



SUSTAINABILITY
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ERDENE
RESOURCE DEVELOPMENT

ERDENE MONGOL LLC

Khundii Gold Project Non-Technical Summary May 2020

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Acronyms and Abbreviations

AN	Altan Nar
Aol	Area of Influence
BK	Bayan Khundii
DEIA	Detailed Environmental Impact Assessment
EBRD	European Bank for Reconstruction and Development
ESIA	Environmental and Social Impact Assessment
ESMPs	Environmental and Social Management Plans
ESP	Environmental and Social Policy of the European Bank for Reconstruction and Development, 2019
FGD	Focus Group Discussions
GEIA	General Environmental Impact Assessment
HSEC	Health, Safety, Environment and Community
IWF	Integrated Waste Facility
KGP	Khundii Gold Project
KII	Key Informant Interview
KT-BS	Khuren Tsav and Bosgyn Sair borefield area
MLA	Mineral Licence Area
NGO	Non-Governmental Organisations
NTS	Non-Technical Summary
PR	Performance Requirement
SEA	Sustainability East Asia LLC
SCMP	Stakeholder and Communications Management Plan
WMP	Water Monitoring Plan
WRMP	Water Resources Management Plan

1. INTRODUCTION

1.1 Project Background

The European Bank for Reconstruction and Development (EBRD) is considering providing finance to Erdene Mongol LLC and/or Erdene Resource Development Corporation for the development of the Khundii Gold Project (KGP).

The KGP site is located in Bayankhongor aimag of Mongolia, approximately 980 km south-west of Ulaanbaatar and 300 km south of Bayankhongor Aimag Centre. The KGP includes two deposits, Bayan Khundii and Altan Nar, located on the separate Mineral License Areas (MLA) of Khundii and Altan Nar respectively, which are approximately 16 km apart. The KGP area is located in the territories of Shinejinst (Bayan Khundii deposit) and Bayan-Undur (Altan Nar deposit) soums. The nearest towns (called soum centres) being Shinejinst and Bayan Undur, are located approximately 70 km northeast and 80 km north, respectively (Figure 1).

The Bayan Khundii site will be developed first with all process and mine supporting infrastructure located there. From Year 7, the Altan Nar mine is proposed for development as a satellite operation with minimal facilities. The public Site Access Road between the Bayan Khundii mine licence area and the Shinejinst soum centre and the proposed mine water supply bore field area approximately 2-5km south of Bayan Khundii are considered as part of the KGP.

The KGP is classed by the EBRD as a Category A project, which means that a comprehensive Environmental and Social Impact Assessment (ESIA) of the KGP must be undertaken to meet the Bank's Environmental and Social Policy (ESP 2014) and Performance Requirements (PRs).

Sustainability East Asia LLC (SEA), together with Ramboll Australia Pty Ltd and Eco Trade LLC, have been commissioned to undertake the ESIA. This Non-Technical Summary (NTS) is one of a number of documents provided to meet the EBRD's ESP and PRs, including the following:

- Environmental and Social Impact Assessment (ESIA);
- Environmental and Social Management Plans (ESMPs);
- Stakeholder and Communications Management Plan (SCMP).

1.2 Purpose of the Non-Technical Summary

The purpose of this NTS is to provide an easily understandable summary of the information that is provided in the ESIA. The NTS provides the public with information about the Project, including outcomes of the ESIA and management actions to address potential environmental and social impacts as well as stakeholder engagement and grievances.

1.3 Summary of the ESIA Objectives

The Environmental and Social Impact Assessment (ESIA) has the following objectives:

- Identify and assess both adverse and positive potential impacts of the project;
- Prevent or, if prevention is impossible, minimize, mitigate or compensate for adverse project impacts on staff, affected communities, and the environment;
- Ensure appropriate communication with the affected population on issues that may potentially affect living conditions of that population; and
- Facilitate effective social and environmental performance of the Company through the implementation of appropriate management systems.

1.4 ESIA Process

During the screening stage, the KGP was determined to be a Category A project according to the EBRD criteria, requiring a comprehensive ESIA according to the following steps:

- Scoping of potential environmental and social impacts of the Project
- Assessment of potential impacts
- Development of impact mitigation measures and management actions
- Consideration of cumulative impacts

The tasks completed in the course of the above processes are briefly explained in the following sections. More details are provided in Chapter A3: Methodology.

1.4.1 ESIA Scoping

Scoping is a key element of the impact assessment process and is a requirement of EBRD Performance Requirement 1 (PR). The Scoping process identified the following key requirements of this ESIA:

- Define the temporal, spatial and technical scopes of the assessment;
- Determine the Environmental and Social Baseline Conditions;
- Identify needs for specialist studies, if any;
- Highlight potential environmental and social issues and impacts; and
- Outline the methodologies for assessing, avoiding and/or mitigating impacts.

The Scoping Report was developed in October 2019 by the ESIA team with input from the KGP technical team and subsequent to extensive environmental and social baseline data collection and review.

1.4.2 Assessment of Impacts

The ESIA team evaluated potential impact significance with reference to definitive standards, accepted/published criteria and legislation, where available and applicable to the Project. Where it has not been possible to quantify impacts and effects, qualitative assessments have been made, based on expert knowledge and independent professional judgement. Where uncertainty may exist, it has been noted in the relevant chapters.

The significance of impacts and effects has been determined by establishing the magnitude of the impact combined with the sensitivity of the receptor on which such impacts may act. The magnitude of an impact is a measure of the scale of change from baseline conditions for a given receptor. Multiple factors, such as extent, duration, frequency and reversibility of a given impact, are considered in order to establish the impact magnitude. Importantly, a receptor's resilience to a given impact and values attributed to the receptors by relevant stakeholders or regulations are used to assess receptor sensitivity.

Impact magnitude and receptor sensitivity results were combined to determine impact significance. This was done by using an impact significance matrix (Table 1). Using this matrix, for example, an impact of low magnitude affecting a receptor of medium sensitivity would result in an overall impact significance of Minor. Any impact with moderate or higher significance took priority for impact mitigation actions.

Table 1. Impact Significance Matrix

Impact Significance Matrix			
Impact Magnitude	Receptor Sensitivity		
	Low	Medium	High
Beneficial	Positive	Positive	Positive
Very Low	Negligible	Negligible	Minor
Low	Negligible	Minor	Moderate
Medium	Minor	Moderate	Major
High	Moderate	Major	Major

1.4.3 Development of Impact Mitigation Measures

For each area of applicable impact, mitigation measures have been prepared, describing the actions to be taken. In addition to mitigation and management measures, means to manage the residual impacts through the KGP mine life have been incorporated into the suit of KGP Environmental and Social Management Plans (ESMP) as part of this ESIA. The following hierarchy of mitigation measures has been followed:

- “Designing-out” impacts by adopting an initial design that avoids impacts;
- Assessing alternatives and, where feasible, adopting those with less or lower impact;
- Applying mitigation measures to manage remaining impacts; or
- Establishing fair compensatory measures to address residual impacts that remain after implementation of the above steps.

The ESMP consists of a suite of 17 individual management plans specific to each biophysical and social sensitive receptor describing the mitigation measures, the Project’s roles and responsibilities to implement them, and monitoring and auditing requirements for continued improvement.

1.4.4 Consideration of Cumulative Impacts

The EBRD PR1 Assessment and Management of Environmental and Social Impacts requires the ESIA to consider the potential cumulative impacts of the project in combination with impacts from other developments. The KGP’s potential cumulative impacts are assessed by reviewing the known other existing and potential industrial projects in the region.

The full scope of cumulative impacts addressed by this ESIA is set out in Chapter C14: Cumulative Impacts.

1.5 Scope of the Non-Technical Summary

The scope of this NTS includes the following:

- The Project and alternatives considered;
- Summary of the main environmental and social impacts associated with the Project during construction and operation and the mitigation and management measures to address negative impacts and enhance beneficial impacts; and
- Overview of the Stakeholder and Communications Management Plan and Grievance Procedure.

