



Can mineral exploration projects create and share value with communities? A case study from Mongolia

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1. Introduction

Developing an operating mine typically requires many years of work. First, geological exploration to discover the deposit; then studies to estimate the size of the resource and determine its potential to become a commercially viable mining operation; planning for infrastructure, construction, and operations; and, eventually, closure and reclamation. In addition to the many technical requirements, earning social acceptance is increasingly recognized as a critical attribute to project planning and operations, and is emerging as one of the mining sector's greatest challenges (PWC, 2018; EY, 2018).

There is considerable literature examining mining operations and the need for a “social license to operate” (Prno and Slocumbe, 2012; Owen and Kemp, 2013; Meesters and Behagel, 2017). Social license to operate is defined as the ongoing acceptance of a company's business practices and operating procedures by government, communities, and other stakeholders or interested parties (Joyce and Thomson, 2000; Thomson and Boutilier, 2011; Cooney, 2017), and is considered important to mining projects can operate without conflict.

There is also literature on the importance of community engagement to inform project decisions, reduce business risk, and risk to communities proximal to mining operations (Kemp and Owen, 2013), and of approaches to corporate social responsibility in mining (Fordham et al., 2017; Fraser, 2018). Construction and operations have been identified as the two periods during the life of mine when there are the greatest risks of adverse impacts to nearby communities from activities including resettlement, changes to land use, and competition for scarce resources such as water. Construction and operations are also the stages in the mining cycle when there is the highest probability of mining-community conflict (Franks et al., 2014). Perhaps for these reasons the majority of studies on community engagement have focussed on the construction and operations stages of the life of mine. Very little academic research exists on the role of exploration companies vis-à-vis community engagement and sustainable development (Eerola, 2013).

The paucity of community engagement study at the exploration stage is surprising because it can be argued that this is a critical stage

for initiating community engagement. Many communities' first exposure to the mining sector results from the activities of geologists exploring for prospective mineral deposits in their region or territory. Exploration is therefore an important stage for companies to build the relationships necessary to work with communities to understand local conditions (Hilson and Murck, 2000). The exploration stage is also a time when there is the opportunity to earn trust - essential for earning a social license - with local communities (Zhang et al., 2015). Furthermore, early engagement programs help to build a foundation for mining companies to deliver long-term value and to contribute to sustainable regional development (Kemp, 2010; Fordham et al., 2017; Gilberthorpe and Banks, 2012).

A further rationale for early engagement arises once a prospective deposit has been identified and consideration is being given to mine design options (for example, how to source water for operations, project infrastructure needs, options for energy supply, etc.). Some argue that engineering design is the most important stage for defining the future evolution of a project (Stansinopoulos et al., 2008), with Hawkin et al. (2010, pp 111–124) suggesting that 80–90 per cent of a project's life-cycle economic and ecological costs are established during project design. Since design outcomes can have significant positive or negative implications for nearby communities, local input to design decisions can support mutually beneficial outcomes. Engaging with stakeholders - any person, group or organization that can place a claim on a company's attention, resources, or output (Kytle and Ruggie, 2005; Freeman, 2010 a) - can provide valuable input to local conditions and support outcomes that have a higher degree of community acceptance. To secure community input requires a strategy for engaging and presenting design concepts in a manner that enables non-technical experts to evaluate each option and the associated trade offs and to provide their feedback. It is noted that consultation can be time consuming, however, there is significant cost to changing project design decisions, something that may be required if community opposition develops.

Despite the importance of building community relationships during exploration, there is a paradox. The companies responsible for mineral exploration are typically highly dependent on equity markets for cash, often have no operating income, and must build a robust business case

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for the allocation of investor capital, especially when the chances of finding a commercially viable mineral deposit are slim. In general terms, within the mining sector 500–1000 grassroots exploration projects will result in 100 targets for advanced exploration; 10 of which will qualify as development projects, and one of which will become a producing mine (Allen, 2015; Eggert, 2010). In other words, most exploration will not lead to mine development. While it can be argued that early community engagement is required to build trust and reduce the types of conflict that can stall or derail future development, exploration company personnel may worry that engagement will raise expectations that are unlikely to be fulfilled due to the lack of certainty about future project development. This thinking may lead to a decision that engagement should be postponed until there is certainty about mine development.

The paradox surrounding the need for consultation and engagement at a stage when there is little capital or resources to fund community engagement is explored in this paper with a focus on the question, is it possible for exploration companies to meaningfully invest in community engagement? There are two specific objectives of this research. The first is to assess if exploration companies can create and share value by working collaboratively with stakeholders to identify and respond to social priorities that intersect with business needs. The second is to consider the opportunities to integrate local and international sustainable development goals (SDGs) into operational strategies. To investigate these questions and explore the linkages between business strategy and community investment, the initiatives of a mineral exploration company active in Mongolia for close to 20 years are examined.

1.1. Mineral exploration and mining in Mongolia

Mongolia was selected as the focus of the research because the rapid expansion of mining as the backbone of the national economy has raised questions about benefit sharing and sustainable development in communities located in proximity to mineral resources (McIntyre et al., 2016). Sustainable development is defined in terms of how the economic wealth generated by mineral extraction is converted into other forms of capital (e.g. manufactured, human, social, financial) and distributed across people, places and over time (Moran and Kunz, 2014).

