



**Oyu Tolgoi LLC**

## Communities

Pastureland and Livelihood Improvement Management Plan

<b>Pastureland and Livelihood Improvement Management Plan</b>		
Effective Date: 2016.09.01	Document Number: OT-10-PLN-0013-E	Version: 1.1

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## 1 INTRODUCTION

This document is the Pastureland and Livelihood Improvement Operational Management Plan for the Oyu Tolgoi (OT) project. The document reference number for this Management Plan is OT-10-PLN-0013.

### 1.1 Purpose

The purpose of this Management Plan is to:

- define the scope of the Management Plan and set out applicable management interfaces;
- define roles and responsibilities;
- outline the applicable Project Standards relevant to this Management Plan;
- define Project commitments, operational procedures and guidance relevant to this Management Plan;
- define monitoring and reporting procedures, including Key Performance Indicators;
- define training requirements; and
- set out references for supporting materials and information.

### 1.2 Application

The requirements set out in this Management Plan apply to all OT activities including contractors.

This Management Plan is developed based on Pastureland and Livelihood Improvement Strategy and in accordance with the Investment Agreement, Cooperation Agreement, TPC Herder Complaint Resolution Agreements, Rio Tinto Community and Social Performance Standards and relevant legislative documents of Mongolia.

The main goal of the Pastureland and Livelihood Improvement Operational Management Plan is to identify the supporting role of OT in contributing to pastureland management and livelihood improvement programs and initiatives of the soum Government Office in conjunction with local herders. As per the Mongolian Law on Land clause statement, the Government of Mongolia is responsible for controlling and regulating pastureland use and hence fulfil a leadership role in sustainable pastureland management.

More specifically, the Plan to facilitate the alleviation of livelihood pressures faced by herders affected by the OT's activities, thereby contributing to building and maintaining the company's social licence to operate in the South Gobi region. The Management plan supports continuing and evolving two-way relationships with the herding community, and will deliver initiatives in partnership with pastureland management experts and biodiversity experts to ensure that the overlapping and competing interests of wildlife and herders are balanced in a sustainable manner and that critical ecosystem services are protected.

To achieve this goal, the management plan has the following objectives:

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- Mitigate the company’s impacts on pastureland affected by its activities and contribute to develop sustainable rangeland management by the local community through active partnerships with key national and local stakeholders;
- Support the integration of agricultural, water resources and biodiversity issues to balance competing interests and interdependencies related to pastureland in a sustainable manner;
- Support implementation of the national and local authority policy and guidance on land and pastureland management;
- Support maintaining herder access to pastureland water supplies from springs and wells in the mine impacted area;
- Raise herder awareness of pastureland management and livestock health management, which directly affects herder livelihood;
- Promote communities joint collaboration initiatives to generate and diversify income;
- Promote initiatives of preserving nomadic culture and tradition of the Mongolian pasture use and the livestock herding style;
- Maintain the value and functionality of critical ecosystem services and ensure that beneficiaries have access to sustainable supply sufficient to support their livelihood and wellbeing

**1.3 Commencement**

This Management Plan applies from 1 January 2017.

**1.4 Authority and Management**

The OT General Manager Communities is the custodian of this Management plan. Any requests for changes to this management strategy must be addressed to this person and will be subjected to the appropriate review and approval processes as outlined in the MOC procedure.

**2 SCOPE**

**2.1 Overview**

The natural grasslands of Mongolia comprise 80% of the country’s area and directly support the lives of approximately 1 million people, more than one third of the population, who depend on the grasslands for livestock farming.

The livestock and animal husbandry sector is one of the main economic drivers in Mongolia, with the herder community the largest population of the Umnugovi aimag. According to the Q4 2018 national census, 7108 households owned the threshold number of livestock, of which 5951, or almost 83% of households were counted as herder families. The total number of livestock counted in Umnugovi aimag in 2018 was 2,598,440. As at 152,280 camels, 96,540 horses, 26,860 cattle, 631,410 sheep and 1,691,340 goats.

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The total amount of agricultural land in Umnugovi aimag was estimated to cover 10,498,400 ha, or 61.3 percent of the territory. Agricultural land is divided into several different categories according to the national cadastral database. Pastureland was the largest portion of all categories in Umnugovi aimag, covering 10,137,200 ha or 96.5 percent of total agricultural land.

In addition, pastureland has a complex inter-relationship with biodiversity given the pastureland is also the rangeland habitat of a variety of plants, mammals and birds. Within the OT project Area of Influence the distribution of many globally and nationally significant species' overlap. The list of species includes, but is not limited to, Asiatic wild ass (*Equus hemionus*), black tailed gazelle (*Gazella subgutturosa*), argali sheep (*Ovis ammon*), Siberian ibex (*Ibex sibirica*), and houbara bustard (*Chlamydotis undulata*).

This Management plan document is principally focused on land use for the grazing of livestock and animals, however mechanisms are set out to ensure effective inter-linkages in OT's approach to pastureland management from agricultural, biodiversity and water management perspectives.

## **2.2 Pastureland and Herders in OT Area of Influence**

According to the Q4 2018 national census, there are 386 herder households in the Khanbogd soum, whose livelihoods are built around livestock herding. While the number of herder households in Khanbogd soum has been moderately increased since 2012, the number of livestock has increased across all five categories (camels, horses, cattle, sheep and goats) from 2014. As at Q4 2018 total numbers were; 30,431 camels, 7,979 horses, 5,022 cattle, 45,468 sheep and 76,627 goats. According to these numbers, Khanbogd soum has the highest number of camels among all soums in the country. In addition, Khanbogd soum has the highest number of cattle in the Umnugovi aimag

However, the health of livestock is poor, due to limited access to medicine and inability to afford veterinary services. As such, livestock disease is commonplace. According to the annual report of Umnugovi Agricultural department, one of the difficulties that the animal husbandry sector is facing is parasitic diseases. Ectoparasitic infestation accounts for 70-80 percent of total livestock diseases and is the main cause of livestock death. This includes diseases caused by mites, scabies and screwworm infestations.

The vegetation in the Khanbogd soum is characterised by a desert steppe ecosystem of sparse and low-lying vegetation, with minimal vegetation cover (<10%). Within the desert steppe ecosystem the grazing gradient shifts year by year depending on rainfall, hence the pattern of pastureland use is seasonally variable.