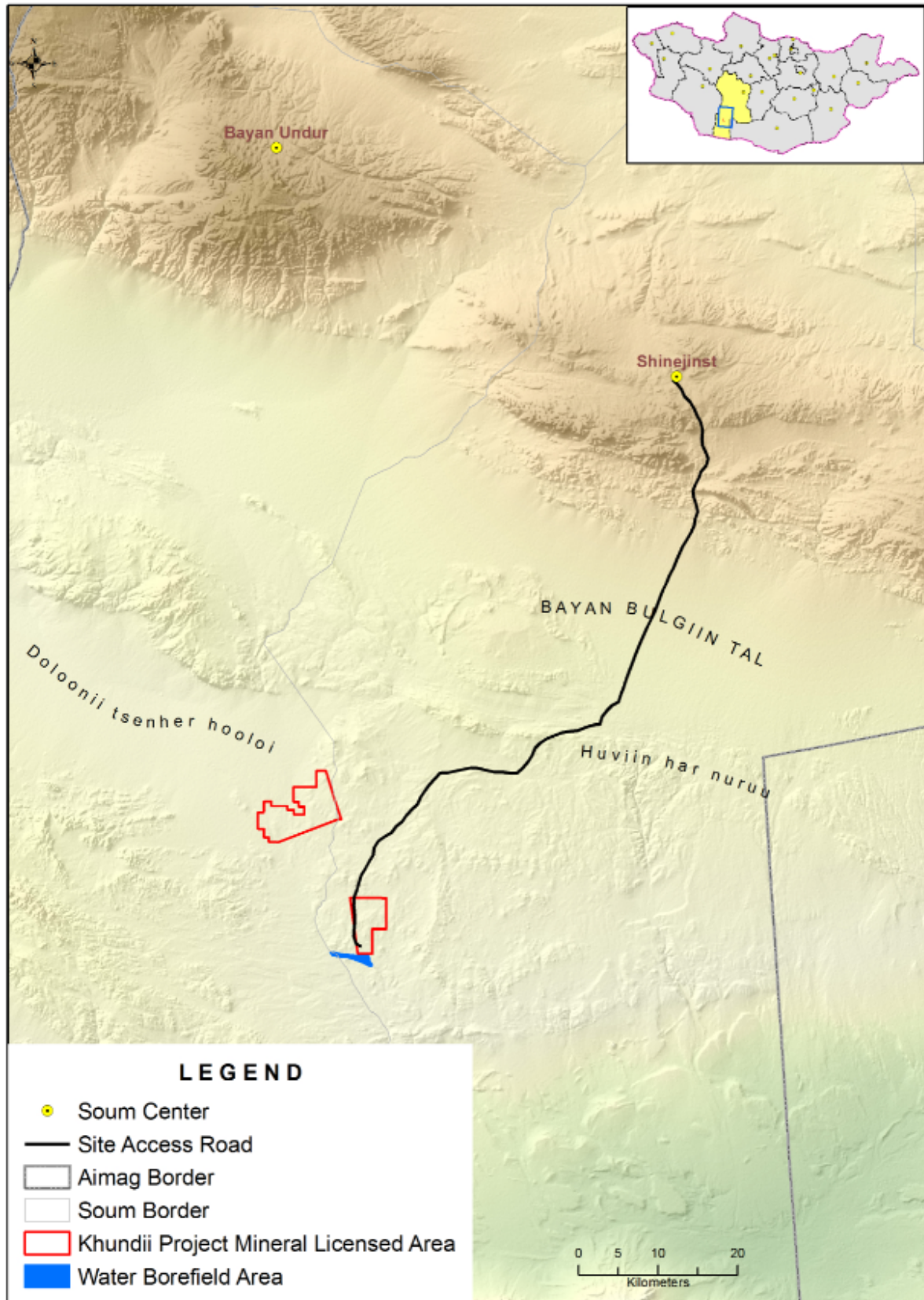


Figure 1 Location of the Khundii Gold Project in Mongolia

2. DESCRIPTION OF THE PROJECT

2.1 Project Overview

The KGP is a “greenfield” site and has only minor, non-permanent infrastructure at the time of this ESIA. Erdene plans for the Bayan Khundii site to be developed first (starting in the second half of 2020) with the process plant and supporting infrastructure located there, and the Altan Nar site to be developed later (in around 2026) as a satellite operation with minimal facilities. The Project construction phase is planned to take approximately 12 months. The Project has an expected mine life of 11 years, including a year-long mine closure phase. The provisional layout of the mine and associated infrastructure is provided in Figure 3 below, while the key project characteristics are noted in Figure 2.

Mining Operations:

- The Project proposes an open-cut gold mining operation of 600,000 tonnes of processed material over an 11-year mine life. Mining will use hydraulic excavators. Drilled and blasted material will be loaded into haul trucks, with waste rock deposited in an engineered Integrated Waste Facility (IWF) adjacent to the pits, and plant feed hauled to a run-of-mine pad adjacent to the processing plant which is to be located at Bayan Khundii.

Processing:

- The design for the Project ore processing includes ore being stored on the run-of-mine pad. Ore from the run-of-mine pad will be fed to a single stage crushing circuit followed by a grinding circuit. The grinding circuit product is passed through a conventional leach & carbon-in-pulp circuit for recovery of gold via elution and an electrowinning circuit producing dore. Tailings are passed through a thickener for recovery of water and reagents and minimisation of detoxification reagents. Tailings thickener underflow is then detoxified, filtered and trucked to co-disposal with mine waste. The processing facilities include administration offices and warehousing.

Integrated Waste Facility:

- KGP plans to use an engineered waste facility for mine waste rock and filtered tailings. The IWF has been designed in order to create a smaller footprint by co-disposing mineral wastes, improve shear strength of the final waste landform, and potentially reduce long-term environmental risks.

Infrastructure:

- An off-grid diesel-solar power station is expected to supply the mine’s installed power requirement of approximately 6 MW, consisting of up to 7 gensets with 1 MW. An additional unit of 1 MW diesel station is planned for the workers camp power supply.
- A mine camp to accommodate workers during construction and operation will be constructed about 4 km north of the proposed Bayan Khundii open pit. Workers will be flown to Bayankhongor aimag centre, and then transported to the site via buses. Local workers, from Shinejinst and Bayan-Undur soums, will also be transported to site by bus and will be housed at the mine site accommodation, returning to their home base upon completion of their roster via bus. During construction and operations the approach to worker accommodation will be to house all workers at the KGP at the accommodation camp.
- Mine water supply is planned to be sourced from the groundwater aquifer 2-5 km southwest of the Bayan Khundii deposit. Five extraction bores have been constructed, and pump stations and a pipeline are planned for mining water use supply. Potable water will be provided by an on-site reverse osmosis plant and / or bottled water from off-site.
- The public road between the Bayan Khundii site and Shinejinst *soum* will be spot repaired and used as the main supply road during construction and operations.

Workforce:

- The KGP construction phase will involve a small construction workforce of up to 506 people (including contractors) for an estimated construction period of approximately 12 months. During the operations phase, the Project is expected to employ approximately 337 personnel. For the purposes of the ESIA, an additional 25% allowance was included for a projected maximum total on-site workforce of 421 people to allow for a conservative assessment of potential impacts. Not all of the workforce will be on site at the same time, with fewer workers on site on any given roster (roughly 190 on site at a time).

Figure 2 Key Project Components

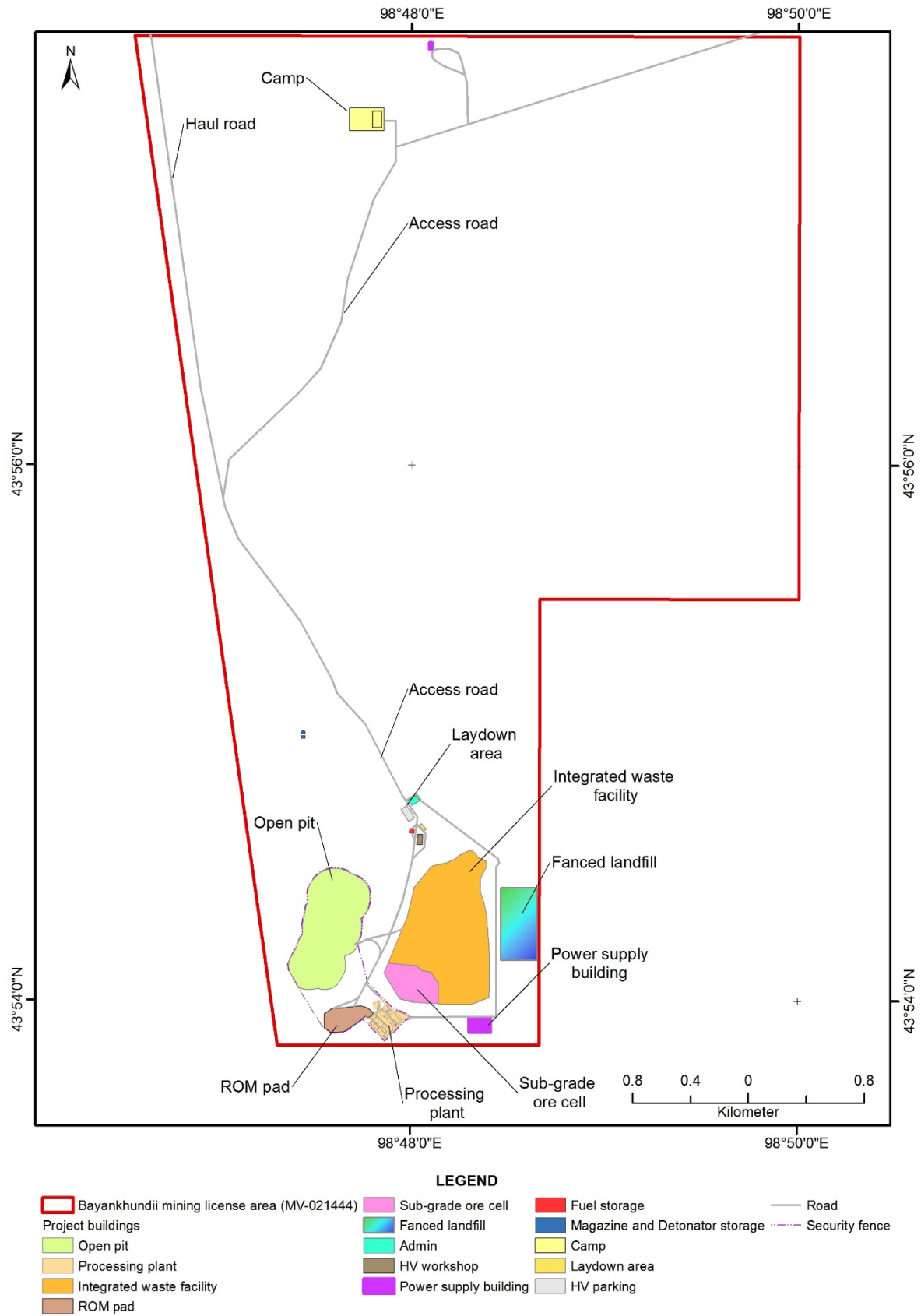


Figure 3 Khundii Gold Project Site Layout

2.2 Project Alternatives

The Project has considered alternatives to its selected mining methods, process methodology and technology, and project infrastructure, including the road routes to be used, primarily during the construction phase. A 'No Project' alternative was considered, where no mine would be built or operated. Under the scenario of the KGP proceeding, there would be some environmental and social impacts, mainly at the local level. These are, however, considered to be outweighed by the positive economic effects the KGP would have at the local and national levels.

Several methods were tested for processing the ore at the KGP, with test work showing that the KGP ore is best suited to conventional cyanide leaching. The considered alternative methods included heap leaching, gravity recovery, gravity – cyanide leaching combination, and Merrill Crowe recovery method. Expected mineral waste from the alternatives, including the cyanide consumption and disposal, was also taken into consideration. All identified alternatives that could be potentially viable are either less effective, more costly, require more extreme operating conditions, necessitate higher concentrations and/or larger volumes of various reagents, and/or present risks to health or the environment equal to or greater than the use of cyanide in the selected carbon-in-pulp processing method.

Infrastructure placement and design was sited with consideration of vehicle movements with a focus on safety and vehicle separation by type; minimisation of land take and fenced areas; prevailing winds on site to mitigate dust formation and erosion, where possible; potential pedestrian and livestock traffic, if any; and drainage and catchment areas to mitigate potential flooding and collection of storm water.

