагийн Асуудлууд
 *Худгийн усны чанар: шинэ насос, хоолойны химийн бодисны амттай
 *Богдино цагын хуваарьтай цахилгаан хангамж: насосны ажиллагаанд нөлөөлдөг
 *Нүүрсний ачааны машинаас бохирдсон ариун рашаан
 *Замын сул шороо: бэлчээрийг багасгах, мал өвчлөх
 *Янгир болоод ховор ургамалууд үгүй болох

Ханбогдын Асуудлууд
 *Уурхайн тэрээлэгч ачааны тэргүүд сумын хулгасч усаа авдаг
 *Сүүлийн 2-3 жилийн туршид багассан худгийн ундрага
 *Уст дахтард гүний хоолой тарах зөвшөөрөл, барилгын ажлууд
 *Ур чадвар шаардсан өндөр цалинтай ажлууд нутгийн бус иртэдэд олгогдож буй явдал
 *Барууд, бүтээгдэхүүний үнэ нэмэгдсэн
 *Замын барих ажил ба уулийн ослууд
 *Уурхайн орчмын хог хаягдал
 *Засгийн газар болоод уурхайн компаниудаас шаардсан шаардлагууд

Баян Овооны Асуудлууд
 *Сүүлийн 4-5 жилийн туршид багассан худгийн ундрага
 *Худгийн усны чанар (давсархат)
 *Шорооноос үүссэн агаарын бохирдол болон
 *Зайрмагтайн нүүрс боловсруулах үйлдвэр
 *Хур тунадас багассан
 *Малын өвчлөлт ба сул шорооноос үүдсэн бэлчээр татралт

Government Officials Interview Schedule

- I. Introductions
 - a. What is your position and for how many years have you worked with _____?
 - b. Have you worked in other fields/industries before coming to _____?
 - c. Have you worked in other countries?
 - d. For how long do you expect to work for _____?
- II. Water access
 - a. On a scale of 1 to 10, how important is water for the operations of Oyu Tolgoi and in what ways is water important?
 - b. From your perspective, how important were water issues in the agreement negotiations?
 - i. Do you think that all stakeholders (government at all scales, Oyu Tolgoi, and local populations) were well represented in the agreement negotiations?
 - c. Does the government play a role in providing water access to local populations?
 - d. What is Oyu Tolgoi's role in providing local populations' access to water resources?
 - i. Are there specific water provision programs?
 - ii. Who allocates the water and who decides how much a family or individual is granted?
 - iii. Is water allocated to urban areas (soum centers) as well as to local herders?
 - iv. If people have complaints or concerns about water access, do they come to Oyu Tolgoi or local government officials with their concerns?
 - v. Have there been complaints? How are they handled?
 - e. If the Gunii Holo aquifer is drained faster than expected, are there alternative water sources available?
 - i. If not, what will happen to the mine? Do you talk about this issue with OT and other government officials and agencies?
 - ii. Do you have concerns about water pollution? How is this being addressed?
 - f. To what extent is climate change discussed among government officials when considering water access both for mining operations and local populations?
 - g. Many Mongolians, rightly or wrongly, assume that Omnigov cities will grow and expand with mining construction, similarly to Erdenet. I understand that Oyu Tolgoi is wary of encouraging excessive growth due to limited water resources. Is Oyu Tolgoi addressing this perception?
 - i. Post-mine plans for the area?
 - ii. Public discussion?
- III. Mining perceptions
 - a. What kinds of promises does mining hold for your soum and Mongolia?
 - i. What kinds of problems or complications does it hold?
 - b. Oyu Tolgoi's PR is very optimistic about Mongolia, do you agree with these projections? Why or why not?
 - c. Do you think that people in Omnigov are benefiting from Oyu Tolgoi? How?
 - d. Oyu Tolgoi presents itself as a sustainable alternative to lot of the mining happening in Mongolia. Have you heard or seen of improvements among other mining companies following Oyu Tolgoi's example?
 - e. Do you think Oyu Tolgoi fits into Mongolia's national development plans? How?
- IV. Do you have any questions for me? Thank you

