



**GREENLAND
MINERALS A/S**



Greenland Minerals A/S
Kvanefjeld Project
Social Impact Assessment
Non-technical summary

December 2020

Shared Resources Pty Ltd

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List of Abbreviations and Acronyms

Acronym / Abbreviation	Description
A/S	Aktieselskab, Danish name for a stock-based corporation
AIDS	Acquired Immune Deficiency Syndrome
APP	Aalisartut Piniartullu Peqatigiffiat (Regional Fishermen and Hunters Association)
DWT	Dead Weight Tonnage
EHS	Environment Health and Safety
FIFO	Fly-In Fly-Out
GE	Greenland Business Association
GMAS	Greenland Minerals A/S
GML	Greenland Minerals Limited
GoG	Government of Greenland
GPS	Global Positioning System
HIV	Human Immunodeficiency Virus
IBA	Impact and Benefit Agreement
ICC	Inuit Circumpolar Council
IFC	International Finance Corporation
km	Kilometre
KNAPK	Kalaallit Nunaanni Aalisartut Piniartullu Kattuffiat (Fishermen and Hunters Association)
MLSA	Mineral License and Safety Authority
Mt	Million tonnes
Mtpa	Million tonnes per annum
MW	MegaWatt
NUSUKA	Nunaqavisissuit Suliffiutillit Kattuffiat (Employers' Association)
REE	Rare Earth Element
REP	Rare Earth Phosphate
SIK	Greenland Workers Union
SIP	Sulinermik Inuussutissarsiuqartut Peqatigiiffik (Local Department of SIK in Qaqortoq and Narsaq)
SLICA	Survey of Living Conditions in the Arctic
SPS	Savaatillit Peqatigiit Suleqatigiissut (Sheep Farmer's Association)
STD	Sexually Transmitted Disease
Sv	Sievert
TB	Tuberculosis
ToR	Terms of Reference
US \$ / USD	United States Dollars

1. Non-Technical Summary

1.1 Introduction

1.1.1 Purpose and scope of document

GML is an Australian mining company based in Perth and listed on the Australian Securities Exchange. Greenland Minerals A/S (GMAS) is the Greenlandic subsidiary of GML and is headquartered in Narsaq. GML acquired a majority stake in GMAS, the holder of the license to explore the Kvanefjeld rare earths project (Project), in 2007. In 2011 GML acquired the balance of GMAS and thereby assumed 100 % control of the Project.

GML proposes to develop a mine and integrated minerals processing facilities at Kvanefjeld. In addition to producing significant quantities of rare earth (REE) products, the Project will also produce small but commercially valuable quantities of uranium concentrates, zinc concentrates and fluorspar.

A social impact assessment provides the basis for analysing, monitoring and managing the social impacts of a planned development. This document (the SIA) describes how the Project has been designed to minimise its adverse impacts and maximise its benefits to society.

The SIA has been prepared in accordance with the Social Impact Assessment (SIA) – Guidelines on the process and preparation of the SIA report for mineral projects (MIE, 2016).

1.1.2 Project description

The Kvanefjeld Project (the Project) is located within the Kommune Kujalleq (the Municipality of southern Greenland). The mine and processing facilities are located approximately 7.5 km from the town of Narsaq with the port approximately 1 km from Narsaq. The Project is 40 km to the southwest of the international airport and settlement of Narsarsuaq. An overview of the Project can be seen in Figure 1-1.