Several power supply studies were undertaken to examine scenarios for grid and off-grid electricity supply to Bayan Khundii. To connect to the grid, at a minimum, a 15kV line of approximately 110 km would be needed. However, this electrical supply was determined to be prone to voltage fluctuations and unplanned outages. Also taking into consideration the cost and placement of powerlines and potential impacts to birds, on-site power generation was chosen as optimal for the KGP.

Groundwater is proposed as the primary water supply for the KGP operations because there are no permanent surface water sources in the site area. Furthermore, the use of public water supplies was ruled out given the lack of existing public water infrastructure in the area, and remoteness of the site. Site water supply is expected to be aquifer-sources from borefields within approximately 2-5 km southwest of the Bayan Khundii deposit. An alternative groundwater source was identified and investigated approximately 25 km to the northwest of the Bayan Khundii deposit, but the potential cost and land disturbance for its development were determined to be greater than those for the nearby source.

3. LEGAL ASPECTS AND COMPLIANCE

3.1 National Requirements

The Project feasibility phase is currently being financed in part by the EBRD, requiring compliance with the EBRD ESP (2014), in addition to Mongolian legislation. The Project's key environmental and social requirements under Mongolian laws are regulated through the application of the Law on Environmental Impact Assessment (2012) and the Minerals Law (2006). Erdene is in the process of securing the required Project environmental approvals under this legislation through the development of the statutory Detailed Environmental Impact Assessment, completed in parallel with this ESIA by Eco Trade LLC, an independent, licensed Mongolian company.

This ESIA contains enforceable commitments for protection of the environment, monitoring and the avoidance and mitigation of Project related impacts. The EBRD seeks to ensure through its environmental and social appraisal and monitoring processes that the projects it finances are:

- Socially and environmentally sustainable;
- Respectful of the rights of affected workers and communities; and
- Designed and operated in compliance with applicable regulatory requirements and good international practice.

In order to translate this objective into successful practical outcomes, the EBRD has adopted a set of specific Performance Requirements that clients are expected to meet, covering key areas of environmental and social impacts and issues. The PRs applicable to this Project include:

- PR 1: Assessment and Management of Environmental and Social Impacts and Issues;
- PR 2: Labour and Working Conditions;
- PR 3: Resource Efficiency and Pollution Prevention and Control;
- PR 4: Health and Safety;
- PR 5: Land Acquisition, Involuntary Resettlement and Economic Displacement;
- PR 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources;
- PR 8: Cultural Heritage; and
- PR 10: Information Disclosure and Stakeholder Engagement.

4. SUMMARY OF ENVIRONMENTAL AND SOCIAL IMPACTS AND MITIGATION MEASURES

4.1 Climate and Air Quality

4.1.1 Existing Conditions

Air quality in the KGP area is generally good due to the lack of emission sources. The only man-made emission sources affecting the area are dust from the use of local roads, including public traffic, and natural wind-blown dust as a result of local weather conditions. Erdene has undertaken periodic air quality monitoring within the Project area in 2016 and 2019, which have provided an indication of the prevailing dust levels. Data collected showed relatively consistent conditions for rainfall, air temperature, humidity, wind speed and wind direction. The lowest rainfall in the region occurs from October to April. Relative humidity is consistently dry throughout the year. Wind speeds peak in April and November, with calmer conditions in June/July and December/January. Winds prevail from the south-west and west throughout the year, indicating the impacts from emission sources are more likely to be experienced to the north-east and east of their location.

4.1.2 Impacts and Management

The main potential impacts on air quality during construction and operations will be associated with generation of dust and gaseous emissions. Sensitive receptors are considered to be the worker accommodation camp and the temporary herder winter camp sites located near the KGP MLA, the closest of which was identified approximately 1.8 km outside the license boundary. During construction, the duration of impacts would be short-term, with emission sources also limited – there will be no drilling, blasting, loading excavators or crushing during construction. Potential air pollution from operation of the mine would be at a site and local scale, with potential for increased impacts during adverse conditions. Impacts from KGP transport to air quality are assessed to be very low, given the limited number of vehicle movements during construction and operation of the mine. The duration of the impacts would be for the duration of the mine life. The impacts from operation are reversible, as the airshed can be restored at the conclusion of operations.

Potential impacts on potential herder winter camp sites to the south-west of the processing plant were considered. The identified camp sites are inhabited only temporarily, for weeks or months of the year under favourable (i.e. lower impact) prevailing wind conditions (i.e. located upwind of the mine). Should herder winter camps be occupied, it is considered that herders may experience some air quality impacts, mainly during operations of the mine.

The following mitigation and management measures are proposed:

- An Air Quality Management Plan will be prepared and implemented.
- Management of mining and transport activities to minimise dust emissions will include limiting vehicle speeds; dust suppression on stockpiles, haul roads and wind erosion sources; using sprays on conveyors and plant equipment, as feasible; and enclosing plant equipment where possible.
- A Traffic Management Plan will be prepared and implemented (see also Transport impacts).

Monitoring requirements will include:

- A weather station at the mine site with the capability to monitor key environmental parameters.
- Sporadic and targeted air quality monitoring campaigns at other locations, as needed, using a fit-for-purpose mobile monitoring unit.
- Monitoring to be undertaken at herder camps to the south of the facility, if and when occupied.

- Visual monitoring of dust generation, particularly during construction, periods of increased wind velocity (such as spring), and in degraded areas for rehabilitation program effectiveness.
- Ambient air quality monitoring to ensure that relevant air quality standards are not being exceeded at sensitive receptor locations.

4.2 Noise and Vibration

4.2.1 Existing Conditions

The Project area is located in a greenfield area with no industrial or human settlements nearby. Wind is the main source of noise within the study area. The baseline noise levels within the study area were under the day-time noise levels thresholds recommended by Mongolian and International standards. No information was available for baseline vibration levels in the study areas. However, due to the remoteness of the Project site from any industrial development or human settlements, it is believed that the vibration level is within a natural range.

4.2.2 Impacts and Management

During the KGP construction phase key mine and mine support infrastructure (i.e. ore processing plant, workers camp, offices, water supply pump stations and pipelines, warehouses and workshops, etc.) will be built at the Khundii MLA using heavy construction machinery. During the KGP operations phase, open pit mine, ore and waste rock handling at the ROM, IWF and ore processing plant, and diesel power generators will be the main noise source areas. The assessment concludes that the total mine site noise impact to the workers accommodation camp and temporary herder camp sites near the Project site will not exceed the Project standard. Noise impacts will be negligible. The closest temporary herder camp sites to AN were also assessed as not being subjected to noise impacts from the AN site development.

The KGP will carry out limited blasting up to three times a week during peak operation. Noise levels from the blasting may be over the project noise levels standards, but they are unlikely to exceed the thresholds due to the very short nature of the event. Thus, no significant impacts are expected from the blasting activities, provided all other safety measures are in place.

The Project has been designed to use the unpaved public road between the Bayan Khundii site and Shinejinst soum, which will be spot repaired and used for the main supply road during operation. Since there is no major construction work related with the road, it is not considered that repair of the access road will cause significant noise or vibration impacts.

The following mitigation and management measures are proposed:

- A Noise and Vibration Management Plan will be prepared and implemented.
- Optimising, if possible, the number of heavy earth moving equipment to reduce the total noise levels.
- Selecting equipment with noise and vibration abatement technology, where possible.
- Regular maintenance of equipment to the manufacturer's specifications.
- Erecting, where required and feasible, noise shields around high noise generating equipment;
- Notifying community member and workers of the mine blasting schedule.

Monitoring requirements will include:

- Noise level monitoring at sensitive receptors, at frequency appropriate to impact and risk level.
- Monitoring of workplaces with high noise and vibration levels, at frequency appropriate to impact and risk level.

- During construction and operations high noise and vibration generating mobile equipment monitoring, at frequency appropriate to given impact and risk level.

4.3 Topography, Landscape, Geology, Soils and Seismicity

4.3.1 Existing Conditions

There are no sensitive landscape features within the Project Sites, and the overall topography and landscape sensitivity is low. Local herders who may graze sporadically and seasonally in and around the Project area comprise the main receptors of potential impacts. The sensitivity of the geology in environmental terms is considered low in relation to the construction and development of the Project Site. Soil is generally poorly developed and formed beneath sparse vegetation cover. The soil is also susceptible to natural erosion and freeze and thaw conditions. The baseline data collected for the site have shown that in certain locations there are high natural levels of heavy metals occurring, including arsenic and molybdenum.

4.3.2 Impacts and Management

Construction activities will result in some impacts to soil resources, although this is assessed as minor and amounts to an estimated maximum of 6% of the lease area. During construction, topsoils from the footprint of the permanent infrastructure within the Project will be stripped and stockpiled, where possible, for re-use in rehabilitation and restoration. Soil structure beneath the permanent infrastructure / buildings will be lost for the duration of the project. During operations, there may also be ongoing disturbance to soils from vehicle movements on unsealed roads. However, these are considered to be minor as transport will occur on designated routes, and drivers will be prohibited from off-road driving.

The IWF will present the most significant topographical change resulting from the KGP. The IWF will likely be visible to herder groups and other road users. Additionally, the mine pit void will create a significant change to the existing landscape.

The mine will bring extracted material to the surface where it can oxidise and potentially form acid drainage. This is a natural process whereby sulphuric acid is produced when sulphides in rocks are exposed to air and water. However, the risks of potential acid generation appear very low for the Bayan Khundii deposit and low for the Altan Nar deposit.

The following mitigation and management measures are proposed:

- A Land Disturbance and Rehabilitation Management Plan will be prepared and implemented.
- Soil Disturbance will be managed in accordance with a Top Soil Handling Procedure and Land Disturbance Procedure (LDP), including the planning, stripping, storage and use of topsoil.
- A Transport Management Plan will be prepared and implemented to mitigate impacts from vehicle movements on roads, including dust suppression and road maintenance. Off-road driving will be prohibited, and drivers will be required to adhere to sign-posted speed limits.
- In relation to soil contamination, a Hazardous Materials Management Plan and Waste Management Plan will be prepared and implemented, including measures such as spill kits, protective equipment, and other necessary equipment will be available onsite. All hazardous materials will only be transported by licensed operators. Wastes will not be sent off-site for disposal or treatment other than to licensed Contractors. Mineral waste will be managed in appropriately engineered facilities.
- Rehabilitation of all excavations will be conducted prior to Erdene closing the site.