Herder/Soum Resident Interview Schedule

- V. Introductions and chit chat
 - a. What is your name and how old are you?
 - b. Is this soum your tursun nutag?
 - c. Have you lived in other parts of Mongolia?
 - i. If yes,
 - 1. When and where?
 - 2. When did you return to Omnigov? Why?
 - d. Who do you live with? How many children (and grandchildren) do you have?
 - e. Have you done other work besides herding? Are all the members of your family herders?
 - i. Do some members of your family work in mining? What kind of work do they do?
- VI. Water Access questions
 - a. How far do you travel during spring for water? During which season do you travel the furthest?
 - b. How does your water taste? Is there any color or smell? Have you experienced any changes in the water quality?
 - c. How do you measure the quantity of water in the well? Have you seen any changes?
 - d. Have your neighbors talked about changes in water quality or water quantity in the wells?
 - e. On a scale from 1 to 10, how would you rate the quality of your water?
 - f. Have you ever seen trucks taking water from wells?
 - i. Which wells?
 - ii. How many times a day/week?
 - iii. What size are the trucks?
 - iv. Do you know how owns the trucks?
 - g. If you have complaints about water quality and quantity, where do you go?
 - i. To the bagh darag?
 - ii. To the mining companies?
 - iii. How do they respond to your information? Have you seen any results? Why or why not?
- VII. Water and meaning questions
 - a. Do you know any local stories or myths about water?
 - i. If yes,
 - 1. Would you share one with us?
 - 2. When did you first hear these stories? Who told them to you?
 - 3. Will you tell these stories to your children and grandchildren?
 - ii. If no,
 - 1. Do you know anyone who knows about local history?
- VIII. Mining, herding, and water
 - a. Do you move every season? How long has your family been using this migration pattern?
 - b. Is mining affecting your herding patterns?
 - i. If yes, how are your herding patterns different?
 - ii. When did you notice the changes?

- c. Has the mining affected your neighbor's herding patterns?
 - i. If yes, how are your herding patterns different?
 - ii. When did you notice the changes?
- d. Which mine do you think is most responsible for changes to herding patterns?
- e. What do you think about Oyu Tolgoi?
 - i. What do your neighbors say?
- f. Do you think water is important for Oyu Tolgoi?
- g. Do you have concerns about water pollution or water diversion?
- h. Have you or your neighbors had interactions with people from Oyu Tolgoi?
 - i. If so, where do these interactions take place?
 - ii. Did these interactions change your mind about the mine?
- IX. Mining, general
 - a. What kinds of promises does mining hold for your family and Mongolia?
 - i. What kinds of complications or problems does it hold?
 - b. What is your most poignant memory of life before the mining started?
 - c. How do you think mining is affecting or will affect your children and grandchildren's livelihoods?
 - i. Are you encouraging them to continue herding?
- X. Do you have any questions for us?
- XI. Thank you, pass out information and gift

Mining Company/Consultant Interview Schedule

XII. Introductions

- a. What is your position and for how many years have you worked with _____?
- b. Have you worked in other fields/industries before coming to _____?
- c. Have you worked in other countries?
- d. For how long do you expect to work for _____?

XIII. Water access

- a. On a scale of 1 to 10, how important is water for the operations of Oyu Tolgoi and in what ways is water important?
- b. From your perspective, how important were water issues in the agreement negotiations?
- c. Do you think that all stakeholders (government at all scales, Oyu Tolgoi, and local populations) were well represented in the agreement negotiations?
- d. What is Oyu Tolgoi's role in providing local populations' access to water resources?
 - i. Are there specific water provision programs?
 - ii. Who allocates water and who decides how much a family or individual is granted?
 - iii. Is water allocated to urban areas (soum centers) as well as to local herders?
 - iv. If people have complaints or concerns about water access, do they come to Oyu Tolgoi or local government officials with their concerns?
 - v. Have there been complaints? How are they handled?
- e. If the Gunii Holo aquifer is drained faster than expected, are there alternative water sources available?
 - i. If not, what will happen to the mine? Is this a topic of discussion within Oyu Tolgoi and with government officials?
 - ii. Are there concerns about water pollution? How is this being addressed?
- f. To what extent is climate change discussed among Oyu Tolgoi scientists when considering water access both for mining operations and local populations?
- g. Many Mongolians, rightly or wrongly, assume that Omnigov cities will grow and expand with mining construction, similarly to Erdenet. I understand that Oyu Tolgoi is wary of encouraging excessive growth due to limited water resources. Is Oyu Tolgoi addressing this perception?
 - i. What are the post-mine plans for the area?
 - ii. Are these being publicized?