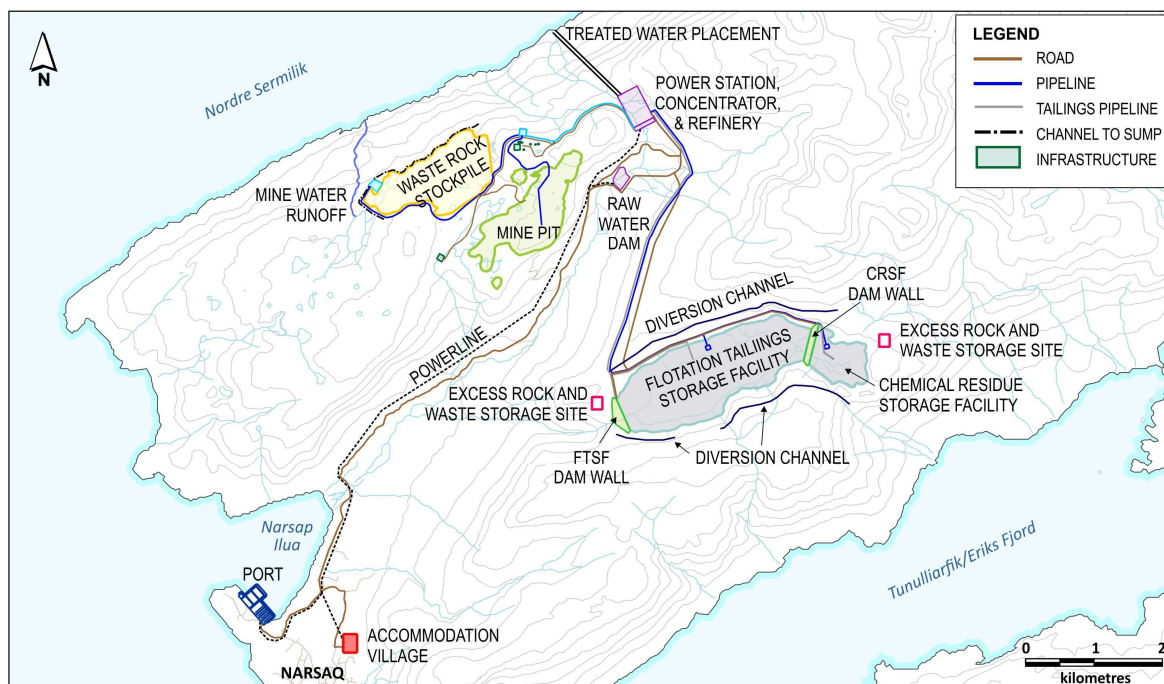


Figure 1-1 The Project

GML proposes to treat approximately 3.0 million tonnes of ore per year (Mtpa) to extract REE, uranium and zinc. The mine life is expected to be at least 37 years followed by a six-year closure and rehabilitation phase.

The mining operations involve conventional open pit mining with blasting followed by truck/shovel haulage. Broken ore is transported to a concentrator to produce rare earth phosphate concentrate (REP), zinc concentrate and fluorspar. The REP is further processed in the refinery to produce a REE product and uranium oxide. All saleable products will be transported to a purpose built port and exported. Key elements of the Project relevant to the SIA are summarised in Table 1.1, with more detail available in the Environmental Impact Assessment (EIA).

Table 1.1 Project summary

Project Element	Description	Details
Tenement	EL 2010/02	80 km ²
Mine reserve		108 Mt
Mining rate		3.0 Mtpa
Mining method	Open pit	Extraction of ore and waste rock using drilling, blasting and power shovels
Processing method	Mechanical (Concentrator) and chemical processing (Refinery)	
Life of Project		46 years
Construction phase		3 years
Operating phase		37 years
Decommissioning and closure phase		6 years
Products	Rare earth elements	~30,000 tpa
	Zinc concentrate	~15,000 tpa
	Fluorspar	~8,700 tpa
	Uranium oxide	~500 tpa
Supporting infrastructure	Power station	59 Megawatts (MW)
	Power lines	2 x 11 km, 11 kV transmission lines
	Roads	10 km dual lane (8 m wide) unsealed road from port to mine
Size of Project elements	Total footprint (at 37 yrs.)	5.9 km ²
	Mine pits	1.14 km ²
	Port	0.1 km ²
	Village	0.04 km ²
Water use from Narsaq river	Supplementary fresh water	191 m ³ /h
Excess water	Discharge of treated excess water to Nordre Sermilik	816 m ³ /h
Product transport	22 vessels per year	Handy-Max, 40,000 DWT
Employee transport	Airport	Narsarsuaq
Employees	Construction phase	200 Greenlandic, 971 foreign
	Operation phase	328 Greenlandic, 387 foreign
	Closure phase	41 Greenlandic, 7 foreign
Capital Investment*	Total	DKK 7.79 Bn (US \$ 1.24 Bn)

Project Element	Description	Details
Operating Expenditure	Annual	DKK 1.63 Bn (US \$ 259 M)
Taxes and royalties**	Annual average	<p>DKK 1.2 Bn (US\$191.5 M) in nominal/current prices and DKK 603 M (US \$ 96.1 M) in real prices/present value in corporate tax, royalties and direct labour income tax.</p> <p>GMAS will pay dividends over the life of the Project. A dividend payment can be deducted in taxable income, but is subject to a higher 36 % withholding tax. At this stage of the Project it is impossible to predict what GMAS's dividend policy will be. However, as an indication, but not a forecast, GML estimates that if 75 % of the profits are distributed as dividends then the combined corporate tax plus withholding tax average payment would rise to DKK 1.35 Bn (US\$ 215 M)/annum. On this basis, the total average of corporate tax, withholding tax, royalties, and direct labour taxes would be DKK 1.52 Bn (US\$ 242 M) /annum in nominal prices.</p>

* Throughout the SIA financial figures will be presented in Danish Kroner (DKK) and United States Dollars (USD). A conversion rate of 6.28 DKK : 1 USD has been applied throughout.

** Corporate taxes are calculated on the current corporate tax rate of 25 %. GML will also be liable for dividend withholding tax calculated at 36 %.

1.1.3 Social Impact Assessment process

Inatsisartut Act no. 7 of 7. December 2009 (the Mineral Resources Act, MRA) requires that mining companies prepare a social impact assessment in connection with the development of any proposed mineral project. The MRA also stipulates that an exploitation license for a proposed project will only be granted once the project's social impact assessment has been accepted by the Government of Greenland (GoG).