In addition to these environmental and agricultural factors, impacts on pastureland and herders has increased in recent years due to the development of the OT Project associated operations and neighbouring mine developments within the region. OT impacts on the pastureland and the herders are identified as:

- physical displacement of herder households from the Mine Licence Area and displacement of winter camps from a 10km radius Residential Exclusion Zone from the centre of Mine Licence Area, approximately 10'400ha<sup>i</sup> area of land is being used by OT mine and associated operations as of 2015;

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- economic displacement of herders affected by reduced access to and/or loss of summer pastures due to land take for the airport sites;
- fragmentation of pastureland caused by the development and operation of linear infrastructures (including OT to Gashuun Sukhait Road and the Raw water supply pipeline);
- reduced accessibility to water resource availability (e.g. impeded access to wells); and total loss of water wells
- Overall reduction of pastureland quantity from direct land take and increased immigration to Khanbogd soum which causes increase in competition for pastureland, overgrazing and ultimately pastureland degradation.
- Herder perception of pastureland quality and livestock health deterioration due to dust from the mining activities and transportation Loss of nomadic livestock herding tradition due to increased interest of youth to work in mining sector

Herders represent the most significant community stakeholder group for OT. They have come under increased cumulative pressure in recent years, from a range of environmental and social factors. OT acknowledges and seeks to manage its contribution to cumulative pressure on herders and their natural resource based livelihood.

### 2.3 Scope of this Management Plan

This Management Plan covers all OT pastureland and livelihood management initiatives, commitments and obligations for the current Operations and the development of the Underground Project, including contractor activities. Pastureland and livelihood management planning includes relevant operations and construction related pastureland and livelihood impact mitigation and management measures for on-going works that involve expansion of infrastructure and the disturbance footprint for the project.

This management plan is developed to guide implementation of OT’s Pastureland and Livelihood Improvement commitments in accordance with the International Finance Corporation’s (IFC) 2006 version of Performance Standard 5 and 6 (PS5 & 6) and the European Bank for Reconstruction and Development’s (EBRD’s) Performance Requirement 5 and 6 (PR5 & 6).

The geographic scope of this management plan is focused on Khanbogd, Manlai and Bayan-Ovoo soums. However, the priority mitigation measures will extend to the herder households who have been directly impacted by OT through resettlement and economic displacement and also indirectly impacted herders throughout the Khanbogd soum.

### 2.4 Overlaps with other Management Plans

This Management Plan is part of the overall suite of Operations Management Plans developed for the OT Operations and Underground Project and as described in the Environmental and Social Management Plan (ESMP) Framework (OT-10-PLN-0003-E). This management plan is a direct commitment as required under the Environmental and Social Action Plan.

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This Management Plan has overlaps and cross-linkages to a number of other Management Plans, including:

- Resettlement Action Plan (OT-10-PLN-0006), particularly in relation to minimizing impacts on herder households and herder livelihood improvement that is based on animal husbandry sector;
- Stakeholder Engagement Plan (OT-10-PLN-0008), particularly in relation to engagement tools and methods for engaging with various stakeholders;
- Land disturbance control and rehabilitation management plan (OT-10-E14-PLN-0005), particularly in relation to minimizing land disturbance that has direct negative impact on pastureland;
- Biodiversity Management Plan(OT-10-E14-PLN-1001), particularly in relation to minimizing adverse impacts on biodiversity ;
- Offset Management Plan (forthcoming), particularly in relation to activities designed to offset residual impacts on biodiversity and deliver the project’s commitment to NPI;
- Water Resources Management Plan (OT-10-E11-PLN-0001), particularly in relation to minimising the adverse impacts on water that has direct linkage to pastureland management
- In-migration Management Plan (OT-10-PLN-0007), particularly in relation to minimising the adverse impacts of OT workers and speculative job-seekers moving into the vicinity of Khanbogd soum that may have adverse impacts on pastureland.

## **2.5. Overlaps with Participatory Environmental Monitoring program**

Local communities in the nearest soums to the OT Project have identified multiple concerns regarding potential direct and indirect environmental impacts. These concerns include, but are not limited to, depletion and contamination of groundwater, contamination of springs and streams, possible effects of dust and contaminants from mining on pasture, disruption to herders stock and wildlife, vehicle damage to pasture, and dust from traffic.

Establishing a structured mechanism to engage local communities in discussing and monitoring of the environmental impacts of most concern to them will raise community understanding of factual impacts and what OT does to manage them. Over time this will assist to build trust between the company and local communities and enable non-adversarial approaches to problem solving. With this objective in mind, the Participatory Environmental Monitoring (PEM) Program was created to provide and maintain community participation in environmental monitoring programs associated with OT. The following outputs are anticipated:

- Active community participation in environmental monitoring programs;
- Increased public awareness and understanding of environmental issues;
- Development of community trust in the adopted monitoring approach and the information obtained;
- Increased ability for OT to respond to community concerns; and
- Community input and support for OT’s approaches to environmental impact management.

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A summary of the PEM program is captured in Table 1.

Table 2. Summary of PEM program

Thematic area	Participants	Location	Description	Frequency	Data fields
Water level (PWLM)	78 herder	KB	Herder wells	10 times per month	Water level, number of animals watered,
Fauna (PFM)	20 herders	KB	Mammals, birds, other macro fauna	Once in a month between March and November	Line transect & point transect observations, photo documentation
Vegetation (PVM)	12 herders	KB	Undai river elm trees count & health monitoring	Once in a month between March and November	Location of all trees, Photo monitoring of green part over time
Dust (PDM)	As required	KB	17 dust monitoring station of OT	As required	PM 2.5; PM 10; TSP
Public Environmental awareness raising	Two classroom students – Eco clubs	KB	Environmental and Gobi region rare animals & ecosystem 12 modules	Weekly basis between Sep to Jun	12 training modules, celebration of Environmental days

As per TPC complaint resolution agreement the Participatory Environmental monitoring program governance redesigned. The participating herders established a local NGO called Munkh nagoon Galba in November 2017 with the membership of 93 herders. The NGO is responsible for implementing PEM program thus, operating with six full time employees to plan & implement PEM activities and compile environmental monitoring reports. According to this change, OT is responsible for funding PEM program expenses under the financial agreement between OT and Munkh nagoon Galba NGO. Staff capacity building is one of priority areas of the NGO for professional conduct of environmental monitoring. As of Q2 2019, 98 herders are collecting environmental monitoring data throughout KB soum territory.