XIV. Mining perceptions

- a. What kinds of promises does mining hold for Mongolia?
 - i. What kinds of problems or complications does it hold?
- b. Do you think that people in Omnigov are already benefiting from Oyu Tolgoi? How?
- c. Oyu Tolgoi presents itself as a sustainable alternative to a lot of the mining happening in Mongolia. Have you heard or seen of improvements among other mining companies following Oyu Tolgoi's example?
- d. Do you think Oyu Tolgoi fits into Mongolia's national development plans? How?

XV. Do you have any questions for us?

XVI. Thank you

NGO Interview Schedule

XVII. Introductions

- a. What is your position and for how many years have you worked with _____?
- b. Have you worked in other fields/industries before coming to _____?
- c. Have you worked in other countries?
- d. For how long do you expect to work for _____?

XVIII. Water access

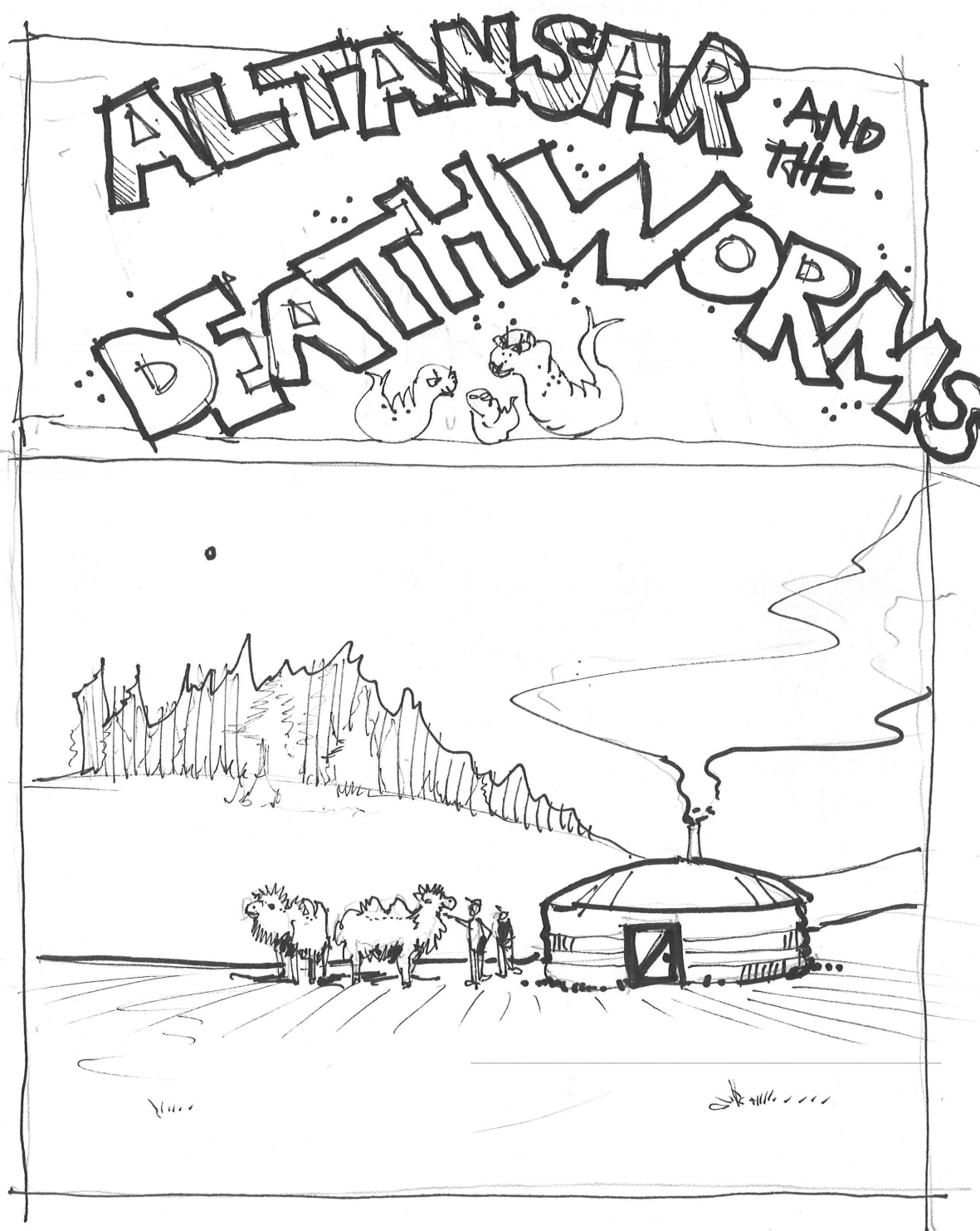
- a. On a scale of 1 to 10, how important is water for the operations of Oyu Tolgoi and in what ways is water important?
- b. From your perspective, how important were water issues in the agreement negotiations?
- c. Do you think that all stakeholders (government at all scales, Oyu Tolgoi, and local populations) were well represented in the agreement negotiations?
- d. What is Oyu Tolgoi's role in providing local populations' access to water resources?
 - i. Are there specific water provision programs?
 - ii. Who allocates the water and who decides how much a family or individual is granted?
 - iii. Is water allocated to urban areas (soum centers) as well as to local herders?
 - iv. If people have complaints or concerns about water access, do they come to Oyu Tolgoi or local government officials with their concerns?
 - v. Have there been complaints? How are they handled?
 - vi. Do you think that government should be more involved?
- e. If the Gunii Holo aquifer is drained faster than expected, are there alternative water sources available?
 - i. If not, what will happen to the mine? Is this a topic of discussion within Oyu Tolgoi and with government officials?
 - ii. Do you have concerns about water pollution? How is this being addressed?
- f. To what extent is climate change discussed among Oyu Tolgoi scientists when considering water access both for mining operations and local populations?
- g. Many Mongolians, rightly or wrongly, assume that Omnigov cities will grow and expand with mining construction, similarly to Erdenet. I understand that Oyu Tolgoi is wary of encouraging excessive growth due to limited water resources. Is Oyu Tolgoi addressing this perception?
 - i. What are the post-mine plans for the area?
 - ii. Are these being publicized?