Evolution of the SIA

In 2010 GML prepared an initial feasibility study for the Project.

At the same time, to initiate activity to satisfy the requirements for obtaining an exploitation license for the Project, work on the "scoping phase" of a social impact assessment was also commenced.

During the scoping phase, several stakeholder engagement workshops were conducted to present the Project to stakeholders and to receive feedback on topics to be covered in the SIA. In July 2011, after extensive consultation, GML drafted the first version of the Terms of Reference (ToR) for the Project's social impact assessment.

Subsequent changes to the Project design and an amendment to the Mineral Resources Act in 2014 prompted the development of an updated ToR in 2014. Public consultation in respect of the updated ToR occurred in the period August – October 2014, with comments from the consultation process consolidated in a subsequent White Paper.

In the first half of 2015 GML prepared a further revision of the ToR based on comments collated in the White Paper. The 2015 version of the ToR was approved by the GoG in late 2015. This SIA has been developed in accordance with this ToR.

The SIA has been developed with the involvement of stakeholders as much and as effectively as possible at all stages of its development. Table 1.2 summarises the key stakeholders the Company has engaged with in relation to the development of the Project.

Table 1.2 Key Stakeholders

English Description	Greenlandic Name
AUTHORITIES	
MLSA	Aatsitassanut Ikummatissanullu Aqutsisoqarfik
Ministries in Greenland: <ul style="list-style-type: none"> • The Premier's Office • Ministry of Finance • Ministry of Labour • Ministry of Industry • Ministry of Science and Environment • Ministry of Housing and Infrastructure • Ministry of Foreign Affairs and Energy • Ministry of Mineral Resources • Ministry of Health • Ministry of Fisheries, Hunting and Agriculture • Ministry of Education, Culture and Church • Ministry of Social Affairs, Family and Justice 	Naalakkersuisoqarfiit: <ul style="list-style-type: none"> • Naalakkersuisut Siulittaasuata Naalakkersuisoqarfia • Aningaasaqarnermut Naalakkersuisoqarfik • Suliffeqarnermut Naalakkersuisoqarfik • Inuussutissarsiornermut Naalakkersuisoqarfik • Ilisimatusarnermut Avatangiisinullu Naalakkersuisoqarfik • Ineqarnermut Attaveqarnermullu Naalakkersuisoqarfik • Nunanut Allanut Nukissiuuteqarnermullu Naalakkersuisoqarfik • Aatsitassanut Naalakkersuisoqarfik • Peqqissutsimut Naalakkersuisoqarfik • Aalisarnermut Piniarnermut Nunalerinermullu Naalakkersuisoqarfik • Ilinniartitaanermut, Kultureqarnermut Ilageeqarnermullu Naalakkersuisoqarfik • Isumaginninnermut, Ilaqutariinnut Inatsisinillu Atuutsitsinermit Naalakkersuisoqarfik
Municipality – Kommune Kujalleq: <ul style="list-style-type: none"> • The Mayor's department (Qaqortoq) • Industry and labour market, (Narsaq) • Culture, leisure and prevention (Narsaq) • Prevention consultant (Narsaq) • Housing and Environment (Qaqortoq) • Social Services (Qaqortoq) • School and pre-school (Nanortalik) • Finances (Qaqortoq) 	Kommune Kujalleq: <ul style="list-style-type: none"> • Borgmesterip allaffia • Inuussutissarsiornermut Suliffeqarnermullu Ingerlatsivik • Kulturi, Sunngiffik Pitsaaliuinerlu • Pitsaaliuinermit Siunnersorti • Teknikkeqarnermut, Ineqarnermut & Avatangiisinullu Ingerlatsivik • Isumaginninnermut Ingerlatsivik • Atuarfeqarfinnut ulluinnarnilu paaqqinnittarfinnik ingerlatsivik • Aningaasaqarnermik Ingerlatsineq
GOVERNMENT ORGANISATIONS	
The Greenland Nature Institute	Pinngortitaleriffik
National Museum	Kalaallit Nunaata Katersugaasivia