Mongolia is also a country of interest given its vast mineral resources in the largely under-explored terrain of the Gobi Desert, home to one of the world's largest copper mines, Oyu Tolgoi, discovered by the Canadian company Ivanhoe Mines. In 2010, with the start of Oyu Tolgoi's development and the related activity in the mining sector, Mongolia became the world's fastest growing economy. From 2010 to 2014 Mongolia's economic growth averaged 11 per cent per year, with a peak of 17.3 per cent in 2011 (National Secretariat for the Second Compact Agreement between the Government of Mongolia and the Millennium Challenge Corporation of the USA, 2016). By 2016, mining in Mongolia accounted for 30 per cent of national budget revenue, with 21 per cent of GDP coming from extractives, and 85 per cent of export revenue being derived from mining (Mongolia-Mining, 2017).

The growth in the mining sector since 2010 has transitioned Mongolia from an economy based primarily on traditional nomadic herding to a destination for foreign direct investment in mining. According to the Mongolia National Statistics Office and the Bank of Mongolia, the mining sector attracted 70 per cent of foreign direct investment in 2016, which grew from US\$8.4 billion in 2010 to US\$20 billion in 2016 (Mongolia-Mining, 2017). Canadian companies, in addition to Ivanhoe, have played a significant role in the Mongolia extractive sector, with Canada representing one of the top foreign investors. In 2015, direct investment from Canada to Mongolia was estimated at approximately \$6.4 billion (Lambert-Racine, 2016).

Due to mining's contribution to the national economy over the past two decades, the Mongolian national government now views mining as a means to improve its citizens' quality of life and economic

opportunities (Ganbold and Ali, 2017). Nevertheless, despite mining's rapid growth and economic contribution, herding of camels, sheep, goats, and horses remains the single most important livelihood in Mongolia (Ganbold and Ali, 2017), and many herders perceive mining to be inherently unsustainable (Meesters and Behagel, 2017). A primary concern of herders in the Gobi Desert is the availability of water of sufficient quantity and quality for their animals. Herder trepidation about the impacts of mining has been exacerbated in recent years due to harsh winters and summer droughts (Fernandez et al., 2012). Water projections show that high water risks can be expected at the local level as increasing demand from mining, herding, and industrial activities strains locally limited water resources (PWC & Deltares, 2014). Given Mongolia's water challenges, mineral exploration and mining companies face pressure from government and local stakeholders to forge strategies for sustainable water stewardship: practices that consider water-related impacts within communities and in river basins and ecosystems beyond the mine lease (IFC & ICMM, 2017; IFC, 2014; Kunz, 2016).

To address concerns about water quality and quantity in the South Gobi, the International Finance Corporation (IFC), an investor in Oyu Tolgoi, convened mining companies active in the region to discuss water-related issues. In February 2016, eight companies became signatories to a Voluntary Code of Practice (VCP) on water management, agreeing to report publicly on water risk and management practices, including groundwater protection, and to involve local stakeholders in water monitoring initiatives (IFC & ICMM, 2017). One of the companies signing on to the VCP was Erdene Resource Management Corporation (Erdene).

Erdene personnel have been actively exploring for minerals in Mongolia since 2002. Shares of the Canadian company trade on the Toronto Stock Exchange and, as of June 2018, are cross-listed on the Mongolian Stock Exchange. Erdene personnel have found several mineral deposits in the southwestern Gobi, including the discovery in mid-2015 of a high-grade, near-surface gold deposit in Bayan Khungor aimag (province) called Bayan Khundii. Given the company's long presence in Mongolia, and Erdene's participation in the VCP for sustainable water management in the Gobi, the company was selected to be the subject of a case study. The objective of the case was to determine if early stage exploration companies can build effective engagement approaches to create and share value and support sustainable development in the communities in which they operate. The case study research was conducted in 2017–2018 when the Bayan Khundii Gold Project was at a stage of development known as advanced exploration. At the end of 2018, the preliminary economic assessment was produced. The pre-feasibility stage is projected to be completed in 2019, with construction targeted for 2020 and operations in 2021.

2. Methods

The research employed multiple methods and was conducted in compliance with the requirements of the UBC Research Ethics Board [Certificate of Minimal Risk H17-02850]. The research was anchored in stakeholder engagement theory that posits for business to be successful and sustainable over time company interests must align with the interests of stakeholders - not just shareholders - to create value for all (Freeman, 2010a). A revelatory single case approach (Yin, 2009) was used to conduct an empirical inquiry investigating contemporary phenomena in an applied setting: Erdene's activities associated with the development of its exploration project in the Bayankhongor aimag of Mongolia.

The study began by reviewing academic and grey literature on topics related to exploration and mining in Mongolia, as well as approaches to corporate social responsibility, sustainable development, community engagement, and company-community conflict in the global mining sector. Findings from this review supported the creation of key words, or codes, for classifying data. Codes included

expectations, trust, credibility, relationships, engagement, benefits, and impacts (environmental, economic and social).

Company-specific materials were also reviewed to provide the research team with an orientation to the technical, social and environmental considerations of the Bayan Khundii project. Documents reviewed included the 43–101 technical report, annual reports, investor presentations, company policies and procedures, local level co-operation agreements, studies on mine planning such as a grid viability assessment and the results of a study undertaken with the IFC assessing clean energy options, and records of previous community engagement initiatives and investment projects.