XIX. Mining perceptions

- a. What kinds of promises does mining hold for Mongolia?
 - i. What kinds of problems or complications does it hold?
- b. Oyu Tolgoi's PR is very optimistic about Mongolia, do you agree with these projections? Why or why not?
- c. Do you think that people in Omnigov are already benefiting from Oyu Tolgoi? How?
- d. Oyu Tolgoi presents itself as a sustainable alternative to lot of the mining happening in Mongolia. Have you heard or seen of improvements among other mining companies following Oyu Tolgoi's example?
- e. Do you think Oyu Tolgoi fits into Mongolia's national development plans? How?

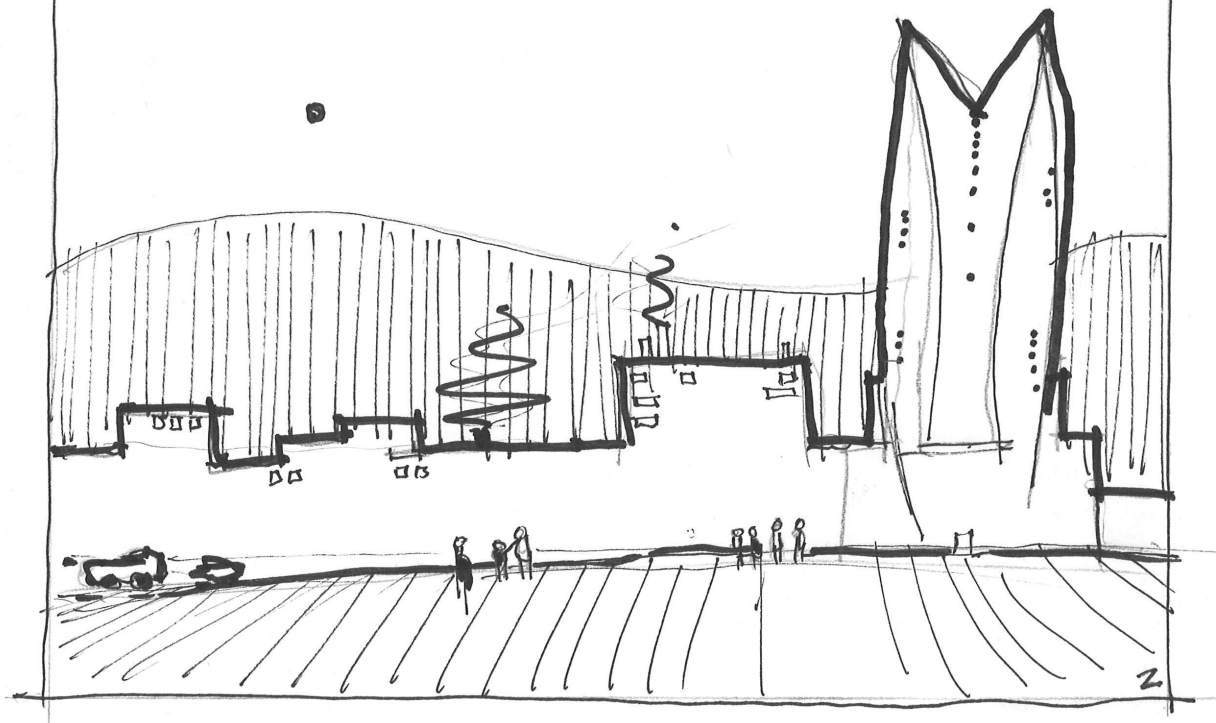
XX. Do you have any questions for me? Thank you