Monitoring requirements will include:

- Regular inspection of disturbed areas under KGP control against approved LDP.
- Topsoil stockpile quality monitoring and testing.
- Soil quality testing for contamination.
- Inspection of road conditions to check for avoidance of multiple road tracks.
- Progressive rehabilitation of disturbed areas.

4.4 Water

4.4.1 Existing Conditions

The Project area is subject to the extreme climate of the continental Gobi Desert region, with four seasons much like the other territories of Mongolia. Surface water is limited and, outside of the brief flow events in the ephemeral rivers following a significant storm, is restricted to small isolated springs. Shallow groundwater has traditionally been the main source of water for herders and their animals and where shallow enough, can also be exploited by larger wildlife. This shallow groundwater may also locally support small stands of groundwater dependent vegetation.

The Project water supply is to be sourced from a borefield within the Khuren Tsav (KT) and Bosgyn Sair (BS) area accessing the confined to semi confined aquifer of the Trans Altai Terrain. The proposed borefields are anticipated to provide the required Project water demand. Preliminary design for the Project has been completed based on a water supply demand of roughly 7 L/s.

In the Bayan Khundii (BK) survey area herder families inhabit very sparsely and seasonally, as the site is in the Gobi-desert region with a low precipitation rate. The BK area has two herder wells within a 5 km radius of the MLA, Maikhan Khuren and Khuren Tsav. Initial water quality results for samples taken from dry river channels and herder wells showed some heavy metals at concentrations exceeding the relevant standards, indicating that pre disturbance heavy metal contents are high in this region.

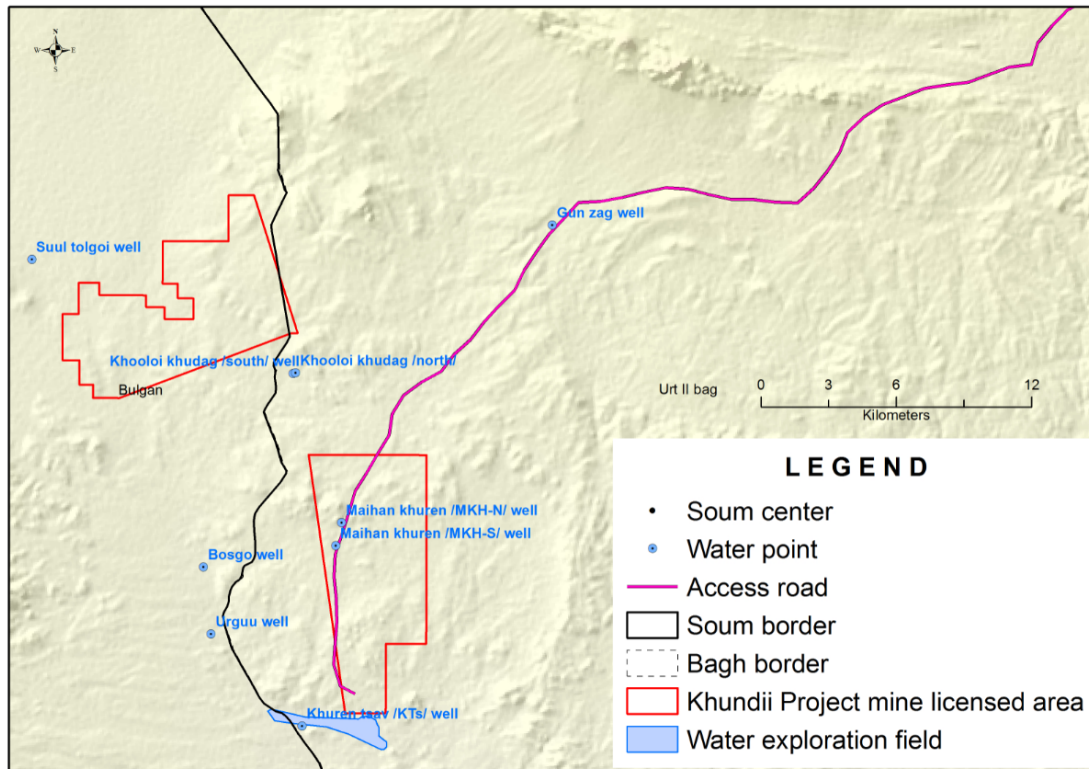


Figure 4. Locations of wells around the Khundii Gold Project area

In the AN area, herder families also inhabit very sparsely and seasonally because the site is in the Gobi Desert region with a low precipitation rate. The AN area has three water wells within a 5 km radius of the MLA, Suul tolgoi, Hooloi khudag, including two wells within close proximity to the license boundary (Figure 4).

4.5 Impacts and Management

Key potential water resources impacts include:

- water use impacts;
- impacts to surface and groundwater resources and quality; and
- impacts to the surface water regime.

During construction of the KGP Project infrastructure, the impacts of activities on water receptors are anticipated to be limited to the direct Project area for the duration of construction. Construction activities will require relatively small volumes of water for a short timeframe and the magnitude of impact is very low. Given that the water supply for the project will be provided via groundwater abstraction, environmental impacts are considered possible during operations. Key consideration of herder wells and water use was made in assessing impacts, for which management and mitigation measures are described in further detail below.

Groundwater:

As the water supply for the project will be provided via groundwater abstraction, environmental impacts are possible. The key focus for mitigation of any impacts of groundwater abstraction during KGP Project operation will be to implement a Water Resource Management Plan. The main instrument in the management plans will be a bore monitoring program. Erdene already monitors some of the groundwater issues in the area of influence, but more intensive monitoring

will be commissioned prior to KGP Project construction and operation. Further baseline data obtained during this period will provide additional information regarding natural seasonal variability in groundwater levels. These data will inform an ongoing assessment of KT and BS borefield operation impacts to the hydrogeological regime and to herder wells. The objective of groundwater monitoring will be to enable identification of impacts attributable to groundwater abstraction works and additional to natural variability.

Groundwater monitoring of the water resources will comprise routine water level measurement, monitoring extraction rates and sampling of groundwater bores. The groundwater monitoring program will include participatory monitoring with key stakeholder groups, involving bagh residents and designated local government representatives. These monitoring works will allow for the assessment of any drawdown of the water table along with sampling for water quality parameters and general water chemistry to monitor any impacts potentially associated with groundwater abstraction works. Should monitoring identify exceedances of criteria, response actions would be triggered to mitigate impacts. Response actions may include changes in the pumping rates from individual water supply bores. The Project will also consider providing assistance or infrastructure to ensure access to water for herders is maintained to the same extent to which access was available prior to the operation of the KT and BS borefields. For this purpose, a reserve water bore has already been installed at the KT aquifer area that may supplement herder water supply, as necessary, should the Project's drawdown be identified as a constraint to the supply at an existing herder well.

Surface Water:

KGP site structures and infrastructure may impact the natural hydrological regime and alter surface water flows downstream of the Project Sites. Impacts will be minimised by employing the following measures, among others:

- Infrastructure will be designed to minimise interference with natural flow regimes.
- Where necessary, roads will be constructed with gutters to accommodate any stormwater runoff and maintain local hydrology.
- Stormwater will be diverted from operational areas at the Site and directed to natural downstream drainage in a way that prevents and/or controls increased rates of sedimentation and erosion.

The following mitigation and management measures are proposed:

- A Water Resources Management Plan (WRMP) will be prepared and implemented.
- A Water Monitoring Plan (WMP) will be prepared and implemented.

Monitoring requirements will include:

- The WRMP and WMP processes include recording groundwater abstraction volumes from KT and BS borefields and assessing extracted volumes against design controls and monitoring groundwater levels at designated locations to assess impacts against project thresholds.
- A sustained groundwater level change (either rising or falling) observed in monitoring bores will alert further assessment. Assessment will also be triggered in the event of verifiable complaint regarding groundwater levels.

4.6 Biodiversity Conservation

4.6.1 Existing Conditions

The ecology of the Project area is characterised by desert and steppe vegetation typical of the south Gobi region of Mongolia, a region with some high value biodiversity species. A total of nine plant species legally recognised as ‘rare’ or ‘very rare’ were recorded in the vicinity of the KGP. The fauna species in the area are common in the region. Surveys recorded eight mammal species in the area. Goitered gazelle, listed as vulnerable in the IUCN and Mongolian Red List, were observed during the survey, as the region is within this species’ distribution range. Reptile diversity is relatively low, but reptile occurrence is common. This group provides important food resources for predatory birds and mammals. Out of the total of six reptile species found, the slender racer and Gobi naked-toed gecko were found to be legally recognised as ‘rare’ by Mongolian legislation. Bird diversity is relatively high with 23 species of birds observed, most of which were common species. However, two birds—the houbara bustard and Mongolian ground jay—were found to be of high conservation value according to the IUCN and/or Mongolian Red Lists. No Important Bird Areas exist in the Project vicinity.

4.6.2 Impacts and Management

Flora: Construction and operation activities have the potential to impact habitats directly through excavation, compaction or modification of soil that result in loss of vegetation or through contamination of soil or vegetation cover from accidental release of hazardous substances.

Fauna: Potential impacts of the KGP construction and operation activities to the mammal species of concern will be mainly through habitat avoidance from increased human presence at the mine site and construction materials transport. No direct impacts are expected, except potential vehicle collision with goitered gazelle and marbled polecat. However, the duration of construction is limited to an anticipated period of 12 months, and the direct footprint of the mine is relatively small compared to the wider habitat distribution of the mammals. Therefore, impacts to the mammal species in this study are assessed to be negligible to minor.

Birds: Impacts of the Project on birds are limited to those arising from construction activities and potential disruption to non-priority ground-nesting birds and potential collision of birds with the distribution line at the final stages of construction and operation. Given the small mine site area, compared to the species distribution range, and the limited power lines within the mine site, the KGP impact magnitude to the sensitive bird species is considered very low.