Next, media coverage reporting on Erdene during the study period (January 2017 to June 2018) was reviewed to enable the research team to gain insight to public perceptions of the company and to determine if any polarized opposition to the company was evident within the communities closest to the Bayan Khundii Gold Project. The time frame covered in the media search coincides with 2017 drilling at the Altan Nar and Bayan Khundii projects (16 km apart and collectively referred to as the Khundii Gold Project) and the associated increase in visibility for the company within the South Gobi region. Media stories were examined to assess tone (positive, negative, neutral) and share of voice. Share of voice is when company personnel are quoted directly or have information attributed to them within the media article. Data was collected from two sources. The Google search engine was used to assemble articles from Mongolian language publications, produced primarily within the country. Search phrases used were “Эрдэнэ Ресурс Дэвэлснэнт”; “Эрдэнэ Монгол”; and “Эрдэнэ Ресурс” (English translation: Erdene Resource Development; Erdene Mongol and Erdene Resource). To assemble international media coverage, the same phrases (in English) were entered into the Factiva news database. Factiva is owned by Dow Jones and aggregates content from approximately 30,000 news agencies worldwide.

The results of the desktop review and media analysis informed the development a semi-structured guide for use in qualitative interviews. The interview sample was purposefully selected to provide a diversity of perspectives ranging from nomadic herders ($N = 3$) to company board directors ($N = 3$). Other stakeholders interviewed included local government representatives ($N = 4$), Bayankhongor community representatives ($N = 4$), civil society and non-governmental organizations ($N = 9$), investors ($N = 1$), other industry actors ($N = 2$), industry influencers ($N = 5$) and Erdene employees ($N = 7$). In total, 35 qualitative interviews were conducted with 38 respondents.¹ In addition, a group discussion was held with five community representatives from one of the soums (towns) close to the Bayan Khundii exploration project. The group interview brings the total number of perspectives shared to 43. The group interview was conducted after the group learned the research team was in the area and requested the opportunity to speak with the researchers. Members of the group were concerned to about the development of a mine within the region and wanted to ensure their perspective was heard and considered.

The objective of the interviews was to explore the question of how junior mineral exploration companies, working towards mine development, might create and share value to maximize benefits for host communities and governments as well as the company. Respondents were asked to identify issues important to their stakeholder group (please see Table 2), to share their views on the relationship exploration companies should have with communities closest to the areas of mineral exploration interest, and on potential areas for company-community collaboration to advance sustainable development. A sub-set of respondents ($N = 17$), who had past exposure to Erdene, were asked a series of questions specific to the company. The objective was to gain insight to Erdene's performance and identify any distinguishing features of the company's engagement approach.

Interview locations included Canada (Vancouver and Toronto), and Mongolia (Ulaanbaatar, Bayankhongor aimag centre, Shinejinst soum, the Bayan Khundii project site, and Ekhiin Gol oasis). All interviews were conducted in-person, in English and/or Mongolian. Interviews were numerically identified by consent forms to ensure anonymity and confidentiality.

Qualitative interviews were translated into English (as required), transcribed, analyzed, and coded. As noted above, preliminary codes were developed during the desktop research. Following the interviews, NVivo, a software that uses advanced data management, query, and visualization tools to perform qualitative analysis, was used to support the interview analysis and to identify the principal characteristics of the process employed by the company to create and share value.

The final step in the analysis of the qualitative interviews was to map respondent suggestions for local projects to support sustainable development that were deemed suitable for collaborative partnerships with exploration companies. This data was relevant to the research goal of assessing opportunities to integrate sustainable development goals to exploration planning. To cluster projects, and link to national and international objectives, data from the interviews was matched to specific UN Sustainable Development Goals (SDGs). The 17 SDGs were announced in September 2015 and represent an agenda for addressing some of the world's most pressing issues. More than 190 national governments, including Mongolia, are signatories to the SDGs. In addition, the Mongolian government has developed its own national sustainable development vision for 2030, and in 2016 passed a national decree for driving progress on the SDGs within the country. The local governments of Bayankhongor aimag, Bayanundur soum, and Shinejinst soum respectively are developing local-level sustainable development plans to guide regional development in a manner that will support national and local policy objectives.

The research benefited from observational data collected during attendance and presentations at exploration and mining industry conferences in 2018. Events included the Prospectors and Developers Annual Convention (PDAC), the Canadian Institute of Mining (CIM) annual convention, Resources for Future Generations conference, and Discover Mongolia conference. In addition, observational data was collected by two researchers during a 14-day fieldwork period in Mongolia. The in-country research enabled first-hand examination of Erdene's approach to community engagement. Observational data was used to test and complement the desktop research and qualitative interview results. Triangulation of observation, interviews, and the document review was used to provide a more accurate account than any single method could provide (Maxwell, 2012).

3. Results

3.1. The media analysis

The news search covered the period from January 2017 to July 2018. The Google search yielded 93 news articles and videos from 49 Mongolian language news sources. The tone of the news reports was neutral (50 articles) and positive (43 articles), with the most significant coverage (66 articles) occurring in May–June 2018, coinciding with the company's cross-listing on the Mongolian Stock Exchange.

The Factiva database yielded 63 articles from January 2017 to July 2018. (News releases issued by the company were excluded from the search results). The focus of the news stories was primarily related to drill results and developments at Erdene's two flagship properties: the Bayan Khundii project generated 47 articles; Altan Nar 37 articles. The cross listing of Erdene's corporate shares on the Mongolian Stock Exchange attracted only two pieces of media coverage. The tone of all Factiva-sourced articles was neutral.