English Description	Greenlandic Name
Narsaq Museum	Narsap Katersugaasivia
Working Environment Authority	Sullivinnik Nakkutilliisoqarfik
(The former) National Association of Municipalities	KANUKOKA (atorunnaarnikuuvog)
WORKERS AND EMPLOYERS ORGANIZATIONS	
Workers Union	Sulineramik Inuussutissarsiateqartut Kattuffiat (SIK)
Greenland's Business Association	SULISITSISUT
Greenlandic Employers' Association	Nunaqavisissut Suliffiutillit Kattuffiat (NUSUKA)
ORGANIZATIONS RELATED TO BUSINESS AND DEVELOPMENT	
Visit Greenland	Visit Greenland
Greenland Venture	Greenland Venture
Greenland Business	Greenland Business
Local Trade Forum	Inuussutissarsiornermut Siunnersuisoqatigiinniit (Kommune Kujalleq)
ORGANIZATIONS RELATED TO FISHING, HUNTING AND FARMING	
Fisherman and Hunters Association (KNAPK) Locally representatives (APP)	Kalaallit Nunaanni Aalisartut Piniartullu Kattuffiat (KNAPK) Aalisartut Piniartullu Peqatigiiffiat (APP)
Sheep Farmers' Association	Savaatillit Peqatigiit Suleqatigiissut
ORGANIZATIONS RELATED TO EDUCATION AND TRAINING	
School of minerals and petroleum (Råstofskolen) School of Metal and Mechanics (from Jan 2011 associated to School of Mining)	Sanaartornermik Ilinniarfik or Sanilin (Sisimiut)
Cooking and Food School	INUILI
The workers' school	Sulisartut Højskoliat
OTHER ORGANISATIONS	
Narsaq Earth Charter	Narsaq Earth Charter
Against uranium in Narsaq	Urani Naamik
AVATAQ	AVATAQ – Pinngortitaq avatangiisunullu peqatigiiffik
ICC – Inuit Circumpolar Conference	ICC – Inuit Circumpolar Conference
Women's Association (local representative in Narsaq)	Arnat Peqatigiiffiat (peqatigiiffiup Narsamit aallartitaat)
Elders Association/Council (local representative in Narsaq)	Utoqqaat Peqatigiiffiat (peqatigiiffiup Narsamit aallartitaat)

Objectives of the SIA

The objectives of the SIA include:

- To provide a satisfactory and impartial description for Greenlandic society in general about what Greenland, the local affected communities and individuals will gain from the Project;
- To inform and involve relevant and affected individuals and stakeholders early on in the process via ongoing dialogue and specific procedures;
- To provide a detailed description of the social pre-Project baseline situation, which, on the basis of the most recent available data, is to form the basis for planning, mitigation initiatives and future monitoring;
- To provide an assessment based on collected baseline data to identify both positive and negative social impacts at local and national levels;
- To optimise positive impacts and mitigate negative impacts throughout the Project lifetime and through this ensure sustainable development;
- To involve in a meaningful manner affected towns, settlements and communities (individuals) that may be directly or indirectly impacted throughout the Project by utilising and respecting local knowledge, experience, culture and values; and
- To form the basis for the development of the Impact Benefit Agreement (IBA).

The SIA also specifically provides information on the:

- Use of Greenland labour;
- Use of Greenland Enterprises; and
- Extent to which processing of minerals will take place in Greenland.

1.1.4 Study Areas and Temporal Boundaries

Study areas are defined as the areas for which baseline data is collected for the purpose of assessing the Project's anticipated social impacts.

Three study areas were defined for the Project's SIA:

- The local area Narsaq (including Ilua Valley and the Narsaq settlements)
- The regional area Kommune Kujalleq, with a specific focus on the population centres of Qaqortoq (capital of Kommune Kujalleq), and Narsarsuaq, and settlements within the municipality (Qasiarsuk, Igaliku and other small settlements)
- National Area Greenland with a specific focus on impacts which may predominantly affect the capital, Nuuk.

1.1.5 Structure of the Impact Assessment

The identification of the potential social impacts of the Project (adverse and beneficial, direct and indirect) was based on:

- An understanding of the social baseline conditions;
- Analysis of the Project and its social effects; and
- Assessments of how these effects might generate social impacts.

The impact assessment grouped impacts under seven topics:

- National and local economy;
- Employment;
- Land use;
- Ocean resources;
- Community health, safety and security;
- Occupational health and safety; and
- Social structures and community life.

For each impact identified, the SIA evaluated the significance of the impact or benefit and identified mitigation/enhancement measures to address each. Following identification of appropriate measures, impacts/benefits were then re-evaluated to identify the anticipated residual impact. Cumulative impacts were also identified, to understand the additive effect of multiple impacts on an affected community or area.

1.2 Assessment of Alternatives

A number of alternatives have been considered during the course of Project design. Those specifically relevant to the SIA are summarised below:

1 Not proceeding with the Project

Not proceeding is an alternative in an environment subject to volatile commodity prices and increasing processing costs.

If the Project were not developed, DKK 7.79 Bn (US \$ 1.24 Bn) of capital investment would not occur in Greenland and the annual operating expenditure of DKK 1.63 Bn (US \$ 259 M) would also be foregone. The Project anticipates paying an average of approximately DKK 1.5 Bn per annum in nominal/current prices in company tax, royalties and direct labour income taxes and anticipates generating approximately 715 jobs during the operations phase of which approximately 328 could be Greenlandic jobs.

2 Processing methods

Three alternative processing scenarios were examined: mechanical concentrator only; mechanical concentrator and chemical processing; or mechanical concentrator, chemical processing and REE separation.

The mechanical (concentrator) and chemical processing (refinery) option was selected as the processing method for the Project. The method involves some downstream processing of REEs in Greenland and the production of several saleable by-products.