Reptiles: The KGP footprint and its Aol overlaps with some sensitive reptile species habitat. Thus, the development of the mine may impact species habitat through direct land clearance. Accidental vehicular mortality may also be a potential impact.

Impacts to Existing Protected Areas: The KGP MLA does not overlap with any existing legally protected area. The closest protected areas to the KGP site include the Great Gobi Strictly Protected Area Part A (27 km south-east from the MLA boundary); Gobi Gurvan Saikhan National Park (48 km east); and Tost, Toson Bumbin Nature Reserve Area (70 km south-east). Potential impacts associated with the KGP construction and operations activities to protected areas are those related to a small increase in vehicular traffic during construction along the existing public road through the Gobi Gurvan Saikhan National Park. These impacts are considered to be negligible due to the low traffic and duration of the construction period. Transport will use existing roads within the protected area without creating any new tracks. The site access road from Shinejinst soum does not cross any existing protected areas.

The following mitigation and management measures are proposed:

- A Biodiversity Management Plan will be prepared and implemented.
- In all cases, the Project will implement a Land Disturbance Permit Procedure for areas to be disturbed.
- Rehabilitation and revegetation will occur for areas of temporary disturbance due to Project construction activities to the extent possible.
- A Transport Management Plan will be prepared and implemented to mitigate impacts from vehicle movements along roads, including dust suppression and road maintenance. Off-road driving will be prohibited, and drivers will be required to adhere to sign posted speed limits.
- Traffic and potential areas with wildlife crossings are monitored, and records are kept of any collisions

Monitoring requirements will include:

- Pre-construction surveys will be completed prior to any land disturbance;
- Monthly inspection of power lines, and reporting on bird collisions or electrocution;
- Seasonal Fauna monitoring of priority mammals and species; and
- Annual Flora monitoring.

4.7 Waste

4.7.1 Existing Conditions

There is limited domestic waste currently generated within the KGP Area by the Project's seasonal exploration and technical field program activities. The limited non-hazardous waste is disposed in a permitted non-engineered landfill. Recycling efforts include the collection and shipment of plastic bottles to Ulaanbaatar for recycling. Additionally, Erdene has also trialed the seasonal formation of compost from food waste at site.

4.7.2 Impacts and Management

The consumption of materials and generation of waste will occur as part of the Project. Both non-hazardous and hazardous waste will be generated during the construction and operations phases. Anticipated waste types include:

- domestic wastes,
- non-hazardous industrial wastes (e.g. drums, tyres, scrap metal, etc.),
- hazardous industrial waste (e.g. waste hydrocarbon oil, spent oil / chemical containers, oily rags, batteries, paint),
- medical and laboratory waste, and
- waste water.

The Project plans to develop an engineered landfill for the disposal of domestic, non-hazardous wastes. All potentially hazardous wastes will be collected and safely stored for transfer to an appropriate, licensed facility for recycling or disposal. A purpose-built waste water treatment plant will be constructed for treatment of waste water in accordance with national standards. With the implementation of mitigation measures proposed below, the overall waste-related impacts are considered to be negligible to minor.

With respect to mineral waste management, Erdene has developed an integrated approach to the disposal of waste rock and filtered tailings. This approach involves the disposal of both waste rock and de-watered and filtered tailings into a single, engineered Integrated Waste Facility (IWF).

This process of co-disposal encapsulates tailings within clean mine waste and creates a landform with maximum possible strength. The inclusion of tailings within waste rock can also reduce permeability, reducing the risk of oxygen filtration that can cause acid drainage or metals leaching. The IWF reduces the overall land footprint of disturbed land compared to a segregated tailings disposal facility. Consequently, the IWF is considered the most safe and effective waste management method for the KGP. Considering the low acid forming potential of the waste rock, it is unlikely that this material will leach contaminants.

The following mitigation and management measures are proposed:

- A Hazardous Materials and Waste Management Plan will be prepared and implemented.
- No hazardous waste will be landfilled at the site - all hazardous wastes will be transported to licensed waste facilities.
- Disposal of wastes will primarily be managed through minimising waste generation, recycling of waste and appropriate disposal.
- Use of on-site landfill for non-hazardous waste generated at site.
- Waste will be segregated to allow appropriate handling, storage, treatment and disposal by waste stream. These will be classified using national standards and international guidelines.
- A waste inventory will be maintained including of quantities of waste generated per month.
- Where possible, recyclable materials will be made available for reuse, such as wood, tyres, scrap metal, or cardboard, as per consultation with stakeholders.
- A wastewater treatment plant will be installed and commissioned for use.
- Wastewater will be treated in accordance with national standards prior to re-use for dust suppression or discharge to environment.

Monitoring requirements will include:

- Soil and groundwater quality testing program to be developed for all areas with potential contamination, such as the landfill site and IWF.

4.8 Population and Demography

4.8.1 Existing Conditions

At the end of 2018, the population of Bayankhongor aimag was 88,359 people in approximately 26,600 households. The population in the aimag is concentrated around the soum centres and to the north. Nearly 35% of the aimag's population lives in Bayankhongor aimag centre, the provincial capitol. Total population density is low and hasn't materially changed in the past 10 years. There is minimal net migration into or out of the aimag. Bayan-Undur is the largest soum by area in the aimag, followed closely by Shinejinst soum as the second largest. They are the most southerly, and among the least densely populated soums of the aimag. As of 2019 in Shinejinst soum there were a total of 2,449 people in 754 households. The population of Bayan-Undur soum in 2018 was 2,668 people in 753 households. At the bagh level, the KGP spans two baghs - Urtiin gol bagh within Shinejinst soum which had 902 people or 267 households, and Idren bagh in Bayan-Undur soum which had 433 people or 112 households.

The Household Survey in the soums revealed that 99% of respondents have an education. Of these, 10% have a primary education, 25% have a general education (finished at grade 6-9), 39% have a secondary education, and approximately 8% have a vocational qualification, with the remaining 16% having higher (tertiary) education. Bayan-Undur and Shinejinst soums are both sparsely populated, with no educational facilities past the 9th grade. The key challenge in these areas is in providing educational and economic opportunities for youth. Both soums have a large population of children under the age of 10 and young adults (20 – 29), with many young adults

expressing concern over high rates of unemployment and lack of opportunities without further development in their soums.

4.8.2 Impacts and Management

The development of the KGP may result in a small increase in the population that may have an impact on residents living in Shinejinst and Bayan-Undur soums (mainly the soum centres), as well as on schools and hospitals (staff and users) in the two soums. These impacts are considered to be minor as Erdene proposes to implement a range of measures that will mitigate potential negative impacts to communities, provided below.

The following mitigation and management measures are proposed:

- Accommodation of workers on site to minimise the potential for influx into local communities.
- Providing workers with facilities and services (e.g. healthcare services) on site to minimise any additional pressure on regional services.
- Measures to minimise the risks of Gender Based Violence and Harassment in the project social impact area, including a policy of non-harassment and Code of Conduct for employees.
- A period of residence and / or proof of diaspora status will be required in order to qualify for priority local employment. This requirement will also be shared with relevant Government departments and agencies to extend communications of this message and minimise speculative in-migration.
- Monitoring of demographic changes, in particular, any negative impacts of in-migration or relations between or within the workforce and the community, with the soum governments to enable tracking and appropriate response development, where required.
- Contractor workforces will be required to comply with all of Erdene's requirements, including matching the preference for local labour hiring to ensure maximum local benefits are achieved through the construction and operations phase, in addition to compliance with community health safety and security requirements, among others.
- Liaison by the Project with government agencies will include issues of law enforcement requirements to address increased Project-induced in-migrants. Erdene will also work with the police and relevant Government agencies if required, to address any Project-induced anti-social behaviour.

4.9 Economy and Employment

4.9.1 Existing Conditions

At the soum level, Shinejinst soum has 1,381, and Bayan-Undur soum has 1,685 economically active people. In both soums, the majority of working-age people work in the agriculture sector, almost entirely in livestock herding. Herding is also the primary source of household income in the Project area. In 2019, Shinejinst had 28 active business establishments, and 18 in Bayan-Undur, including bread and pastry shops, a concrete block business, noodle shops, cafes, a household wooden furniture and sewing shop, as well as a producer of dairy products. Bayankhongor aimag centre hosts some limited small-scale industrial activity, such as concrete mixing, trade, municipal water and power systems management, construction, and also a range of basic services.

Regarding community perceptions of mining, the top negative impacts mentioned relate to land use conversion and reduced land productivity, followed by water resources use, air quality deterioration and dust pollution. The main positive impacts associated with mining are that it can improve the local economy and increase the number of new jobs for the local job market. Soum

authorities and families with active working-age members were observed to have high expectations of Erdene and the KGP to create job opportunities for soum residents. However, at the same time, there is an awareness by communities that the current workforce at the soum level does not generally have the required skills to take advantage of these potential opportunities without additional skills development and/or job readiness training.

4.9.2 Impacts and Management

The key impact sources during construction and operations will primarily be due to the beneficial effects of Project-related taxes and royalty payments, direct and indirect employment, and procurement of goods and services. In addition, indirect employment and associated business opportunities may arise, collectively resulting in induced employment.

The following mitigation and management measures are proposed:

A Human Resources (HR) Management Plan (including training), Local Cooperation Management Plan, and Stakeholder and Communications Management Plan will be developed and implemented, including the following provisions to enhance beneficial impacts:

- Consider the educational and skill levels of the local labour pool; ability of existing local teaching institutions to participate in and/or deliver training; and possible forms of assistance to local teaching institutions in delivering training programs.
- Provide training for personnel and contractors to ensure that the KGP has access to an appropriately skilled and trained workforce, with training ranging from task specific on-the-job training to more formal vocational training, depending on the needs of the individual Erdene or contractor employee
- Organise training to upgrade employees' skills and provide further practical experience as required.
- Conduct an inventory and pre-qualification survey, in addition to engagement with local communities and authorities, on local sourcing opportunities (such as meat, vegetables, or dairy products) to identify potential suppliers.
- Investigate, through consultation with local communities and authorities, potential for a Supplier Development Programme that provides targeted support and assistance to develop local businesses' as part of the Local Cooperation Management Plan.