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### 3 ROLES AND RESPONSIBILITIES

#### 3.1 Key Roles and Responsibilities for Management Plan Implementation

Principal roles and responsibilities for the implementation of this plan are outlined below.

*Table 2: Key Roles and Responsibilities*

<b>Role</b>	<b>Responsibilities</b>
General Manager Communities	<ul style="list-style-type: none"> <li>Overall responsibility for the implementation of this Management Plan, including ensuring that adequate resources are provided to allow implementation.</li> <li>Interface with Umnugovi aimag governors.</li> </ul>
Manager Environment & Biodiversity	<ul style="list-style-type: none"> <li>Responsible for managing communication and cooperation of Environmental and Biodiversity team members with stakeholders in relation to the water resource, land use, land rehabilitation, pastureland quality monitoring and biodiversity aspects of the OMP</li> </ul>
Manager Community Assistance and Partnership (CAP)	<ul style="list-style-type: none"> <li>Ensure OT Teams have adequate knowledge for implementation and improvement of this management plan</li> <li>Engage with professional experts to obtain specialist advice in relation to the achievement of this plan as required</li> <li>OT Site interface with relevant teams</li> <li>Interface with soum governors</li> </ul>
Manager Compliance & Governance (CG)	<ul style="list-style-type: none"> <li>Coordinate M&amp;E and reporting on Operational Management Plan controls and commitments</li> </ul>
Ecosystem Services Working Group (ESWG)	<ul style="list-style-type: none"> <li>Consulted on implementation of the OMP by discussing related issues and proposing measures and action plan to mitigate impacts on ecosystem services</li> <li>Assess outcomes and propose improvement plans for the OMP implementation with regard to priority ecosystem services</li> <li>Assuring implementation of ES Monitoring and Evaluation framework</li> </ul>
Community Relations Specialist	<ul style="list-style-type: none"> <li>Coordinate development and implementation of this Management Plan and LASS Program</li> <li>Coordinate the Herders group and Cooperatives in activities related to OT and livelihood improvement</li> </ul>
Community Relations Officers	<ul style="list-style-type: none"> <li>Provide technical and practical input into areas such as herder business and economic development, local worker training, education assistance etc.,</li> <li>Coordinate local Government, Herders and NGO in activities related to OT and PLIMP</li> </ul>

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### 3.2 Governance of the Management Plan

The main goal of the Pastureland and Livelihood Improvement Operational Management Plan is to identify the supporting role of OT in contributing to pastureland management and livelihood improvement programs and initiatives of the soum Government Office in conjunction with local herders. As per the Mongolian Law on Land clause statement, the Government of Mongolia is responsible for controlling and regulating pastureland use and hence fulfil a leadership role in sustainable pastureland management.

The Management Plan encompasses three pillars of work:

- 1) Pastureland Management;
- 2) Water resources;
- 3) Herder livelihood improvement; and
- 4) Biodiversity and Conservation;

RACI designations for the governance across the three pillars are shown in Table 3.

Table 3: Diagram of the Governance Flowchart

	PASTURELAND MANAGEMENT	WATER RESOURCE	LIVELIHOOD IMPROVEMENT	BIODIVERSITY CONSERVATION
GM COMMUNITIES	Consulted	Consulted	Consulted	Informed
ESWG	Consulted	Technical approval and Responsible	Consulted	Lead & approve
CSP TEAM	Technical approval and Responsible	Consulted	Technical approval and Responsible	Consulted
BIODIVERSITY TEAM	Consulted	Consulted	Informed	Technical approval and Responsible
WATER TEAM	Consulted	Consulted	Informed	Informed
BIODIVERSITY CONSULTANTS	Consulted	Consulted	Informed	Consulted
UMNUGOBI PROVINCE GOVERNMENT	Consulted	Consulted	Consulted	Consulted
KB SOUM GOVERNMENT	Lead & approve	Lead & approve	Lead & approve	Consulted
GOVIIN OYU DSF	Consulted and provide funding			
LOCAL NGO & TPC	Consulted	Consulted	Consulted	Informed
HERDER COOPERATIVES	Consulted	Consulted	Consulted	Informed
HERDERS	Consulted	Consulted	Consulted	Consulted

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### 3.3 Ecosystem Services Working Group

Ecosystem Services (ES) are generally defined as the benefits that people obtain from ecosystems. According to the Critical Habitat Assessment report of TBC & FFI (2012) four ES have been defined as critical to the OT project: these include pasture, biomass fuel, freshwater and water regulation. OT is committed to applying relevant international standard to the project, including the IFC Performance Standard, EBRD Performance Requirements, as well as Rio Tinto corporate commitments. Under the IFC PS 6 and EBRD PR 6, OT is required to:

- Minimize impacts to ES, and implement mitigation measures that aim to maintain the value and functionality of those ES, to affected communities; and
- Minimize impacts to maintain ES essential to operation and the project over its lifetime.

Pasture (or quality vegetation for livestock herding) and the freshwater (accessible water resource to the herder community), are the key components of the Pastureland and Livelihood Improvement Management Plan.

The Ecosystem Services Working Group (ESWG) is an internal OT group that meets regularly to provide a forum for coordination, communication, decision-making (as required), management and the monitoring and evaluation of various commitments, programs, and issues that cut across both Communities and Environment work areas. Membership of the group includes senior team members from both the Environment and Communities Departments. The ESWG is also supported as necessary by OT's biodiversity partners who will provide advice and recommendations on best and emerging practices related to ecosystem services and to ensure that the overlapping and competing interests of wildlife and herders are balanced in a sustainable manner.

The ESWG will ensure implementation of the Ecosystem Service Monitoring and Evaluation Plan (ESMEP) which is focused on four aspects of each priority Ecosystem Service: their **supply** (or state), the **benefits** derived by stakeholders, **pressures** to the supply of the Ecosystem Service and OT's **response** to those pressures. Measuring these four attributes will ensure that the functionality and value of the Ecosystem Services are maintained for affected beneficiaries, a requirement for OT under PS6.

The ESMEP includes specific indicators for pasture (P1 to P10), biomass fuel (B1 to B8), freshwater (F1 to F12) and water regulation (W1 to W7). Details for indicator monitoring methods and frequency, geographical extent, responsible party and the threshold for triggering adaptive management controls are outlined in the ESMEP.