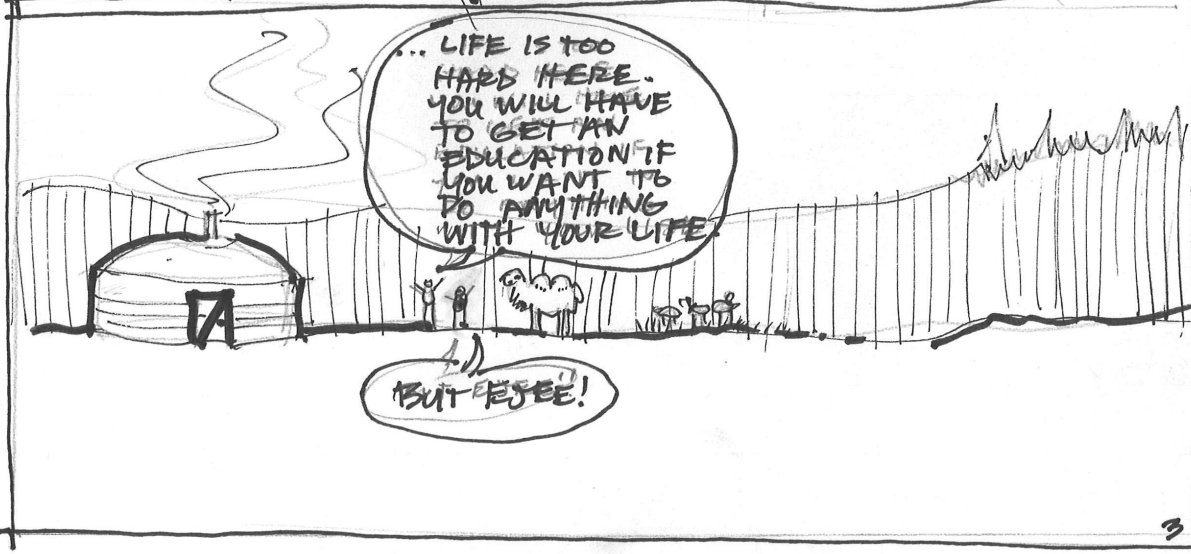
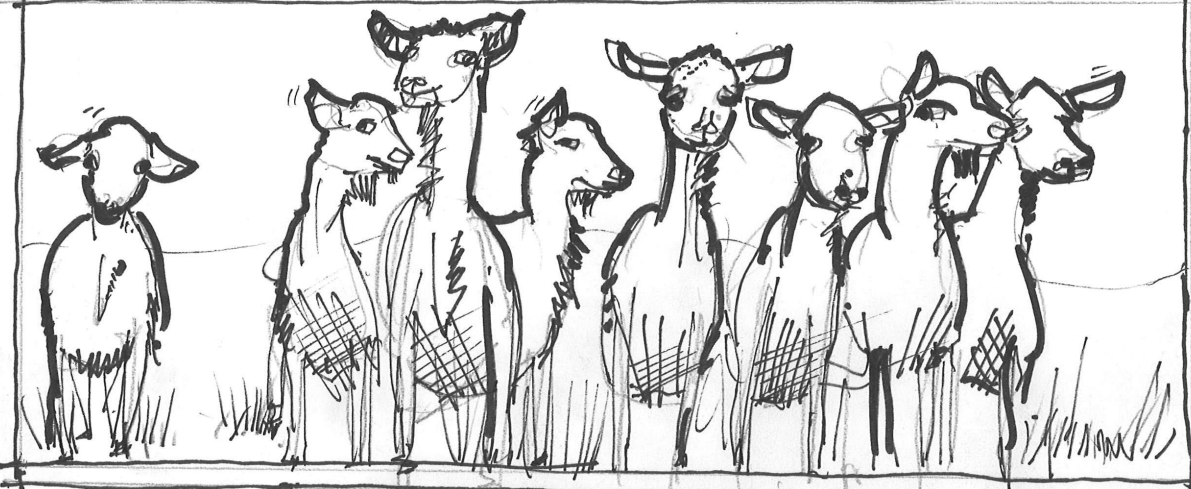
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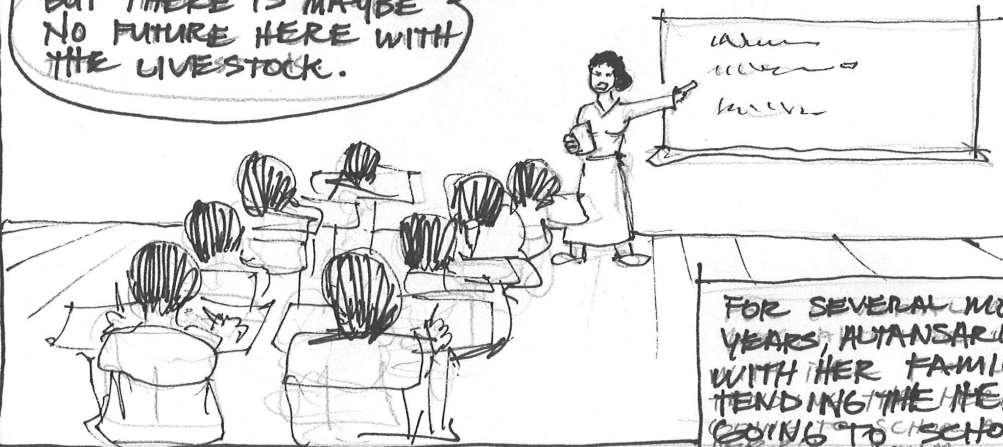






I WANT TO
STAY HERE
WITH YOU
AND AVAA
AND THE
LIVE STOCK!

IT IS YOUR CHOICE.
BUT THERE IS MAYBE
NO FUTURE HERE WITH
THE LIVE STOCK.



FOR SEVERAL MORE
YEARS, AVANSAR LIVED
WITH HER FAMILY
TENDING THE HERD AND
GOING TO SCHOOL AT
THE NEAREST SOUM.



WHAT HAS
HAPPENED
TO TSEREG?

WE ARE NOT
SURE. THE RAINS
ARE CHANGING AND GRASS NO LONGER
GROWS ON CAMELS' BACKS IN THE
SUMMER...

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