Expectations of employment are high among local community members in Shinejinst and Bayan-Undur soums. Unfulfilled expectations for employment could potentially jeopardize the Project's social licence to operate. The HR Management Plan will document requirements and management activities relevant to ensuring the Project develops and retains a capable workforce within which local people have the opportunity to apply for available roles. This will include the following provisions:

The following mitigation and management measures are proposed:

- Establish eligibility for 'local hiring preference' through a specific timeframe of residency in the Project Aol and / or proof of diaspora status.
- Conduct targeted recruitment of talented diaspora (of Shinejinst and Bayan-Undur soums and Bayankhongor aimag centre) to attract skilled workers back to the Project area. Targeted recruitment will also consider previous seasonal employees and Erdene scholarship graduates for recruitment.
- Advertise vacancies in locally appropriate and mutually agreed ways.
- Engage and coordinate with local training institutions to encourage applications from potentially suitable local job seekers.

- Clearly communicate employment estimates, timeframes and skills requirements to local communities on an ongoing basis through trained Project personnel, including, for example, specifying particular heavy licence type and years of experience in truck driving in order to receive a site driving licence.

Current market conditions suggest that suitably qualified workers are likely to be available at the national level. However, availability of skilled personnel may be more limited at the local level. In order to ensure that the KGP is able to source an appropriately skilled workforce, the following measures will be implemented:

The following mitigation and management measures are proposed:

- Engage international personnel for a term-limited period for compliance and training purposes, where national personnel cannot be sourced.
- Develop and implement a Local Cooperation Management Plan that includes initiatives on upskilling of local residents (e.g. internship, scholarship program for trades and professionals). Such initiatives will build on Erdene's previous community development initiatives, subject to additional engagement with local communities and authorities.
- Promote employment and career development of women, including managerial and technical / engineering positions. Actively encourage women to apply for a diverse range of jobs.
- Apply a strict policy of non-harassment to reduce workplace risks to women.
- Explore opportunities for induced employment to support local enterprises that support employment for women, such as dairy products manufacturing and vegetable processing / pickling, which are largely conducted by women in the Project area.

Erdene is committed to delivering lasting shared value with and for communities and other stakeholders influenced by and contributing to the success of the Project. The implementation of community development initiatives in partnership between the Project and key stakeholders is a potential positive impact of the Project. Erdene has entered into formal LCAs with Bayankhongor, Shinejinst, and Bayan-Undur governments since 2014 (6 calendar years cumulatively), although the Company's community relations date back earlier to 2006. The objectives of these LCAs are to contribute to the development of the local area and the livelihoods of citizens, consistent with local development priorities. The key activities and programmes implemented under the LCAs aim to improve local education and health services, provide support to students to pursue higher education, improve livelihood strategies for local households, and strengthen environmental stewardship. Building on its existing community investment policy, Erdene will develop a Local Cooperation Management Plan to guide implementation of the LCAs, including the following objectives:

The following mitigation and management measures are proposed:

- Seek opportunities to leverage funds and build partnerships with government, civil society groups, and other private companies working in the region;
- Target community development activities based on impacts, and specifically for those community members who are potentially adversely affected by the Project.
- Prioritise investment into human capital (rather than capital expenditure and infrastructure) for more sustainable outcomes. The Company's approach to community development will prioritise needs-based, participatory planning and implementation, which are critical for the success and sustainability of community-based development plans.
- Conduct community consultation to further define potential community development activities for support by the Company prior to finalisation of the LCAs. Thus, obtaining feedback on how

existing successful community development activities and programmes may be further scaled-up consistent with local needs and participation (e.g. scholarship programme, water stewardship activities).

Monitoring requirements are proposed in relation to the above management measures, including:

In relation to employment, this will include:

- Analysis of records of male/female and soum-aimag-national-international workforce ratio, including those in managerial positions (supervisors and above)
- Number of worker grievances submitted, processed and resolved.
- Number of cases of discrimination or harassment reported

In relation to community development and local cooperation activities this will include:

- Monitoring of inputs (funds, human resources) and the effectiveness of their deployment.
- Monitoring of participation (extent and effectiveness).
- Monitoring of outputs (products of local cooperation projects or programmes) and the extent to which they match the outputs originally planned.
- Evaluation of impacts (the outcomes of community development projects and programmes).

In relation to community engagement:

- Erdene will review its Grievance Register, including grievances closed and those unresolved per period.
- Project staff will keep records of the types of information materials prepared and distributed, by location.
- Project staff will record engagement with local communities in Stakeholder Engagement Register.

4.10 Land Use

4.10.1 Existing Conditions

Land use in the KGP Area of Influence soums is predominantly rangeland-based transhumant animal husbandry, with goats, sheep and camels being the most typical types of livestock raised. Seasonal migration of livestock, at times over considerable distances is necessary for livestock survival and is, also, a traditional method of pastureland management. Households interviewed as part of the social baseline survey indicated they usually move approximately five times a year. The pattern of pastureland use is highly variable both annually and seasonally. Summer grazing is conducted informally and changes from year to year depending on forage conditions, livestock numbers, weather and the individual requirements of herder families. According to the Law on Land, summer and autumn settlements and rangelands shall be used collectively. However, herders may individually use the winter / spring camps (0.07ha area) via possession certificates, which do not apply to the surrounding pasture.

Herder households frequently move in other seasons depending on pasture conditions. However, herders may often return to a given winter camp site, subject to adequate pasture availability. No winter camps were identified or recorded within the boundaries of the Project Mineral License Areas. Within 10 km of the Project MLAs, seven winter camps were recorded, 3 near Bayan Khundii and 4 near Altan Nar. Six of these seven winter camps are in Urtiin gol bagh, and one is in Idren bagh. The site access road from Shinejinst soum centre to the KGP is located in Urtiin gol bagh (Shinejinst soum). Twenty-nine winter camps were recorded within 2.5km of either side

of the Site Access Road (with the closest winter camp located 0.01 km away). There are no permanent structures associated with any of these camps.

4.10.2 Impacts and Management

The KGP will require the permanent acquisition or ‘allocation’ of land for the purposes of constructing and operating the mine and associated infrastructure. Modest land take of approximately 150 ha is required, with approximately 90 ha expected to be fenced. No temporary facilities are proposed to be constructed or utilised outside of the land allocated for the purposes of constructing and operating the mine. There is some limited land disturbance required for borrow material (less than 1 ha) for construction purposes. The Site Access Road between the KGP site and Shinejinst soum centre (in Urtiin gol bagh) will require spot upgrading in parts to support construction activities. Project traffic during construction is estimated at an average of approximately 7.5 average vehicle movements per day (or a 13% increase to baseline traffic). During operations, traffic volumes are expected to be reduced to approximately 4 vehicle movements per day (or an approximately 1% increase in baseline traffic).

Land use impact sources predominantly originate in Urtiin gol bagh, Shinejinst soum. Urtiin gol bagh contains the Bayan Khundii deposit, the development of which will include the majority of KGP infrastructure, as well as the Site Access Road. A 10 km zone around each of the KGP MLAs (Bayan Khundii and Altan Nar), and a 2.5 km zone on either side of the Site Access Road (5 km in total), were considered as potential impact zones based on consideration of the potential impacts of the Project and local herder land use patterns (see Figure 5).

There is no physical displacement associated with the KGP. Potential impacts may include the following:

- pasture impacts from nuisance issues to pasture users, specifically noise, dust, and vibration;
- the potential for an increase in competition for and conflict about grazing due to loss of and / or restricted access to seasonal pasture; and
- minor economic displacement due to potential loss and/or disrupted access to seasonal pasture.

With the implementation of mitigation measures proposed below, the overall impacts related to displacement are considered to be minor.

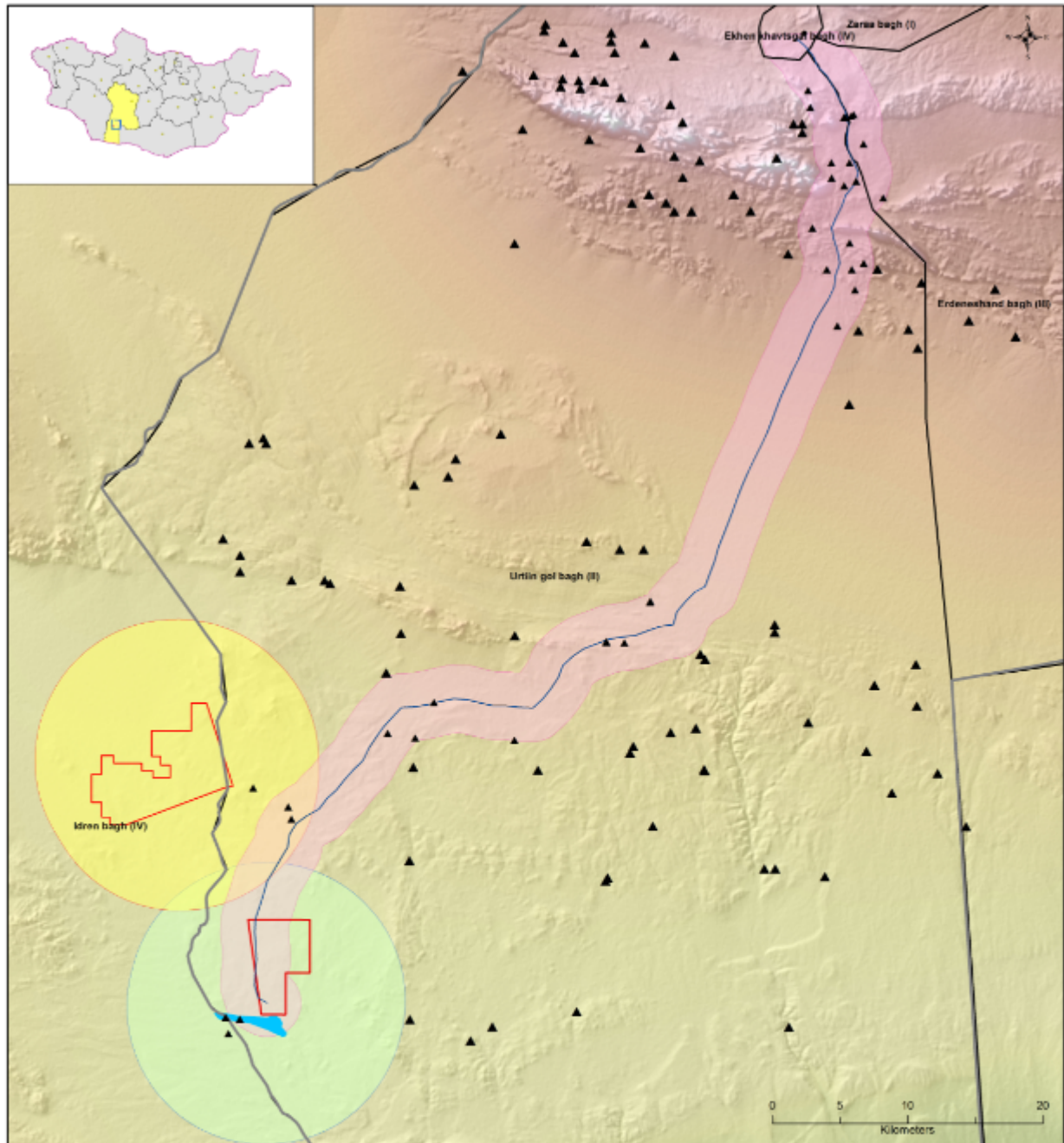
The following mitigation and management measures are proposed:

- Project construction and operations phases will be designed and managed to enable the continued functioning of local animal husbandry practices, where feasible.
- A Land Use and Livelihoods Management Framework will be developed and implemented, and it will include the following key provisions.
- A Herder Livelihood Support Programme (HLSP) will be developed to address potential impacts on land use through the Local Cooperation Management Plan. The HLSP will initially be targeted at those herders within Urtiin gol bagh that may have historically undertaken winter grazing practices in the Project Area of Impact and, thereafter, potentially affected herders within Urtiin gol bagh more broadly, depending upon eligibility to participate. Assistance for any eligible affected herder households will be in-kind only and managed through the Project’s Local Cooperation Agreements. Scaling of the HLSP to Idren bagh may be carried out when the Altan Nar deposit is developed.

- Design and management of the HLSP will include further consultation with herders, bagh and soum administrations, and other specialists, as relevant.

Monitoring requirements will include:

- Monitoring of implementation of measures outlined in the HLSP;
- Monitoring of grievances related to land use and livelihoods; and
- Monitoring of community satisfaction with local cooperation agreement implementation, including any measures to address land use impacts.



LEGEND

- Soum Center
- ▲ Winter Camps
- Site Access Road
- Soum Border
- Bagh Border
- Khundii Project Mineral Licensed Area
- Water Borefield Area
- Area Within 2.5 km from the Access Road
- Area Within 10 km from the Altan Nar Mineral Licensed Area
- Area within 10 km from the Bayan Khundii Mineral Licensed Area

Figure 5 Recorded Herder Winter Camps

4.11 Cultural Heritage

4.11.1 Existing Conditions

Shinejinst and Bayan-Undur soums are home to numerous archaeological sites, such as rock paintings, and palaeontological sites. Within the mine licence area, no archaeological and palaeontological cultural heritage resources were discovered during the surveys conducted as part of the Mongolian statutory process. Furthermore, the surveys noted a low probability of future findings. Shinejinst and Bayan-Undur soums have numerous traditional and sacred places, including mountains / hills, together with springs / water sources, and ovoos, among others—which are defined as living tangible cultural heritage. None of these sites are located in the KGP mine licence areas or surrounding areas of potential impact. Amarbuyant Monastery is located some 50 km west of Shinejinst soum centre and is an important component of living tangible heritage in the local community. The most popular and common types of intangible cultural heritage resources that were identified through consultation included the following:

- traditional folk long songs (urtiin duu);
- soum-specific religious ceremonies, including Amurbuyant Buddhist temple worship ceremonies;
- “Takhil” (tile-based games);
- “Chuluun tsargil” traditional musical instrument playing;
- the breed of “Zalaa jinst cashmere goat” as a symbolic and historical inheritance from their ancestors; and
- other traditions unique to Mongolian herders and their way of life.

4.11.2 Impacts and Management

There may be potential physical loss of or damage to undocumented archaeological or palaeontological objects or features that are encountered within the footprint of the KGP. It is also possible that there is deliberate disturbance of a cultural heritage site in the two soums. Traditional frameworks, practices and customs may also be impacted as residents in Shinejinst and Bayan-Undur soums engage with the non-local construction and operations phase workforce at the KGP.

The following mitigation and management measures are proposed:

- A Local Cooperation Management Plan, Stakeholder and Communications Management Plan, and Land Disturbance and Rehabilitation Management Plan will be developed and implemented.
- A Chance Finds Procedure, designed to ensure the safety, integrity and proper handling of any objects of cultural or historical significance will also be implemented.
- Erdene, as appropriate, will cooperate with relevant governmental bodies to assist in identifying illegal activities through reporting any unlawful activities detected near the KGP.
- There will be ongoing consultation with local communities about impacts and issues related to intangible cultural heritage and living tangible heritage, such as spiritual practices and traditional skills, folklore, and associated cultural spaces.
- A Code of Conduct among the workforce (including contractors) and induction program that stipulates norms of acceptable behaviour in relation to cultural heritage to enhance workers’ respect for local cultural assets and practices will also be enforced.
- Erdene will continue to collaborate with local communities on strengthening and supporting local cultural heritage through the Local Cooperation Agreement.

4.12 Occupational and Community Health, Safety and Security

4.12.1 Existing Conditions

The quality and scope of medical services are limited in the Project area. In both soums, basic medical care is provided through a soum hospital. The Shinejinst soum hospital has ten beds and the Bayan-Undur soum hospital has nine. Shinejinst has two doctors and Bayan-Undur only one. The soum hospitals are limited to providing emergency care and maternal care as needed. Mortality data indicates that the leading causes of death are cardiovascular disease, stroke, cancer, and cirrhosis, and a similar pattern is observed at the aimag and soum levels. While the incidence of communicable diseases is generally low, STIs accounted for over 70% of total communicable diseases in 2018 in Bayankhongor aimag. In Shinejinst and Bayan-Undur soums, there are very low levels of reported crime, and crime is mainly associated with the consumption of alcohol, including public nuisance and domestic violence offences.

4.12.2 Impacts and Management

The key impacts in relation to occupational and community health, safety and security are linked to the remote nature of the site and associated potential occupational health and safety impacts, including emergency events for workers. Further, the development of a new mine site, with new equipment, infrastructure, and a newly assembled workforce has the potential to result in workplace accidents and injuries. Worker interactions with local communities may contribute to an increase in communicable diseases, and pressure on already stressed local health services. Social fracture and a reduction in wellbeing may also occur, induced by Project activities in the area, including alcoholism, prostitution and/or crime. Consideration was also made of the potential disruption to the Project from increased community / NGO activism should the Project be perceived to be not effectively managing its environmental and social performance.

With the implementation of mitigation measures proposed below, the overall impact on the community health, safety, and security is considered to be minor. Exceptionally, the potential impact from disruption to the Project from community activism was found to be moderate, due to the potential to delay the project's benefits and affect community safety and security. In relation to occupational health and safety, all potential impacts could be effectively mitigated to a minor level, except for the potential occurrence of emergency events, which were assessed as moderate.

The following mitigation and management measures are proposed:

- An Occupational Health, Safety and Security Management Plan, Community Health, Safety and Security Management Plan, and Crisis and Emergency Response Management Plan will be developed and implemented.
- Erdene will operate a fit-for-purpose medical facility for Project personnel at the site. In the event of an emergency, medivac capabilities will be available at the site.
- Dedicated measures for emergency response will deal with the potential for off-site incidents that may affect local communities and will include arrangements for prompt notification, communication and evacuation as well as collaboration with the local authorities and communities to build capacity for emergency preparedness.
- The KGP will apply the principles of the International Cyanide Management Code for the manufacture, transport and use of cyanide to ensure good international industry practice.
- There will be barriers to public and livestock access to the mine site through use of stockproof fencing, and security personnel, armed with lethal and/or non-lethal weapons, will be on site to ensure that there is no unauthorised public access. Signage at all entrance and exit points, and periodically along the fenced areas will be in place. These measures will be supplemented by regular stakeholder engagement to notify community members of key safety issues on,

around and offsite, as well as an outreach program that facilitates periodically bringing visitors to the site in a controlled and safe manner.

- Potential ASM incursion at the mine site will be mitigated through the presence of employees on site that will discourage such activity, targeted communication and engagement with local communities and law enforcement authorities, and ensuring security and community-facing personnel are appropriately trained in the provisions enshrined in the Voluntary Principles on Security and Human Rights.
- Health screening will be conducted for employees and contractors, in addition to ongoing health-related awareness training. The workforce will be housed on site to minimise interactions with the community while working, in addition to the implementation of strict camp rules for employees and contractors.
- Through the Local Development Management Plan, KGP will identify opportunities to support local public health campaigns that focus on the prevention of communicable diseases, and prevention of environmental health hazards, including water, sanitation development and refuse management, during construction and operations.
- The Project will also mitigate the potential pressure on health services through liaising with local health professionals to identify ways that the Project can provide strategic support for community health services, where appropriate and feasible.
- The Stakeholder and Communications Management Plan will include provisions for regular engagement with stakeholders on impact management measures, and the Grievance Procedure will be available to assist in addressing community concerns and feedback.

Monitoring requirements will include:

- Monitoring of communicable and non-communicable diseases and injuries;
- Monitoring of community health safety & security complaints from local communities as recorded in the grievance records;
- Monitoring of reported community health & safety incidents.
- Monitoring of occupational, health, safety and security parameters;
- Pre-employment medical examinations and periodic medical re-examination of employees.

4.13 Transport

4.13.1 Existing Environment

The Project area is characterised by little safety and traffic management, and the extensive use of motorbikes is prevalent. The poor standard of existing roads is a key issue in the aimag. Erosion and a general degraded landscape are evident, as are poor soils with little structure. There are low existing vehicle and traffic movement numbers. To provide an understanding of the existing road transport network, the collection of baseline traffic data was undertaken, including traffic counts on the roads between Bayankhongor aimag centre and Shinejinst soum. The baseline data produced a wide range of traffic numbers. The lowest daily count was 29 vehicle movements, whereas the highest was 103. The highest daily counts coincided with certain summer-time festival events. An average of 55 vehicle movements per day was conservatively selected for the purposes of assessing potential impacts of the Project.