### 3.4 Key interfaces

Key interfaces in the implementation of the Pastureland and Livelihood Improvement Management Plan (i.e. roles with responsibility for delivering elements of the Management Plan) include:

- Communities and Social Performance Department,
- HSES Department;
- Procurement Department

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- Operations and Infrastructure teams;
- External Affairs and Communications Department.

Given the need to collaborate with and manage the expectations of local authorities regarding completion indicators and outcomes, the following stakeholders have been identified as key external interfaces of this management plan:

- Local and state Government; Khanbogd soum Livestock sector sustainable development program (SDP): The SDP aims for livestock sector development using a combination of traditional approaches and modern technologies, as well as good practice of adjusting pasture carrying capacity and herd composition to improve herder household’s income through supporting production of qualified livestock products. The SDP is managed through a committee assigned from KB leaders, which includes the Soum Governor as Chairman and 10 other committee members representing bagh governors, herders, and other relevant stakeholders. The Citizen’s Representative’s Meeting will approve the submitted proposals and action plans and monitor implementation. OT will support the SDP in developing their action plan and implementation.

The SDP has been designed based on several baseline studies conducted in Khanbogd soum. These include a Livestock Health assessment, Pasture Water Resource assessment, Baseline study of pastureland, Herder Health baseline study and a Baseline study of Livestock Products’ Marketing. When developing the SDP and assigning roles, the KB soum government incorporated comments from the herders, responsible organizations and professionals as well as the relevant policies and procedures ordered from Government of Mongolia.

The scope and the principles of the SDP development and implementation were developed from the Khanbogd herder Forum 2015, further discussed in Tripartite Committee (TPC), and Citizenship Representatives Khural. Additionally, the Center for Policy Research (CPR), Nutag Partners NGO, Wildlife Conservation Society and OT were proactively engaged with the SDP designing and development. The SDP was developed in accordance with the Citizenship Representatives Khural decision # 15/03 signed on November 18, 2015, with the aim of sustainable development of the soum by improving livestock sector (pasture-livestock-herder) based on the Government decision, community consultation and the scientific research

- Local communities and Interest groups; including Khanbogd soum Tripartite Council (TPC) that consists of 15 member representatives of local herders, Khanbogd soum authority and OT. The TPC was established in June 2015 as the engagement mechanism for two complaints submitted to the Office of the Compliance Advisor Ombudsman by a group of local herders. The function of the TPC is to consider, address, resolve, exchange information about, make proposals and recommendations in respect of, implement and relay to the appropriate levels, any issues relating to herders, pasture and water and any other relevant issues, complaints, proposals, initiatives or recommendations regarding the complaints. Beyond working to resolve the complaints, the TPC also agreed to operate as the Working Group within the framework of the Cooperation Agreement and to advise the Relationship Committee on animal husbandry development initiatives. As formally requested by the Khanbogd soum Governor, the TPC also agreed to take responsibility of

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the joint Compensation Working Group for the 2011 economic displacement compensation program.

#### **4 PROJECT STANDARDS**

Applicable Standards must be complied with for all Operational and Project activities (“the Standards”). The Standards comprise:

- Applicable Mongolian Legislation
- Applicable Mongolian National Standards;
- Detailed Environmental Impact Assessment (DEIA) requirements;
- Other commitments to and requirements of Mongolian Government authorities;
- Applicable Lender standards; and
- Applicable Rio Tinto standards.

##### **4.1 Applicable Mongolian Legislation**

###### **a. Mongolian Laws**

- The Constitution (1992);
- The Law on Allocation of Land to Mongolian Citizens for Ownership (2003); and
- The Civil Code (2002).
- Law on Land, 2002 (amendment in 2015);
- Law on Natural Plants, 1995 (amendment in 2010);
- Law on Environmental Impact Assessment, 2012;
- Law on Environmental Protection, 1995 (amendment in 2012);
- Law of Mongolia on Water, 2012.
- Law of Mongolia on Water Supply and Sewerage System Service of Cities and Residential Settlements, 2012.

###### **b. Applicable Mongolian National Standards**

Mongolian National Standards have been developed by the Mongolian Agency for Standardisation and Metrology. These standards include biodiversity related issues in regards to land reclamation and mine rehabilitation including re-vegetation, as below:

- MNS 5914:2008. Environment. Land reclamation. Terms and definitions
- MNS 5915:2008. Environment. Classification of land disturbed by mining activities
- MNS 900:2010. Drinking Water Hygiene Requirements and Quality and Safety Assessment, (amended in 2010).

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#### 4.2 Detailed Environmental Impact Assessment (DEIA) requirements

Land disturbance control and rehabilitation management requirements set out in Environmental Protection Plans and Environmental Monitoring Plans which accompany DEIAs have been incorporated into the Pastureland and Livelihood Improvement Management Plan. The OT statutory commitments relevant to land disturbance and rehabilitation are provided in the DEIA reports which have been prepared in accordance with the Law on Environmental Impact Assessment and the Minerals Law of Mongolia.

#### 4.3 Applicable OT and Rio Tinto standards

##### a. *OT- Umnugovi Cooperation Agreement (CA)*

The OT-Umnugovi Cooperation Agreement (CA), a condition of OT's Investment Agreement, commenced with the signing by Umnugovi Aimag, Khanbogd Soum and Oyu Tolgoi LLC in April 2011 of a Memorandum of Understanding (MoU) setting out broad objectives. Consistent with good practice in local level agreement making, a Process Agreement (PA) setting out the principles of negotiation and key procedures was then signed in September 2012.

Following substantial engagement and negotiation under the PA, the full CA was signed by the Governors and Speakers of Umnugovi Aimag, Khanbogd, Manlai, Bayan-Ovoo and Dalanzadgad Soums and the President and CEO of Oyu Tolgoi LLC on 22 April 2015. Amongst other agreed definitions, the CA defined OT's Partner Communities as Khanbogd Soum, Manlai Soum, Bayan-Ovoo Soum and Dalanzadgad Soum. This Partner Communities definition substitutes internally for the language of 'Direct Area of Influence' and the 'Indirect Area of Influence' that occurs in third party documents, such as Mongolian DEIA and Lender ESIA.