This option is aligned with the priority of the GoG to ensure that, as much as practically possible, processing of mineral products takes place within Greenland.

3 Location of Project components

Two potential locations for each of the concentrator and refinery, and port and accommodation facilities were considered: Location East and Location West.

Following public consultations, Project development was focused on the alternative where facilities and activities would be located in the Ilua Valley (Location West).

Alternative locations for employee accommodation and port facilities within the Ilua Valley were also considered with the final locations selected to minimise social and environmental impacts associated with these facilities.

4 Energy supply

As a potentially suitable source for hydropower, Johan Dahl Land, is located approximately 55 km to the north of the Project, the development of hydropower for the Project was considered.

Based on construction requirements this option was not considered feasible for the first stage of development of the Project.

Wind sourced power was not considered to be a viable alternative as it would not be capable of providing a reliable source of base load electricity.

Power generation from heavy fuel oil was not adopted because of the level of sulphur emissions which would be produced. The decision was made to use diesel fuel to generate electricity.

1.3 Baseline

Baseline data has been collected from primary and secondary data sources. Primary data has been sourced using both quantitative and qualitative methods. Specific interview questionnaires and tools for qualitative methods were developed for the SIA and international experts were engaged to ensure that the methodologies were scientifically sound. Greenlandic experts ensured local sensitivity and adequacy.

Secondary data sources included public domain information, with a strong reliance on data prepared by Statistics Greenland (2018). The data presented in this SIA is representative of data available on December 7th, 2018. High quality secondary data from research studies such as the Survey on Living Conditions in the Arctic (SLiCA) were also utilized.

The Project will be located 7.5 km from the nearest town, Narsaq, located in Kommune Kujalleq. Kommune Kujalleq comprises approximately 12 % of the Greenland population, and Narsaq (including settlements) has a population of 1,594. Consistent with the trend seen across Greenland, Narsaq has been experiencing a declining population in recent years.

Greenland's economy is dominated by exports of fish and shrimp and the "block grant" from Denmark. Tourism and resource developments, amongst other things, have been prioritised by the GoG to expand the economy, however relatively little material expansion has occurred in the economy to date. A number of resource projects (including the subject of this SIA) are in advanced stages of planning and construction, with the potential to substantially boost the national economy in coming years.

The regional economy largely replicates the national economy, with a focus on fishing activities and a growing tourism sector. The private sector in Kommune Kujalleq consists of small enterprises such as retailers, fishermen, hotel and catering services and repair services.

The number of employed people (on average in a month) in Kommune Kujalleq was recorded as 2,794 in 2017, of which 683 people were resident in Narsaq. At both the regional and local levels,

public administration (> 40 %) and service roles dominate the types of employment held by residents. Fishing and hunting make up the majority of the remainder of jobs held by residents of Narsaq. More than 13 % of the Narsaq population was recorded as “unemployed” in 2016, more than 50 % of whom were aged between 18-29 years of age.

Education levels in Greenland have increased significantly over the past decade, with a near 50 % increase (to 1,445 students) in the number of students enrolled in upper secondary school in the period 2003-16. However, scholastic achievement is constrained by a large proportion (60 %) of students abandoning their education programmes before completion (dropping-out).

Most higher education in Greenland is free of charge for students, being funded by the tax system. Greenland has one university and at least seven education institutions providing vocational training skills.

Greenland’s health service is expanding; however, it faces challenges due to the vast geographical regions health staff need to cover. Narsaq has a health centre and the referral hospital for Kommune Kujalleq is located in Qaqortoq.

Despite its isolation, Greenland experiences significant levels of communicable diseases, notably tuberculosis and sexually transmitted diseases. While the prevalence of these diseases remains high, the mortality levels associated with diseases is on the decline. Greenland also has an increasing prevalence level of non-communicable diseases, specifically obesity, cardiovascular disease and type 2 diabetes. These diseases are associated with the rapid transition from a traditional to a modern society and the associated changes to lifestyle and eating habits. Social and emotional well-being issues are also an area of concern for Greenland, with significant challenges related to alcohol and drug abuse, domestic violence and suicide.

Narsaq is located on the coast, with a fertile valley (Ilua Valley) to the north-east of the town. Almost all of the sheep/reindeer/cattle farming undertaken in Greenland occurs in Kommune Kujalleq. The nearest farm to the Project is the Ilua Valley Cattle Farm, located 4km from the Project site. A series of summer houses are also located in the Ilua Valley.

Narsaq residents and tourists place considerable value on the ecosystem services derived from the land and ocean surrounding Narsaq, with berry picking, hiking, fishing, hunting (hares, seals and whales) and stone collecting all being undertaken on a semi-regular basis. Kommune Kujalleq is also home to the Kujataa UNESCO World Heritage Area, with the nearest listed area (Qaqortukuloq) located approximately 18 km to the east of the Project.