4.13.2 Impacts and Management

During the 12-month construction period, traffic movements on the Ulaanbaatar to KGP route are expected to result in a 13% increase (i.e. on average 7.5 more vehicle movements per day) to the existing baseline traffic numbers, and the impacts are anticipated to be minor. The operational traffic impacts are likely to be very low given the small number of forecasted trips and the small

numbers of existing transport users. The increase in traffic during operations is in the order of 1%. On the Shivee Khuren border to KGP site route, there is estimated to be about 2 vehicle movements per day over the 12-month construction period, which results in a very low potential impact. Low traffic volumes for both the construction and operations phases of the Project mean that there will likely be minor to negligible impacts on wildlife and livestock, dust and noise, and damage to existing road networks.

The following mitigation and management measures are proposed:

- A Traffic and Transport Management Plan will be developed and implemented.
- Consultation on traffic awareness with community and herder groups affected by the KGP and related traffic generation. Consultation with police, border and emergency services agencies is recommended to coordinate emergency response and preparedness.
- Ensure measures in place to mitigate any transport through community centres include speed restrictions and bypass routes where appropriate. Drivers should follow pre-determined routes that have been subjected to risk assessments.
- Maintaining or improving road sections, where feasible.
- Stipulations that all driving by mine and service personnel is to occur during day-time hours where possible to improve safety.
- Scheduling of vehicle movements to maximise efficiency of vehicle movements and reduce the number where possible.
- Strict adherence to speed limits, traffic regulations and pre-agreed traffic routing.
- Provision of adequate signage.
- Use of vehicle escorts especially for convoys of oversized or overweight Heavy Goods Vehicles.

Monitoring requirements will include:

- Number of traffic accidents to measure the traffic accident control measures success.
- Air quality and noise monitoring of vehicles to ensure air quality and noise targets are being met.
- Road condition monitoring to assess the impacts of construction and operational traffic.
- Land rehabilitation success in degraded areas for rehabilitation program effectiveness.

4.14 Cumulative Impacts

At the scoping stage of this ESIA, potential environmental cumulative impacts, such as fragmentation of habitat or increased demand for scarce groundwater resources, were considered as potential outcomes due to the interaction of the KGP with other potential mining developments in the future. Potential social cumulative impacts, such as local population influx, increased road transport risks and associated community health and safety impacts, due to the interaction of the KGP with other mining developments in the future, were also considered. However, at this stage, available information suggests no known potential resource development projects in the region in the near- to mid-term.

Given the remote location of the Project, relatively short life of mine, mitigation measures to be put in place, and low probability of nearby resource development projects in the region in the near- to mid-term, the potential for cumulative impacts of any type is low.

5. ENVIRONMENTAL AND SOCIAL MANAGEMENT

5.1 Project ESMS

Erdene has in place an Environmental and Social Management System (ESMS) that will be used to manage all environmental and social (E&S) issues associated with the Project. The ESMS provides processes for E&S management to be implemented throughout all phases of the Project to achieve Erdene’s E&S objectives and to ensure full compliance with Mongolian statutory and EBRD requirements.

5.2 Project Management Plans

Project E&S Management will be implemented through policies, management plans and multiple sub-level procedures, forms, and tools. A suite of policies, management plans and strategies to be implemented throughout the Project life have been developed, outlining the expected Project performance, as follows.

Table 2 Khundii Gold Project Environmental and Social Management Plans

Management Plan Name	
D0	Framework Management Plan
D1	Air Quality Management Plan
D2	Noise and Vibration Management Plan
D3	Water Resources Management Plan
D4	Biodiversity Management Plan
D5	Waste Management Plan
D6	Hazardous Materials Management Plan
D7	Community Health, Safety and Security Management Plan
D8	Contractor and Procurement Management Plan
D9	Crisis and Emergency Response Management Plan
D10	Human Resource Management Plan
D11	Land Use and Livelihoods Management Framework
D12	Occupational Health, Safety and Security Management Plan
D13	Stakeholder and Communications Management Plan
D14	Local Cooperation Management Plan
D15	Transport Management Plan
D16	Land Disturbance Control and Rehabilitation Management Plan
D17	Closure Management Plan

Management Plans developed as part of this ESIA acknowledge and build upon existing Company policies and procedures. The Management Plans are intended to be further developed for implementation prior to construction activities. In addition, contractors will also prepare their own documents to demonstrate compliance with the KGP E&S Management System and Plans, based on the unique nature of a given contractor’s involvement in the Project.

As part of the E&S Management System and ESMP, Erdene will develop specific supporting procedures and implementation plans. These implementation documents will provide additional detail on the tasks and activities to be undertaken by Project personnel to implement mitigation and management controls during all phases of the Project.

5.3 Monitoring

For the purposes of effective implementation of the ESMS, regular monitoring and review will be conducted. Monitoring, at a minimum, will involve the following:

- Check if major elements of the ESMS are in place;

- Check if the plans and other supporting management documents are being implemented by both Erdene and contractor personnel;
- Ensure continuous compliance with laws, regulations, EBRD PRs, and applicable Project standards;
- Check progress towards overall objectives and targets set out by the Project ESIA (control effectiveness of prevention/mitigation measures and the general E&S performance of the Project);
- Control effectiveness of any response to received grievances.

In addition, Key Performance Indicators (KPIs) for the Project are identified to verify the implementation effectiveness of the ESMS, and the Management Plans.

In case any non-compliance with Project standards or any measurement above limits provided by related legislation or standard is identified during monitoring of key environmental and social performance indicators, the non-compliance will be recorded and reported. Follow up activities in any such case will include investigation of the non-compliance immediately and implementation of relevant remedial actions. Further reporting will be done to ensure the non-compliance is satisfactorily closed out.

6. STAKEHOLDER ENGAGEMENT AND GRIEVANCE PROCEDURE

6.1 Stakeholder Engagement

6.1.1 Stakeholder Engagement as Part of the ESIA

Stakeholder consultation as part of the ESIA was carried out by the consultant team comprising of Sustainability East Asia LLC and Eco Trade LLC representatives in August 2019. The focus of consultation was the communities in the vicinity of the KGP. The consultation process involved extensive planning and engagement, building on the engagement and information gathered by Erdene since it commenced exploration in the area in 2006, and collected through the DEIA surveys undertaken by Eco Trade LLC since 2016. The purpose of the engagement was to obtain a comprehensive understanding of the social conditions in Bayankhongor aimag, and specifically in Shinejinst and Bayan-Undur soums and Urtiin gol and Idren baghs therein respectively.

A statistically representative Household Survey was completed with 78 households in Shinejinst and Bayan-Undur soums. Twenty-eight key informant interviews (KIIs) were also conducted with a range of respondents, including government representatives, community leaders, and institutional representatives. Focus Group Discussions (FGDs), involving approximately 8-10 people were also organised in each soum covering a variety of issues: population, cultural heritage issues, employment, health, local governance and budget revenues; natural resources; businesses, income generation and education, with particular emphasis on local perceptions and concerns. FGDs were organised to ensure representation by a diversity of community members, with particular reference to inclusion of vulnerable groups, including women, elderly, and disabled, where possible. Women's involvement in the FGDs with herders was equal to men, and in the other two thematic FGDs (Community and SMEs) held, was higher than men. Six FGDs were conducted in total, three in each soum.

6.1.2 Previous Consultation by Erdene

Erdene has a history of over 15 years of engagement, including consultation with communities, government and institutions living and working in the area. Consultation with communities has included that required by the Government of Mongolia during the preparation of statutory studies, including the General Environmental Impact Assessment (GEIA) and Detailed Environmental Impact Assessment (DEIA) documentation for all components of the Project. Erdene has undertaken extensive engagement with local communities and authorities in the course of its local cooperation initiatives and agreements. In addition, there has been consultation with local communities by the University of British Columbia as part of an ongoing research programme facilitated by Erdene on mineral exploration and mining and community development since 2017.

6.1.3 Mongolian Statutory Engagement for GEIA and DEIA

Statutory community consultation for the Project has been conducted as part of the GEIA and DEIA process in 2016, 2017, and 2019 by Eco Trade LLC. The purpose of these consultations was to provide information about the Project, its potential impacts, and the proposed management plans to residents of the baghs within which the Project is located and give an opportunity to provide input into the mitigation and management plans of the Project. Additional DEIA consultation is planned for 2020. Participation has been targeted for approximately 50 households, plus the local government representatives from bagh, soum and aimag levels.

6.2 Stakeholder and Communications Management Plan

A Stakeholder and Communications Management Plan (SCMP) has been developed as part of the ESIA disclosure package and covers the following:

- Introduction
- Project Description
- Legal framework for stakeholder engagement and information disclosure
- Summary of previous stakeholder engagement activities
- Stakeholder identification
- Supplementary engagement conducted during the ESIA
- Stakeholder engagement program
- Grievance management
- Monitoring
- Training
- Audit and reporting
- Roles and responsibilities

The SCMP defines the consultation approach, the key identified stakeholders and how to provide feedback and how any feedback and comments should be addressed. The SCMP is a living document and will be updated regularly as stakeholders are identified and engagement needs change.

6.3 Grievance Procedure

A Grievance mechanism is set out in the SCMP, building upon the Company's existing grievance mechanism for external and internal stakeholders. This will be developed and open to all stakeholders to receive and facilitate resolution of stakeholders' concerns and grievances, in particular, about the Project's environmental and social performance. It is intended to allow the Project to be aware of and respond to stakeholders' concerns related to the Project in a timely manner.

Enquiries can be submitted in a written letter, e-mail or on the Company grievance form to:

- Attention: Community Relations Department, Erdene Mongol LLC,
- Postal Address: Monrud LLC Building, 2nd Floor, United Nations Street 6/6, Chingeltei District, Ulaanbaatar, Mongolia
- Tel: +976 11 319758
- Email: info@erdene.com
- Company Website: <https://www.erdene.com/en/contact/>

Feedback may also be shared verbally and documented by Community Relations personnel (or other relevant Company representatives) at the Project site or Company office given above.