The CA sets out how OT, Umnugovi Aimag and the Partner Communities will work together under the principles of mutual obligation and long-term commitment towards sustainable development in the Partner Communities. During negotiation of the CA, the following topics were identified as primary concerns for the Partner Communities; these were comprehensively discussed with mutual governance protocols agreed and included as Schedules in the final CA:

- Water Management – Schedule 4
- Environmental monitoring and protection – Schedule 5
- Traditional Animal Husbandry and Pasture Land Management – Schedule 6
- National History, Culture and Tourism – Schedule 7
- Basic Social Services (Health, Culture, Education, Vocational Training and Employability) – Schedule 8
- Local Enterprise Development, Goods, Services Procurement – Schedule 9
- Public Infrastructure and Capital Project – Schedule 10

The Schedule 6 describes parties' obligations on Traditional Animal Husbandry and Pasture Land Management.;

- (a) The Parties agree to work together and with other relevant parties to support the preservation and development of traditional animal husbandry and traditional

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nomadic pastureland usage and any supporting strategies implemented by the Parties should be consistent with Umnugobi Aimag and Partner Communities' policies. Umnugobi Aimag and Partner Community departments or units in charge of animal husbandry and veterinary services and cooperatives conducting activities in relation to animal husbandry will take the lead role in identifying such supporting strategies.

- (b) Support for the above strategies may include the provision of relevant data, research and expertise for the preservation and development of traditional animal husbandry, traditional nomadic pastureland usage and development of intensive animal husbandry (including the introduction of new technologies, improved veterinary services, pasture use plans and improved pasture management).
- (c) The Parties agree to work together to support the establishment of sustainable herder cooperatives.
- (d) The Parties agree to work together with local government and other relevant parties to support the restoration of herd animal watering points and improvement of pasture water availability where it is lacking in Partner Communities.
- (e) The Parties agree to work together to provide support in conducting pastureland assessments with the participation of relevant Umnugobi Aimag authorities, Partner Communities and third parties.
- (f) OT will seek, to the extent reasonably practicable, to enable disturbed land within the Cooperation Area (but excluding land within the Contract Area) to become suitable for nomadic herder access and grazing animals after it is no longer in use for the OT Project.
- (g) Under an agreed protocol, OT will provide grazing access for herd animals to the Contract Area with restrictions on the time of year, duration, precise locations and other matters relevant to the efficient and safe operation of the OT Project and the safety of the animals and herders.
- (h) The Parties will develop specific proposals for a herder livelihood improvement program for affected herder households and, through the Relationship Committee, get feedback on how to refine it and get support from Partner Communities to implement it.
- (i) The Parties will develop specific proposals for new types of income generation projects for affected herder households and, through the Relationship Committee, get feedback on how to refine them and get support from Partner Communities to implement them.

Under the agreement, Oyu Tolgoi will make an annual contribution of US\$5 Million to Goviin Oyu Development Support Fund (DSF) –jointly established by Oyu Tolgoi and the Community and independently managed to support community programmes and projects in the Umnugovi aimag.

**b. Applicable Rio Tinto Standards**

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Rio Tinto maintains high standards of business responsibility; its high-level value statements covering its business practice are set out in the document “The Way We Work”, available on the OT website in Mongolian and English.

Rio Tinto maintains high standards of business responsibility; its high-level value statements covering its business practice are set out in the document “The Way We Work”, available on the OT website in Mongolian and English.

In addition, Rio Tinto has a comprehensive Communities and Social Performance Standard and management framework which applies to OT as a Rio Tinto managed business. The Rio Tinto Communities and Social Performance Standard (2015) outlines the way in which Rio Tinto businesses must engage with affected communities, gather and disseminate information, and formulate plans and programmes to manage social impacts. Specific elements of the Standard applicable to managing pastureland - related matters that may arise at OT include:

- Communities and Social Performance planning (which integrates all community-related activities across a business);
- baseline communities assessment;
- mutually accepted and understood consultation procedures;
- understand, manage and monitor the social impacts of the business
- community initiatives and assistance;
- cultural heritage management;
- complaints, disputes and grievance procedures;
- human rights protection; and
- community agreements.

Further information about the Rio Tinto Communities and Social Performance Standard can be obtained from the Rio Tinto website.

**4.4. Applicable International Standards and Guidelines**

International Finance Corporation (IFC) Policy and Performance Standards for Social and Environmental Sustainability (2006) set out a range of recommendations with regard to managing social and environmental impacts, including those associated with land, pasture and livelihood. The key Performance Standards that are applicable to this plan include:

- Performance Standard 1: Social and Environmental Assessment and Management System;
- Performance Standard 4: Community Health, Safety and Security; and
- Performance Standard 5: Land Acquisition and Involuntary Resettlement.
- PR 6 & PS 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

OT is committed to comply with requirements of the IFC Performance Standards 1, 4, 5 and 6 for the OT Project.

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The European Bank for Reconstruction and Development (EBRD) Environmental and Social Policy (2006) includes specific performance requirements for managing social and environmental impacts for projects in which it invests. These include:

- Performance Requirement 1: Environmental and Social Appraisal and Management
- Performance Requirement 4: Community Health- Safety and Security
- Performance Requirement 5: Land Acquisition, Involuntary Resettlement and Economic Displacement.
- Performance Requirement 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources

OT is committed to comply with the EBRD policies and Performance Requirements 1, 4, 5 and 6 (2006).

## 5. MANAGEMENT CONTROLS

This management plan outlines management controls to mitigating any identified risks and impacts related to pastureland management and herder livelihood improvement.

### 5.1. Pastureland and livelihood improvement strategy (2017 – 2019)

Table 4: Summary of the Pastureland and Livelihood improvement strategy implementation

#	KPI	Goal or Indicator	Actual outcome	Comments
1	<ul style="list-style-type: none"> <li>• Number of wells restored and created for the pasture land;</li> <li>• Number of herders having access to the wells;</li> <li>• Number of animals being watered from wells</li> </ul>	<ul style="list-style-type: none"> <li>• Improve access to pastureland water in the partner soums</li> <li>• Increase pasture usage by increasing water resource availability</li> </ul>	<ul style="list-style-type: none"> <li>• 74 wells restored and 13 new wells created in partner soums within the scope of Chandman Erdene project</li> <li>• 16 hand-dug, which were buried by 2018 flood, are restored in partnership with herder cooperatives.</li> <li>• 10 wells installed with Renewable energy devices and improved access to water supply for 45 herder households and their 13.6k herds</li> </ul>	Funded by the Gobi Oyu DSF and partnered with Aimag Agricultural Department
2	<ul style="list-style-type: none"> <li>• Number of herders attended training;</li> <li>• Number of Herder Cooperatives established;</li> <li>• Number of households participating in Herder Cooperatives</li> </ul>	<ul style="list-style-type: none"> <li>• Improve business skills and market access for herders</li> <li>• Support strengthening the cooperatives</li> <li>• Develop production and market for herders cooperatives</li> </ul>	<ul style="list-style-type: none"> <li>• Total of 18 herder cooperatives actively operating in partner soums</li> <li>• 32 compensated herder households are participating in cooperatives established under sustainable livelihood program: angus breeding; veggie growing and sheep breeding</li> </ul>	OT “Development Solution” NGO as an Advisor