The isolated nature of population centres in Greenland, combined with low population densities, create significant challenges for community infrastructure. In 2010, Narsaq comprised 761 dwellings, of which a proportion have become derelict, as result of being left vacant over time as the town’s population has declined.

Narsaq sources its drinking water from the Napasup Kuua, Kuukasik and Langnam rivers, with a reservoir located to the east of the town.

Pre-existing vulnerabilities specific to regional Greenlandic lifestyle have been identified as part of the SIA. Groups affected by the vulnerabilities include: people with mental disabilities or experiencing symptoms of drug and alcohol abuse; households with no recent history of employment; and unemployed young men. Impacts affecting these “vulnerable groups” have been specifically assessed in the impact assessment.

1.4 Assessment of Impacts

The SIA sets out the potential social impacts of the Project during construction, operation and closure. It identifies the sources of impacts and benefits associated with the Project's infrastructure and activities, and considers impacts/benefits induced by social changes associated with the Project, including direct employment, economic inputs and demographic changes.

For each subject area the assessment describes:

1. Project activities and / or sources of potential benefit and impact for those activities;
2. The nature of potential benefits and impacts;
3. The features incorporated in the Project to reduce impacts to acceptable levels and to enhance benefits; and
4. The significance of impacts/benefits after mitigation/enhancement measures are applied.

1.4.1 National and local economy

During the construction, operation and closure phases of the Project, opportunities will be generated for Greenlandic labour and business enterprises. Opportunities will include both those directly created by the Project and those generated indirectly to support the Project. In accordance with the MRA, GML will seek to maximise Greenlandic labour and business opportunities where possible.

The Project is anticipated to generate:

- Capital investment of DKK 7.79 Bn (US \$ 1.24 Bn), with annual operating expenditure of DKK 1.63 Bn (US \$ 259 M);
- DKK 1.2 Bn (US\$ 191.5 M) in nominal/current prices and DKK 603 M (US \$ 96.1 M) in real prices/present value in corporate tax, royalties and direct labour income tax.

GMASS will pay dividends over the life of the Project. A dividend payment can be deducted from taxable income, but is subject to a higher 36 % withholding tax. At this stage of the Project it is impossible to predict what GMASS's dividend policy will be. However, as an indication, but not a forecast, GML estimates that if 75 % of the profits are distributed as dividends then the combined corporate tax plus withholding tax average payment would rise to DKK 1.35 Bn (US\$ 215 M)/annum. On this basis, the total average of corporate tax, withholding tax, royalties, and direct labour taxes would be DKK 1.52 Bn (US\$ 242 M)/annum.

- A peak construction workforce of 1,171, an average operations workforce of 715 for a period of 37 years, and a closure workforce of 48 individuals.

These benefits will primarily accrue at the Kommune Kujalleq and national levels, and benefits will be highest for those securing employment or contracts with the Project. The development of large projects, with significant benefits, runs the risk of creating inequitable benefits across society. Specifically, potential risks include: concerns over the distribution of mineral revenue at a national and regional level; local inflationary pressure in Narsaq due to increased salaries in the town; and jealousy amongst residents of Narsaq related to the distribution of benefits from the Project.

To enhance the equitable distribution of economic benefits and minimise the potential for the risks identified above, the following mitigation measures will be implemented:

- GML will make public the tax values paid on an annual basis;
- Contracts will be unbundled where possible to increase the likelihood of Greenland Enterprises securing tenders with the Project;
- Community development activities will target vulnerable households and women will specifically targeted for participation in vocational training courses relevant to indirect employment opportunities; and
- All employees, contractors and visitors will be required to sign the Kvanefjeld Project Code of Conduct, minimising the risk of anti-social spending in Narsaq.

1.4.2 Employment and Labour Conditions

Employment

The development of the Project will generate employment opportunities. During the construction phase, 3 years, the Project workforce will average approximately 800 people. Direct employment during operations is expected to be in the order of 715.

The creation of this number of job opportunities in Greenland is significant at a local, regional and national scale. As a result of a shortage of skills nationally, only a proportion of these jobs are expected to be filled by Greenlandic labour. In line with Greenlandic legislation, Greenlandic labour will be prioritised wherever possible, and GML anticipate the proportion of Greenlandic labour in the workforce will increase over time. GML will initially seek to recruit workers locally (within Narsaq area and Kommune Kujalleq) and then nationally.

Approximately 134 Greenlandic jobs (17 % of the average construction workforce) will be created during construction (200 during peak construction) and approximately 328 will be created during operations (46 % of the operations workforce). During the Project's closure phase Greenlandic labour will fill 41 jobs (85 % of the closure workforce). These employment estimates represent the anticipated breakdown of opportunities at the commencement of each Project phase, with expectations that the proportion of Greenlandic workers will rise over time.

In addition to direct employment opportunities, the Project is expected to generate indirect employment opportunities for Greenlanders and business opportunities for Greenlandic enterprises. An indirect employment multiplier of 1.3 is expected to be applicable for the Project. This is expected to equate to an additional 215 indirect jobs during the Project's operation phase.