The findings of the media search indicated that the awareness threshold of the company amongst its stakeholders was low and neutral. This outcome reflects the absence of reports in the public domain

¹ Two participants each attended three of the 35 interviews.

Table 1
Overarching research themes.

Economic development	Herd welfare	Environment	Water	Governance
<ul style="list-style-type: none"> • Jobs • Opportunities • Local procurement • Small & medium enterprise • Value-add • MSE cross listing 	<ul style="list-style-type: none"> • Declining herd health: due to dust, climate change, drought, harsh winters • Conflicts over pasture and water 	<ul style="list-style-type: none"> • Climate change • Air quality • Harsh conditions • Decreasing pastureland • Soil erosion • Impacts of roads • Micro mining 	<ul style="list-style-type: none"> • Availability • Quality • Need for testing & monitoring • Withdrawal impacts on surface and aquifer water 	<ul style="list-style-type: none"> • Capacity • Corruption • Policy uncertainty • Low trust • Lack of transparency

of negative sentiment towards Erdene and of mobilized opposition to the company.

3.2. Qualitative interviews

Data analysis of the transcripts from the 43 qualitative interviews with Erdene's stakeholders yielded five overarching themes vis-à-vis exploration and mine development (Table 1). Associated key words are listed in the column below the theme heading.

To begin the interviews, respondents were asked to identify the most important mining-related issues facing their respective stakeholder group. (I.e. industry representatives were asked about issues facing their company; community residents, CSOs and local government respondents were asked about issues facing their community). The issues are summarized in Table 2. Several topics are inter-related. For example, water and environmental impacts, and pastureland and the environment. One of the most commonly cited issues was mining's negative reputation,² a sentiment evident in many other resource-rich jurisdictions of the world (Kemp et al., 2011). Yet, as one interview respondent explained, in Mongolia, *"There is a recognition – sometimes a bit grudgingly – that mining represents an integral and essential part of today's economy that can't be sacrificed and must continue."* In the interviewee's opinion, this does not detract from *"... a sense that Mongolians feel they are losing control of their own destiny by inviting outsiders to come in and exploit their resources."*

Respondents also frequently raised concerns about the environmental impact of mining. Some of the impacts may be the result of pressure from other industry or activity, but as the exploration and mining industry is visible (drill rigs, large trucks, camps, infrastructure, etc.) adverse environmental impacts such as dust, damage to a fragile ecosystem, desertification, and water scarcity tend to be attributed to the extractive sector. For example, *"The pasture is getting smaller and smaller. [Because of] mineral exploration projects it really feels that we are losing pastureland."*

To assess how frequently company representatives cited issues also raised by their stakeholders, Erdene employee and board director interview transcripts were subjected to a key word search using the issues of importance raised by other interview respondents (Column 1, Table 2). The findings are summarized in the right hand column of Table 2. The results illustrate a number of common interests or issues

shared by Erdene personnel and project stakeholders such as water, the environment, economic development, and herd welfare. Finding these points of intersection are an important attribute for assessing opportunities to create shared value (Porter and Kramer, 2011).

To identify the attributes of effective community engagement, respondents were asked about their past experience with mineral exploration companies, the ways in which those companies worked with their communities, and what sort of relationship exploration companies should have with the communities that are closest to the areas where mineral exploration is taking place. During data analysis, responses were classified to six main characteristics of effective community engagement. Items 1 through 5 align with practitioner guides to engagement produced by groups such as the International Finance Corporation and the World Resources Institute amongst others. Item 6 is a new finding, relevant for Erdene but also for other mineral exploration companies listed on stock exchanges.

1. Start engagement early using a planned and systematic approach.
2. Understand the local context, noting that needs can be very different from one community to the next.
3. Engage with openness and honesty, and embrace transparency, which is viewed as especially important in an age when accessing information via social networks and the internet is increasingly common.
4. Build relationships not transactions. (It was stressed by respondents that effective engagement programs are built upon relationships and require that any benefits from mining projects accrue to all citizens rather than just to a small number of elites).
5. Maintain ongoing dialogue even in times of inactivity or periods of low activity.
6. Integrate company messaging to ensure alignment from market to neighbour. This is seen as important to avoid competing narratives that can breed distrust.

Respondents were also asked to share their perspectives on whether Erdene had made efforts to create and share economic value with communities. Creating shared value is defined as an economic strategy that seeks the points of intersection between business and society to address issues and drive outcomes that benefit business and society simultaneously (Porter and Kramer, 2011). The majority of respondents indicated that the idea of creating shared value had relevance for the Mongolia mining sector. For example,

"When you are building a mine, it is not just the company. It is also the local government etc. Everyone should be getting value because that's what natural resources are – a shared resource."

There were three areas where Erdene was perceived by interviewees to have made contributions to community development that respondents classified as shared value. The first is the company's scholarship program, begun in 2012, which has provided funding for 43 local high school graduates to pursue a post-secondary education. There is no requirement for scholarship recipients to work for Erdene post-graduation, and there is no requirement that students pursue education

² During the research period, in March and April 2018, the government of Mongolia requested the assistance of the Swiss Office of the Attorney General to conduct a criminal investigation into a suspected abuse of power and allegations of corruption stemming from the 2009 Oyu Tolgoi investment agreement. Two former Mongolia prime ministers and a former finance minister were the subject of the investigation. Although Rio Tinto, the mining company that operates Oyu Tolgoi and owns 66 per cent of the mine, was not part of the mine bribery probe the Swiss investigation coincided with an investigation into a payment Rio Tinto allegedly made to a French consultant to secure a large iron ore mine in Guinea. Neither of these events mentioned or referenced Erdene, however, it is observed that the negative media coverage, which was widespread in Mongolia, may have influenced stakeholder opinion about the reputation of the mining industry.