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3	<ul style="list-style-type: none"> <li>Number of community members involved in Participatory Rangeland Monitoring;</li> <li>Number of complaints and conflicts related to pasture use ;</li> <li>KB soum pasture management plan approved;</li> <li>Develop pastureland map of target soums;</li> </ul>	<ul style="list-style-type: none"> <li>Increase awareness of herders on the factors relating to sustainable use of the local pasture area</li> <li>Improve herders' understanding about sustainable approach to dealing with pasture usage related conflict</li> </ul>	<ul style="list-style-type: none"> <li>Established a NGO, named Munkh Nagoon Galba by local herders to conduct participatory environmental monitoring</li> <li>The rangeland/vegetation field monitoring carried out on 41 plots in KB</li> <li>Management framework developed in 4 soums /Manlai, Tsogt-ovoo, Bayan-ovoo and Khanbogd/ and pasture use general rules prepared to be applied in Umnugovi aimag</li> </ul>	Ongoing through DSF funding support and partnering with national consulting organizations /Victor Map NGO, Green Gold, WCS/
4	<ul style="list-style-type: none"> <li>Number of veterinarian trained</li> <li>Number of vet service activities</li> </ul>	<ul style="list-style-type: none"> <li>To improve animal hygiene and health</li> <li>To improve veterinary service</li> </ul>	<ul style="list-style-type: none"> <li>KB Inter soum Animal health Center established and laboratory equipment and furniture provided. The center will operate under The General Authority of Veterinary Services of the Ministry of Food, Agriculture and Light Industry. The laboratory is capable for sanitation/ hygiene, veterinary service and animal breeding service.</li> <li>Livestock disinfection and sterilization project implemented and 31 veterinaries trained</li> </ul>	Ongoing through DSF funding partnering with Work with Aimag agricultural agency and local Veterinary
5	<ul style="list-style-type: none"> <li>Number of technology training session</li> </ul>	<ul style="list-style-type: none"> <li>Increased knowledge of herders on livestock management</li> </ul>	<ul style="list-style-type: none"> <li>Organized one year Sustainable Livelihood Support Training Program for compensated herder families to equip with skills to run business on sewing, vegetable planting &amp; agribusiness, welding technology, livestock management</li> </ul>	Ongoing contract with "Development Solution" NGO  Dornod Polytech School
6	<ul style="list-style-type: none"> <li>Number of herder based project</li> </ul>	<ul style="list-style-type: none"> <li>Improve herders business skill and health</li> </ul>	<ul style="list-style-type: none"> <li>Implemented "Healthy Herder" project in KB. 543 herders involved in medical screening service</li> <li>Implemented "Young Herder" project in KB. 237 youth attended in life skill training programme and 4 groups</li> </ul>	Ongoing through DSF funding  Partnering with Dornod Polytech School  Ongoing contract with "Development Solution" NGO

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			<p>created with 32 young herder members and engaging actively</p> <ul style="list-style-type: none"> <li>• Sustainable livelihood support training programme organized in 2017 for compensated herders and business projects have been implemented involving 32 herder households to run sewing business, angus cattle, egg/chicken business, green house business, since 2018;</li> </ul>	
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OT’s Pastureland and Livelihood Improvement initiatives and commitments will in many cases, be implemented under the CA framework, in order to promote sustainable development through empowering local institutes and community members.

In 2015, the Communities team facilitated a strategic shift focus from project delivery to community empowerment, including changing the implementation mechanisms for management controls. The following key principles to apply:

- Any identified, direct and adverse impact mitigation management controls will be implemented by OT and it will be a sole responsibility of OT.
- Any projects and programs aimed at preventing any future impacts will be managed through CA and DSF, where project criteria and governance requirements are satisfied (auditable by IESC audit)
- The mitigation of any direct adverse impacts identified in future for which no management controls are yet in place and which are not adequately addressed under any of the programs managed through the CA and DSF in place, will be the responsibility of OT.

**5.2. Pastureland and livelihood improvement strategy (2020 – 2022)**

OT’s Pastureland and livelihood improvement strategy has been shifted to a new stage of its development and focusing on implementing Local Agribusiness Support Strategy (LASS) since 2018. (Appendix 1.) LASS aims to support sustainable and inclusive agriculture business that contribute to diversification of local economy and food safety and security of communities. The strategy developed in reflection of intensifying business development, increased demand of agriculture products in the region, and intended to enhance alignment of OT’s ongoing effort towards improved herder livelihood and local supply chain development.

It will be implemented under the Cooperation Agreement framework in order to promote sustainable development through empowering local agricultural institutes and herder community. The strategy has four components:

- Strengthening governance and assurance – Animal Health Care Center in Khanbogd
- Stable input producers – Angus Cattle (beef), vegetable and fruit, Sustainable Cashmere Project, Gaviluud sheep (lamb), camel milk

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- Value added production – Slaughter house, dairy production
- Market and logistics – Herders' marketplace, market linkage bodies

LASS is aligned with Tripartite Council's Herder Complaint Resolution Agreement, Herder Livelihoods Improvement Program and Cooperation Agreement and it will be implemented in five stages and will require joint efforts by all stakeholders involved in agricultural development in order to achieve the desired outcome. In the first stage of the strategy implementation, review and analysis will be conducted for creating basic structure for strategy implementation. In the second phase, construction and investment activities will take place along with development of the management and skills building activities. Based upon the identified opportunities, the following control measures are put in place for all phases and activities of OT between 2020 and 2021.