The Project will require a skilled workforce. Some of the skills required will be highly specialised and will need to be implemented by existing specialists. Others, however, will require skills, which can be trained within a reasonable period.

Effective training is the gateway through which Greenlandic labour will be able to gain access to employment opportunities and to progress through the management ranks of the Project. Training will need to be targeted to develop skills which are needed in the long-term. The Company believes the best way to develop Project relevant skills in the Greenlandic workforce is through on the job skills transfer from foreign labour to Greenlandic staff.

Opportunities for training and capacity building are likely to be greatest during the operations phase of the Project. To increase the training, the work skills capacity building opportunities the following actions, amongst others, will be undertaken by GML:

- Operational staff will be hired at least 6 months in advance of the commencement of operations to allow for completion of effective training;
- Anticipated recruitment of at least 40 students from the Greenland School of Minerals and Petroleum in Sisimiut;
- Coordination with the GoG to sponsor students through the PKU-Kurser; and
- Development of a comprehensive internal training and mentoring program to accelerate the progression of Greenlandic workers within the company.

Labour conditions

GML will be responsible for establishing labour conditions, which are fair, attractive to employees and consistent with norms and standards required by relevant government authorities and Greenland's major labour union, SIK.

To ensure labour conditions are well managed and all workers are treated equitably, GML will implement the following measures:

- Continuous engagement with labour unions to establish working conditions which will meet Greenlandic requirements;
- Engagement with SIK and the GoG to agree a "skilled workers" wage sufficient to attract and retain top quality local employees; and
- Workforce rotations will be developed to support family-friendly employment.

Workforce accommodation

Significant numbers of Project employees will be accommodated on the Project site and in the Narsaq environs during the life of the Project. The introduction of a significant workforce into a relatively small community has the potential to generate a range of impacts, including:

- Social tension generated by a large non-local workforce;
- A shortage of accommodation in Narsaq and Narsarsuaq;
- Cramped or low quality living conditions for employees; and
- Changes to housing availability and rental prices in Narsaq.

The following measures are proposed to minimise the negative impacts and enhance the benefits associated with the proposed approach to accommodating the Project workforce:

- All Project workers, contractors and Project visitors will be required to sign and agree to a code of conduct regulating their behaviour and interaction with the residents of Narsaq;
- Maximising the use of Greenlandic labour in jobs affiliated with the accommodation facilities;
- Setting workforce accommodation standards that comply with international good practice;
- In the event of an accommodation shortage during construction, GML will utilise a marine vessel to provide additional short-term accommodation. This may be initiated during peak tourist season to ensure impacts to tourism are minimised; and

- Refurbishment of the housing stock in Narsaq.

1.4.3 Land use and land-based livelihoods

The development of the Project has the potential to impact the livelihoods of households which derive an income from the land as a result of a combination of the physical footprint of the Project, environmental impacts generated by the Project and access restrictions applied by the Project.

Land-based livelihoods in the local area include: farming (cattle, sheep and reindeer), gemstone collection (tugtupit) on the Kvanefjeld plateau and tourism activities using Narsap Ilua. The potential for impact to each of these livelihoods was assessed in the SIA.

Recognising that land based livelihood impacts may develop during the course of the Project the following socio-economic mitigation measures will be put in place to reduce potential land-based economic displacement impacts:

- Land acquisition and compensation (to the extent it is applicable) will be undertaken in a manner consistent with leading international practice (consistent with the IFC Performance Standards);
- The Project and the owner of the Ilua Valley cattle farm have conducted informal discussions in the past. Once the Project obtains an exploitation permit, steps regarding a negotiation between the Company and the owner of the Ilua Valley cattle farm regarding a possible acquisition of the farm can take place. It must be emphasized that at present no agreement has been entered into; and
- Engagement and consultation with all land users in the area.

While tourism is increasing in Kommune Kujalleq, the Narsaq tourism industry is relatively small. Potential tourism impacts generated by the Project include the risk that fewer tourists will visit seeking pristine nature and local hiking opportunities. This impact may be countered by a potential increase in tourist numbers with the enhancement of local transport options.

To manage these impacts, there will be an Investigation with Kommune Kujalleq of opportunities to promote local tourism.

1.4.4 Ocean resources and ocean-based livelihoods

Fishing and other ocean-based activities are a key element of Greenlandic life. The extent to which the Project will impact upon ocean-based lifestyles depends both on impacts to the ocean and its resources and on the existing use of those resources to sustain livelihoods. Ocean-based livelihoods which have the potential to be impacted by the Project include commercial fishing and seal hunting and traditional fishing and hunting activities. No economic displacement of fishermen, either commercial or subsistence, is anticipated from the Project.

1.4.5 Occupational health and safety

The Project environment has the potential to generate workforce exposure to both acute (safety) hazards and chronic (radiation exposure) hazards. Specific controls for workers that will minimise exposure to these hazards will be developed in the Project's Health and Safety Management Plan.