Table 2
Issues raised most frequently by respondents to the question of most important issue(s) facing his/her community. Total mentions in Column 1 can exceed stakeholder group numbers due to linked issues or the identification of two equally important issues. Right-hand side column illustrates the frequency with which stakeholders priorities (as per column 1) were mentioned by ERD personnel as issues of importance to the company.

Stakeholder groups	Key word/issue (column 1) search within						
	Industry (2)	Investor (1)	Influencers (5)	Local government (4)	S Gobi comm. (4)	Herders (3)	CSO/NGO (9)
ERDene interview transcripts	ERD Board (3)	ERD employees (7)	ERD Board (3)	ERD employees (7)	ERD Board (3)	ERD employees (7)	ERD Board (3)
# mentions of an issue by the	# mentions of an issue by the	# mentions of an issue by the	# mentions of an issue by the	# mentions of an issue by the	# mentions of an issue by the	# mentions of an issue by the	# mentions of an issue by the
# company personnel (N = 10) who mentioned it	# company personnel (N = 10) who mentioned it	# company personnel (N = 10) who mentioned it	# company personnel (N = 10) who mentioned it	# company personnel (N = 10) who mentioned it	# company personnel (N = 10) who mentioned it	# company personnel (N = 10) who mentioned it	# company personnel (N = 10) who mentioned it
Q. What do you think is the most important issue facing your (insert as appropriate - community/company/industry) today?							
Table numbers equal mentions of issue by each stakeholder group							
COLUMN 1	22	3	3	1		3	6 mentions from 3 individuals
Issues (by # mentions)	11	22	1	4		3	6 mentions from 6 individuals
Reputation (13)						4	99 mentions from 10 individuals
Governance (12)						2	26 mentions from 8 individuals
Water (11)			1		2	1	9 mentions from 3 individuals
Environment (10)		33	3	1	3		15 mentions from 7 individuals
Pastureland (7)		11	2	1	3		17 mentions from 7 individuals
Animal/herd welfare (6)		12	2	2	2	1	10 mentions from 2 individuals
Employment/eco. dev. (6)			2	2			12 mentions by 4 individuals
Access to capital (5)	11					3	2 mentions from 2 individuals
Trust (4)						2	1 mentions from 1 individual
Expectations (4)	11	11				2	
Transparency (3)	11					2	
Cultural change (3)						2	

that leads to a career in mining. Recent graduates include a soum-based doctor, a bank teller and a local-level administrator. The company's support for advanced education was raised by 30 per cent of interviewees as an unprompted example of a positive initiative that supports community sustainability.

Another area where Erdene was cited for having created and shared value was in relation to the company's water stewardship work. As noted earlier, Erdene is a signatory of the International Finance Corporation's Voluntary Code of Practice (VCP) for sustainable water management in the Gobi. In addition, respondents described how Erdene has worked collaboratively with local herders, elected officials, and other stakeholders in an effort to reduce competition for the scarce resource of water. An example of Erdene's approach to create and share value can be found in a water stewardship initiative the company undertook in 2017 that is discussed in detail in Section 4.2.

The third example of creating and sharing value identified by interviewees related to a new initiative undertaken by Erdene, which was the first foreign-listed company to cross list its shares on the Mongolia Stock Exchange (MSE). As part of the cross listing, Erdene personnel worked with local government officials to have the two soums closest to the Bayan Khundii project subscribe to the offering. Erdene then registered a portion of the MSE-listed shares to over 5000 residents of the soums of Shinejinst and Bayanundur. As the cross listing was completed in June 2018 – post field work – it was not possible in this research to measure outcomes from the share offering. However, local interviewees indicated that, despite the vagaries of the stock market, the initiative was predicted as a way to create and share value from mining.

The final set of questions posed to interview respondents sought to identify areas for potential company-community collaboration to advance sustainable development. Responses were mapped against the UN Sustainable Development Goals (SDGs) and are summarized in Table 3. While some of the ideas proposed would require company funding (jobs and training), others could be advanced through partnerships in which the company would provide technical knowledge or business expertise (e.g. herd health or development of value added industry).

A sub-set of interview respondents (N = 17) were purposefully selected to answer a series of quantitative questions relating to Erdene. This group, whose members had direct past experience with Erdene representatives and/or company policies, was asked to indicate if they agreed, disagreed, or had no opinion on five attributes of community engagement: Erdene operates in an environmentally sound manner; Erdene communicates effectively within your community; Erdene is managed by people you can trust; the company is responsive to community concerns; and, Erdene finding a mineable deposit would benefit the community. Ninety per cent of respondents agreed with the statements suggesting that the company's early efforts to build relationships and trust have yielded results.

"They have stuck with Mongolia through thick and thin. They are not just trying to understand Mongolia for their own goals. It seems to me they have a real network and are part of the business culture and society. They strike me as being different in how open they are to exploring different ideas."

It is important to note that despite the overall positive responses about Erdene, not all stakeholders who were interviewed supported the idea of a mine being developed in the region where they live. As noted earlier, herders in the southwestern Gobi have reservations about mineral development in the region. Herder concerns were driven primarily by anxiety about water availability and the potential for mining to cause adverse environmental impacts to the Gobi pastureland upon which their herds and livelihoods depend (Table 2). Herder unease appears to be generalized to the mining industry rather than to Erdene specifically.