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Table 5: Key Management Controls (2020-2021)

ID	Topic/aspect	Applicability/activity	Control Description	Means of Verification	Responsible Parties
1.	Physical and economic displacement of herder households	Construction Operations Mine Closure	<ul style="list-style-type: none"> <li>Implementation of RAP</li> <li>Survey and monitoring of resettled herder households in 2006, 2010 and ongoing.</li> <li>Support for Implementation of the Animal husbandry sustainable development program</li> <li>TPC agreed actions on displaced herder families</li> <li>Implementation Livelihood Support Program</li> </ul>	Compensation and Resettlement Agreements with Herder families  Annual monitoring report on Herder Compensation Agreement implementation  Resettlement Action Plan, Outcome evaluation and Completion Audit reports  Annual report of soum  MDT and 3rd party reports  DSF Project reports	Communities and Social Performance Department

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ID	Topic/aspect	Applicability/activity	Control Description	Means of Verification	Responsible Parties
3	Disturbance to herding activities	Construction Operations Mine closure	<ul style="list-style-type: none"> <li>Support for implementation Khanbogd Animal husbandry sustainable development program through regular engagement and consultation with soum authorities and herders</li> <li>Support herders additional income generation initiatives by the herders group and cooperatives /ecotourism, vegetation planting and implement at environment project / through the Goviin Oyu DSF</li> <li>Support development and implementation “Healthy herder” project in cooperation with Khanbogd soum hospital</li> <li>Support development and implementation of “Young herder” project to prepare future leaders and managers of herders’ cooperatives and groups</li> </ul>	Stakeholder engagement action plan Annual report of soum DSF Project reports	Communities Department
4	Decreased animal health and productivity	Construction Operations Mine closure	<ul style="list-style-type: none"> <li>Support Implementation of livestock health initiatives with Agriculture department of Umnugovi aimag and partner soums (livestock dipping and winter camps disinfection/treatment project )</li> <li>Support Implementation of the KB Animal husbandry sustainable development program through CA and DSF</li> <li>Support operationalization of Inter soum Animal health care center in Khanbogd soum and capacity building of the facility operation in partnership with General Authority of Veterinary Service</li> </ul>	Aimag annual report Soum annual report DSF Projects reports	Communities Department Communities and Social Performance Department

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ID	Topic/aspect	Applicability/activity	Control Description	Means of Verification	Responsible Parties
5	Pastureland loss & degradation	Construction Operations  Mine closure	<ul style="list-style-type: none"> <li>Implementation of Land Disturbance Controlling and Rehabilitation Management Plan that includes land disturbance permits system to minimize disturbance to pastureland, progressive technical and biological rehabilitation of disturbed lands.</li> <li>Implementation of Biodiversity Management Plan</li> </ul>	Land disturbance permit registration  OT geodatabase,  Rehabilitation records and reports	Environment & Biodiversity Department
			<ul style="list-style-type: none"> <li>Implementation of Atmospheric Emissions Management Plan that Monitoring of air quality determinants as part of the regular ambient air monitoring</li> <li>Implementation of appropriate dust control measures for activities where potential for dust generation is significant to prevent excessive dust deposition on vegetation cover resulting in pastureland degradations</li> </ul>	Air Quality Monitoring report  Annual Environmental Management reports	Environment & Biodiversity Department
			<ul style="list-style-type: none"> <li>Implementation of Transportation Management Plan that requires avoidance of off-road driving or other activities to disturbed land</li> </ul>	Transportation management plan  Journey management system	Operations and Infrastructure Departments
			<ul style="list-style-type: none"> <li>Implementation of the Animal husbandry sustainable development program</li> <li>Support implementation of pastureland improvement initiatives with Agriculture department of Umnugovi aimag and partner soums</li> <li>Regular engagement and consultation with relevant stakeholders</li> </ul>	DSF Project reports  Pastureland Monitoring Reports and Pasture use plan for Khanbogd soum  Stakeholder engagement action plan, complaint register/log	Communities Department

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ID	Topic/aspect	Applicability/activity	Control Description	Means of Verification	Responsible Parties			
6	Water access restrictions or loss	Construction Operations	<ul style="list-style-type: none"> <li>Implementation of Water Resources Management Plan</li> <li>Design of the water supply system to avoid impacts on herder wells.</li> <li>Monitoring of all potentially affected herder wells in vicinity of Project facilities.</li> <li>Continue long term monitoring to enable early impacts to be identified;</li> <li>If impacts on herder wells occur from the Gunii Hooloi deep aquifer extraction process, hydrogeological assessment should be carried out to identify the reason and establish an effective mitigation action plan in consultation with local stakeholders</li> </ul>	Water Resource Management Plan Water Monitoring Chandmani Erdene project report	Environment & Biodiversity Department			
		Mine closure				<ul style="list-style-type: none"> <li>Implementation of Participatory Water Monitoring program that the involvement of local herders, including enabling participants to undertake self-monitoring of water sources, and involving routine joint reviews of monitoring results</li> </ul>	Participatory Water Monitoring report	Communities Department
						<ul style="list-style-type: none"> <li>Support implementation of water resource improvement project/programs under the Animal husbandry sustainable development program Support conducting a comprehensive study on pasture water resource within KB, ML, and BO soums through CA and DSF</li> <li>Support implementation of hand well restoration initiatives by the herders group and cooperatives through CA and DSF</li> </ul>	Annual report of soum DSF Project reports	Communities Department

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Note: Contractor requirements related to biodiversity protection are defined during the contractor engagement process via a risk assessment process that is undertaken as part of the development of the scope of work for individual contracts or work packages. Any requirements related to biodiversity-related issues (as with any other issues identified) are set out in the scope of work for each contract. Any necessary training identified will be provided to contractors and contractor performance will be subject to monitoring, audit and inspection by OT. Further details can be found in the Contractor Engagement Framework.

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**6. IMPLEMENTATION SCHEDULE**

**6.1. Review and Revision of this Management Plan**

This Management Plan will be reviewed on a two year period and any necessary revisions made to reflect the changing circumstances and operational needs of OT. Review and revision of this Management Plan and workbook will be the responsibility of the OT General Manager Communities who is custodian of this Plan.

If material changes to operating procedures are required (as identified through the Management of Change procedure contained within the OT HSESC Management System), this Management Plan may be updated on an “as required” basis.

Any revisions to this Management Plan will be uploaded to the OT Portal and OT internet page to ensure access to OT personnel and other parties.