Table 3

Areas proposed by interview respondents for potential collaborative partnerships to advance sustainable development goals set by local, regional and national governments and mapped against the UN SDGs.

UN SDG	Topic	Specific ideas offered
1: No poverty	Employment	<ul style="list-style-type: none"> • Local hiring and training • Opportunities for local young people with education but without jobs
4: Quality education	Education	<ul style="list-style-type: none"> • Scholarships • Training • Partnership programs
6: Clean water & sanitation	Water	<ul style="list-style-type: none"> • Water quantity • Water quality/testing • Impact of water withdrawals on aquifers • Access to drinking water • Drilling/maintaining water wells
8: Decent work & economic growth	Economic development	<ul style="list-style-type: none"> • Local procurement, including opportunities for local small and medium enterprise to supply exploration and mining sites • Development of a value-add cashmere industry • Economic prosperity for the local soums • Herd health
9: Industry, innovation & infrastructure	Infrastructure	<ul style="list-style-type: none"> • Shared infrastructure • Renewable energy
15: Life on land	Environment	<ul style="list-style-type: none"> • Mitigating soil erosion/desertification • Reclamation of exploration/mining sites • Addressing impacts of climate change (drought, lack of precipitation, harsh winters, soil erosion, etc.) • Pastureland: availability/quality • Closure planning

4. Discussion

The extractive industry - operating within a free-market orientation - is relatively new in Mongolia. This limited experience of mining, related activities, and mining entities has contributed to some misunderstandings and a distrust of the industry within the country. A lack of trust manifests in the negative reputation mineral exploration and mining encounters in Mongolia (Independent Research Institute of Mongolia, 2014), with public perception of the benefits of mining remaining low despite the economic value that society can receive from the metals and materials that mining produces. Specific to Mongolia, there are also concerns - raised by interviewees and within the literature - about the ways in which mining is contributing to changes to the Mongolian traditional cultural identity of nomadic herding (e.g. Meesters and Behagel, 2017; Ganbold and Ali, 2017). Taken together these factors mean that individual companies will confront issues that make trust building and engagement challenging.

For mineral deposits to advance from exploration to mining, a commercially viable resource is required. Increasingly, securing stakeholder support, or a social license to operate, is also a requirement for mine development. In this paper, it is noted that community engagement must begin early in the life of mine cycle, at the exploration stage. The conundrum of how to build a community engagement strategy at a stage when companies have no certainty about the future of the project, have no operating income, and are highly dependent upon investors for capital was investigated in this research. An examination of the community engagement approach (plans, policies, and procedures) used by Erdene in Mongolia, and the analysis of 43 interviews with company stakeholders, including a sub-set of individuals with direct experience either working for the company or as a supplier to the company, as well as with employees at various levels of seniority and board members, supported the identification of a four-step process employed by the company to build a foundation for future success: vision, early engagement to build relationships, business strategy, and a focus on people and partnerships. To identify the steps we focussed on the interviewee responses to four company-specific questions, and the associated open-ended comments, and explored the commonalities amongst the transcripts. The most valuable data came from open ended questions probing interviewees' views about company performance and asking them to identify those attributes that they felt were driving the company's performance.

4.1. Company vision

Anchoring the company's approach is a clear - and commonly held - corporate vision on the importance of community engagement and sustainable development. The vision is set at the top of the company, is clearly articulated and embraced by employees at all levels of the company. It is noted this requires virtually no capital expenditure. One company executive stated

"It is our responsibility to recognize that we are making an impact. So how do we deal with that? Respecting [the local] culture and trying to make sure we can protect that as much as possible ... it is important from the top down that we have that perspective. Many people's view is that [community engagement] is expensive, it is a waste of time, and we are only in exploration. [We feel community engagement] is critical to the business side to do this right. It is the right thing to do and it is going to pave the way for your business."

External stakeholders indicated that Erdene's position on community engagement and sustainable development is recognized and appreciated. One respondent explained that, "When [a company] has a mission statement that says it wants to create value for all stakeholders that says everything. [Erdene] is very strong on that."

This finding on the importance of corporate vision and purpose aligns with stakeholder engagement theory. Proponents, such as R. Edward Freeman (2010 b), note that when a company's purpose resonates with key stakeholders there is a greater likelihood of sustained success for both business and society.

4.2. Engage early to build relationships

The second attribute of success revealed by the research was the company's willingness to engage early and to invest time to build relationships with individual stakeholders. Once again there is little capital cost associated with Erdene's early engagement approach, however, earning consent to operate and avoiding the types of mining-community conflict that have stalled or derailed other projects can result in potential savings (Franks et al., 2014). Erdene's water stewardship work provides an example of how the company fostered relationships with local stakeholders to identify opportunities to create and share value.

Mining companies operating in Mongolia have a statutory

obligation under the 2006 Minerals Law of Mongolia to establish community agreements. In a recent study, it was identified that compliance with the requirement is low (Daliabuyan, 2017). Erdene is one of the companies that has met its obligation and entered into a local level cooperation agreement (LLCA) with Bayankhongor aimag and the soums of Shinejinst and Bayanundur. The objective of the LLCA is to have Erdene's exploration project contribute to the development of the local area and the livelihood of its citizens – in other words, sustainable development. Under the terms of the LLCA Erdene signed in April 30, 2017, the soum of Shinejinst was allocated MNT \$6,500,000/US \$2500 to improve drinking water sources. Shinejinst has a seasonal population of approximately 2500 people and is located approximately 90 km northeast of Erdene's Bayan Khundii camp. Until 2017, potable water was being trucked into the town from the aimag capital approximately 270 km north. The funds from the LLCA gave the soum government access to some funding; however, to identify a potable water source, drill a well, and build the required water infrastructure required additional expertise and capital.

Due to the company's ongoing engagement with local officials, Erdene personnel were aware of the soum's interest in improving its access to potable water. Therefore, in 2017, when Erdene commissioned hydrogeological work to source a water supply for the potential mine at Bayan Khundii, the company offered to expand the area for the hydrogeological investigation to include the soum. This led to the discovery of a potable water source 3 km from the soum centre. Shinejinst then accessed money from the LLCA to cover the cost of drilling the new water well, which was undertaken by Erdene's contractor. Interview respondents cited Erdene's role in this project as an example of creating and sharing value: it cost the company little to expand the area of its hydrogeological search but the survey results delivered significant value to the local population. The company's willingness to collaborate with local government to address a common interest appears to have built Erdene's reputation capital as well as supporting soum sustainability priorities. These positive outcomes required little capital investment. Entering into a LLCA is a requirement of doing business in Mongolia and should therefore be considered a standard budget item. Securing a water supply for the prospective mine is a technical requirement for operations and therefore a standard exploration cost. Broadening the search area for prospective water sources represented only an incremental investment of capital and professional resources.

It is noted that herders are the stakeholder group most concerned about water quality and quantity and that herders do not live in the soum. As Erdene has been exploring for mineral resources in the Gobi the company has been talking with herders and local government officials about water quantity and quality. The company has restored and returned to service six remote water wells built in the Gobi Desert during the Socialist era. These wells had fallen into disrepair and were no longer available for herds. Since the wells can be used provide water for exploration drilling, once again the cost of providing water to herders was marginal. In other words, the capital required for these sustainability and engagement initiatives was low, yet these water initiatives are viewed as important by local stakeholders, generated recognition from local government officials and non-governmental organizations, and are viewed as having an economic value.

Practioner guides to engagement produced by groups such as Canada's Prospectors and Developers Association (PDAC) advocate for early engagement. Yet, as noted earlier, exploration companies can struggle with determining the appropriate time to initiate community engagement due to human and financial capital constraints, as well as uncertainty about the future viability of mineral discoveries. The findings of this research suggest small capital investments in projects that are viewed as priorities by communities of interest can help to build relationships. The value of identifying points of common interest and collaborating with stakeholders to address these issues is demonstrated in Erdene's water stewardship work, and provides an applied example of the academic theory of creating shared value (Porter and

Kramer, 2011).

4.3. Business strategy

The third attribute revealed by the research was that Erdene views community engagement as business strategy. Erdene's objective is to deliver tangible benefits that support sustainable development. Corporate strategy is based upon a belief that mineral development should create and share value for all stakeholders, not just shareholders. According to one company representative, *“Creating shared value for me means that all stakeholders benefit to the maximum that we can develop. When I think of shared value I really think of how we can make a difference.”* It is relevant to note that one of Erdene's key considerations appears to have been to develop an approach that is proportional to the company's resources and stage of mine development.

As noted in the introduction, exploration is the stage during which engineering design options for future mining development are evaluated. Some design decisions can have significant positive or negative impacts at a community level. Findings from the qualitative interviews indicate that Erdene has initiated studies to evaluate the ways in which the company's choices could complement regional infrastructure or sustainability needs. The early consideration of design options that could deliver regional benefits is one example of the company's business strategy. In addition to Erdene's membership in the IFC's VCP for water management, the company conducted a study with the IFC to investigate the use of renewable energy at the prospective mine site. According to one company representative,

“It is important to take the time early in the exploration phase to do these studies so that you are not in a pre-feasibility study falling back on diesel just because it is the easiest thing to do. You weigh the commercial comparisons but maybe the social benefit is enough to weigh something that is slightly higher in cost as worthwhile because of the social benefit.”

The stakeholder engagement business model employed by Erdene has been deemed by scholars as the most efficacious way to achieve sustainable business performance (Sisodia et al., 2002). For mineral exploration companies, highly dependent on equity markets for capital, it remains unusual to see companies employing business strategy that prioritizes stakeholder value over shareholder value. The Erdene finding is therefore noteworthy.

4.4. People and partnerships

Interview respondents recognized a focus on people and partnerships as the fourth attribute of Erdene's success. There are three aspects to the people and partnerships approach. First is efforts to ensure that benefits from exploration and mining projects accrue to all citizens rather than just to a small number of elites. To quote from one interview respondent, *“It is important for the community members to know and be assured that the decisions and discussions were made in a group setting rather than one-on-one talks.”*

Second, unlike many exploration companies, Erdene has elected to hire company personnel tasked specifically with stakeholder engagement and community relations. The investment in personnel to support effective community engagement is recognized as a cost to the company that differentiates Erdene positively from other exploration companies: *“Erdene has professionals working for them who are knowledgeable. Many exploration companies wouldn't have dedicated social and environmental resources.”*

The third aspect recognized by external stakeholders was Erdene's willingness to consider innovative solutions and develop collaborative partnerships to address social issues and advance sustainability initiatives – such as shared approaches for water management.