*Table 6. Key 2020-21 Implementation Milestones*

<b>Activity</b>	<b>Target Date</b>	<b>Output</b>
Support operationalization of Inter soum Animal health center in Khanbogd soum and capacity building of the facility operation with Agriculture department of Umnugovi aimag and and General Authority of Veterinary Service	Q2 2020	Ongoing, contract with MSUA and Development Solution NGO
Support establishment of fodder fund and storage facility in Khanbogd soum under Goviin Oyu DSF	Q1 2020	Project submitted to Goviin Oyu DSF
Support herders additional income generation initiatives by the herders group and cooperatives /sewing , vegetation planting, high breed animal and poultry farming /	Q3 2020	Ongoing
Support construction of the slaughter house in Khanbogd soum	Q3 2021	Ongoing feasibility study
Support construction of herders’ marketplace in Khanbogd soum	Q4 2022	In plan

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## 7. MONITORING

### 7.1. Overview of Monitoring Requirements

The Monitoring measures that are to be implemented during the operations phase to assess compliance with Project Standards (see *Section 4: Project Standards*) are described in this section.

In the event that monitoring identifies non-conformance with Project Standards, these will be investigated and appropriate corrective actions identified (see Element 14 Non-conformance incident and action management of the OT HSEC MS). A preliminary approach agreed by OT, the project Lenders and biodiversity advisors / contractors identifies Key Performance Indicators for priority biodiversity features and monitoring thresholds that, if exceeded, trigger an adaptive management review and response if appropriate (refer BMEP).

### 7.2. Key Performance Indicators

*Table 7: Key Performance Indicators*

ID	KPI	Target
LD-KPI 01	Number of recorded livelihood related non-conformances with this Management plan.	Minimise and continued improvement in number of reported livelihood related non-conformances.
LD-KPI 02	Number of community complaints or grievances pasture, water and herder livelihood	Total number reducing year on year
LD-KPI 03	Sustainable animal husbandry program implemented  Number of programs on pastureland and herder livelihood improvement funded by Goviin Oyu DSF and other resources	KB Intersoum animal health service center is fully functional  Sustainable animal husbandry program implementation funded by Goviin Oyu DSF.
LD-KPI 04	Number of herders accessed to mobile medical services	Implementation of “Healthy herder program”
LD-KPI 05	Number/type of pastureland based business development projects taken up by local people to improve their livelihood	Total number of cooperatives sustained year on year
LD-KPI 06	Area rehabilitated compared with the area in annual technical rehabilitation plan	Target - 100% implementation
LD-KPI 07	Area re-vegetated compared with the areas in annual biological rehabilitation plan	Target - 100% implementation

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### 7.3. Key Monitoring Activities

Table 7: Monitoring Measures

ID	Topic/Aspects	Methods	Periodicity	Location
1	Physically and economically displaced herder households livelihood	<ul style="list-style-type: none"> <li>Self-reported business development projects implementation status taken up by displaced herders.</li> <li>Annual survey on displaced herder households livelihood</li> <li>Goviin Oyu DSF annual financial report</li> </ul>	Annually	Khanbogd soum
2	Pasture condition and carrying capacity	<ul style="list-style-type: none"> <li>Online database of pastureland carrying capacity in Khanbogd Soum developed by Institute of Meteorology and Hydrology.</li> </ul>	Annually	Khanbogd soum (other soums if required)
3	Livelihood improvement based business development projects taken up by herder cooperatives	<ul style="list-style-type: none"> <li>Goviin Oyu DSF annual financial report</li> </ul>	Annually	Khanbogd soum (other soums if required)
4	Water source availability and sufficiency and water quality	<ul style="list-style-type: none"> <li>Hydrogeology assessment report funded by the Goviin Oyu DSF</li> <li>Herder wells monitoring results identified that indicate decreased water quality or availability per period.</li> </ul>	As needed  Annually	Khanbogd soum  Khanbogd soum, Gunii khooloi area

## 8. TRAINING

### 8.1. Overview

All necessary training is provided as part of induction training (to provide general awareness) and job-specific training as necessary.

### 8.2. Induction and Refresher Training

All employees of OT and Contractors working at OT will be provided with general induction, site specific induction, and HSE awareness training, including a specific content on communities and PLIMP.

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## **9. AUDITING AND REPORTING**

### **9.1. Internal Auditing**

Conformance with this plan will be subject to internal inspection and audit on an annual basis.

Regular inspections will be carried out by operational area superintendents / supervisors covering a broad range of health, safety and environmental aspects. Routine inspections will additionally be carried out by the HSESC Department using an Inspection Checklist.

Any incidents identified during these inspections will be reported to the incident management system (Element 14).

Conformance will be monitored via annual internal audit program in accordance with Element 16 Performance Assessment and auditing. This will be undertaken to assess broad compliance with requirements of HSE management system (including ESIA and management plans).

All incidents and non-conformances identified during these inspections are reported as per the requirements of the OT HSEC Management System.

#### *Annual Survey of Khanbogd households*

A regular household survey of directly affected households is conducted by the OT Social Performance Team. Going forward, general monitoring of the socioeconomic conditions of herder households in Khanbogd Soum will progressively take over from selective monitoring of resettled and displaced herders. This is aligned with the shift to steady state operations and background monitoring of all impacts, including secondary impacts.

### **9.2. External Auditing**

Conformance with this plan will be subject to periodic assessment by Rio Tinto corporate audit and assurance programmes and by OT's Lenders.

## **10. Reporting**

The results of audits against this plan will be submitted to the OT Executive Committee.

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**11. DOCUMENT CONTROL**

File Name	OT-10-PLN-0013-E-Pastureland and Livelihood Improvement Management Plan	
Description	Pastureland and Livelihood Improvement Management Plan	
Original Author(s)	Bayarbaatar Luvsan	
Creation Date	2016.08.28	
Approved By	Baigalmaa Shurka, GM Communities	
Approval Date	2017.03.30	
Change Number	Record	#

Risk Ranking	Assessment Date	Risk Assessor	Review Schedule	Next Review Date
Moderate	2016.09.01	Bayarbaatar Luvsan	2 yearly	2021.11.14

Version	Version Date	Author(s)	Approved by	Version notes.
0.1	2016.09.29	Bayarbaatar Luvsan	Baigalmaa Shurka	First version draft.
1.0	2017.03.30	Bayarbaatar Luvsan	Baigalmaa Shurka	First version approved.
1.1	2019.11.14	Bayarbaatar Luvsan	Sugar Gonchigjantsan	Periodic review undertaken, Updated implementation strategy, key milestone and roles and responsibilities

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Appendix 1. Local Agribusiness Support Strategy 2019-2023