“I've known them for awhile. I think their approach to community issues has been one that is not paternalistic, that is pretty open. I see

a strong commitment from the people I deal with to doing things well. To doing things more collaboratively.”

“I trust them to be a company with which I can collaborate for future projects.”

Scholars (e.g. George et al., 2016) and practitioners (e.g. Volans, 2016; Business and Sustainable Development Commission, 2017) have noted that collaboration between business and other actors is required to advance sustainable development. The willingness to collaborate that Erdene has demonstrated to its stakeholders suggests the company's current approach is aligned with a business model that recognizes new conceptions of partnerships (Hoffman, 2018) to drive more sustainable outcomes.

4.5. Trust and return on investment

The research findings suggest Erdene personnel have earned trust with key stakeholders. This trust can be used to build upon early engagement efforts and support the company's “social license to operate”. As noted earlier, securing a “social license to operate” is currently one of the mining sector's top challenges. Exploration companies that are able to demonstrate solid stakeholder relationships and that can point to examples of collaborative partnerships to address social priorities that are linked to business needs, may be able to identify tangible returns on social investment (for example, no lost days of production due to protests, securing the water supply required for production, financing of shared infrastructure, etc.). A proposition arising from the research is that in situations where exploration personnel can demonstrate that social risk (both risk to the project from communities and risk to the communities from the project) has been mitigated, there may be a commensurate increase in the financial value of the project upon acquisition. It is further suggested, in accordance with work of other community relations and engagement that the value proposition from efforts to create economic shared value should resonate with community stakeholders and support the granting of a “social license to operate”.

The highest stakeholder risks for mining projects in the southwest Gobi desert appear to be linked to water (specifically water quality and quantity), and to concerns that the traditional pursuit of herding and animal husbandry may be displaced by mining. These issues were generalized to the extractive sector rather than being Erdene specific. For example, access to water, use of water, and opinions on water management were raised repeatedly in a study the *Independent Research Institute of Mongolia* (2014) did for the IFC assessing community perceptions in nearby Omnogobi province. The number of mentions of water and water-related challenges Erdene representatives made during the qualitative interviews (see Table 2) suggests the company is conscious of the need to work closely with community partners to protect and manage scarce water resources.

While the potential for challenges between Erdene and its stakeholders remain, the research findings suggest stakeholders are willing to bring problems forward to the company for consideration. In many instances within the global mining sector, stakeholders talk only amongst themselves and those opposed to mining, something that creates the risk of polarized opposition. The trust that Erdene has built to date should serve to provide the company with an early warning of potential issues. Awareness of community concerns creates an opportunity for the company to address the issue and potentially prevent costly polarized opposition from developing.

5. Conclusions

The research employed a case study of a single company. The findings appear to hold relevance for other exploration companies operating in Mongolia, however, additional research would be required to generalize the findings across the sector. Questions of national

governance, policy, and legislative certainty were raised during the interviews but were outside the scope of this research and therefore constitute potential areas for future investigation.

The project raised interesting questions regarding trust that also constitute areas for future research. It is common in the mining sector for mineral deposits to be discovered by one company, built by another, and operated by a third. Trust built and fostered at the exploration stage may be highly vested in company-specific individuals. In a corporate merger or acquisition, the mineral resource is a transferable asset. Is trust also a transferrable asset? The issue of trust is linked to questions about the social chain of custody in mining projects. To ensure that company activities continue creating and sharing value for all stakeholders, should companies develop a plan for managing reputation capital and securing a commitment from any future project partners that social responsibility and creating shared value are retained as fundamental business principles? Should prospective mine developers and operators be required to continue as collaborators in long-term sustainable development initiatives initiated in the exploration stage?

Finally, there are opportunities for research measuring mining's contribution to the UN Sustainable Development Goals. This paper illustrates that community needs for long-term sustainable development and mining's needs for the viability of its operations often overlap. It is suggested that establishing collaborative partnerships to create shared value is a worthwhile strategy for mining companies to embrace and one that could advance SDGs. Good work on mining's contribution to the SDGs has been done by groups such as the International Institute for Sustainable Development, the World Economic Forum, the Columbia Center on Sustainable Investment, the Sustainable Development Solutions Network and the Mineral Council of Australia amongst others. However, more research is required to map exploration's contribution to the SDG agenda and to evaluate the costs and benefits for both parties in collaborative partnerships established to target specific SDGs.

Creating effective engagement strategies does not have to be a costly endeavor. Erdene's approach began with articulating a corporate vision on the importance of stakeholder engagement and sustainable development, and anchoring that vision in business strategy. The focus on creating and sharing value with project stakeholders appears to have started with small investments in community priorities, such as advanced education, which helped to build trust. While some cost has been incurred, company officials view the financial investment as proportional to Erdene's resources and stage of mine development, and stakeholders interviewed believe the company has created and shared value. Building a portfolio of strategic projects with long-term economic development potential is considered a key attribute of creating shared value.

There are a number of criteria to be met to move mineral exploration projects from discovery to operations. Many of these are technical. However, an increasing number are social and anchored in trust. The research indicates there has been a positive return to date on the strategy to build relationships, to understand local issues, and to work collaboratively with stakeholders to address issues of mutual interest and deliver tangible benefits. Moving forward, there appears to be opportunities for further return on investment for the company and opportunities for further advancement on community sustainable development priorities through this mutual gains approach.

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