The Project design includes the construction of a medical facility accessible by all employees, contractors or visitors in the event of an accident or work-related medical emergency.

The occupational health and safety mentioned in the SIA is the description outlined by GML. The relevant authorities, including the authorities responsible for health, occupational health and radiation etc., will set terms in relevant subsequent licences and/or approvals and therefore decide upon final approvals of the activities.

Accidents

The risk of accidents on a mine site is tied to the presence of potential hazards. The Project will be exposed to typical mining related acute safety hazards each of which has the potential to result in short or long-term injuries or, in the worst case, fatalities.

A comprehensive Health and Safety Management Plan will be implemented by GML consistent with the company's Occupational Health and Safety Policy. The goal of the policy is to remove or reduce risks to the health, safety and welfare of all workers and to ensure that all Project activities are undertaken safely.

GML will undertake the following measures to minimise the risk of accidents on the Project:

- Preparation of a written workplace assessment of occupational health and safety prior to the commencement of construction;
- Preparation of safe work procedures for key activities;
- Maintaining all plant and equipment in safe working condition; and
- Provision of information, instruction, training and supervision to ensure that all workers are safe from injury and risks to their health.

Radiation (health and occupational health impact)

Project workers will potentially experience workplace exposures to radiation due to the mineral composition of the Kvanefjeld orebody.

The IAEA has adopted recommended annual radiation exposure/dose limits. These are:

- Maximum exposure from mine activities on a mineworker - 20 mSv; and
- Maximum exposure from mine activities on a member of the public - 1 mSv.

The responsibility for setting dose limits in Greenland will be shared between the Danish (for occupational health) and Greenlandic (for public health) Governments.

Based on estimated exposures to naturally occurring radioactive material and exposures related to the Project, the estimated residual radiation doses per annum for Project workers are well below internationally recognised dose limits and within the norm for other uranium projects.

All the following measures will be implemented at the Project:

- Appropriate clothing will be supplied to employees and will be laundered on site to ensure no potentially radioactive materials migrate to private living accommodation;
- All employees will undergo a regular (annual) medical exam, performed by the Company medical clinic;

- All employees will be provided with gamma radiation dose badges and the Company radiation protection officer will monitor exposure levels and the results will be made public through the Project's annual report and will be shared directly with the GoG;
- Areas where elevated radioactivity is expected will have engineering measures (shielding, distance) and procedural controls (exposure time, worker rotation and personal protective equipment (PPE)) to minimise radiation exposure;
- Water trucks will be used to suppress dust across all areas of the mine; and
- A vehicle washing bay will be used to remove mine dust / dirt from all vehicles leaving the mining area.

1.4.6 Community Health and Safety and Security

The Project has the potential to create number of community related health, safety and security impacts. These are associated with, amongst others, environmental factors (e.g. dust, noise, radiation), traffic movements and increased risk of disease.

The conditions related to health, safety/security and radiation in the SIA is the description outlined by GML. The relevant authorities, including the authorities responsible for health, safety and radiation etc., will set terms in relevant subsequent licences and/or approvals and therefore decide upon final approvals of the activities.

Dust (health impact)

Dust will be generated by construction and mining related activities until the end of life of the mine. During closure, emissions will be significantly lower with primary sources being vehicle movements, maintenance of the tailings facility and power plants.

Air quality modelling for the operations phase of the Project, the period of maximum impact for dust and air quality, indicates that no adverse health impacts should be anticipated from Project related emissions of particulate matter. Modelling for the construction phase is more difficult because of intermittent activity levels and emissions sources but qualitative assessments indicate that, while short-term dust levels may be higher during construction, levels will remain well below relevant health criteria.

GML has developed a Dust Control Plan (GML 2015c) containing measures which include:

- Wetting haul roads, stockpiles, concentrates and waste materials;
- Salting of haul roads to melt ice and snow;
- Setting appropriate vehicle speed limits, regular grading and maintenance; and
- Dust containment equipment.

The dust generation from mining activities is expected to be significantly lower than the modelled values.

Noise

During the construction phase, noise will be generated by mobile equipment, drilling and blasting, vehicle movements, maritime transport and vessels at the wharf.

During the operations phase, the principal noise sources will be in and around the mine area, access roads and the Port.

When compared against the IFC EHS Guidelines, the identified noise levels are compliant with the standards. Denmark guidelines values for summer house noise levels will not be met by the Project and the following mitigation measures will be implemented to further reduce noise impacts:

- Noise levels will be monitored at the point of the nearest sensitive receptors;
- High noise activities will be scheduled to minimise disruption to the community;
- Opportunities to reduce noise generation will be investigated in detailed engineering; and
- Residents will have access to a community grievance mechanism established by GML.

Radiation (health impact)

The development of the Project has the potential to release small amounts of radioactivity in addition to the baseline radiological exposures in the community. A detailed assessment of potential incremental radiation exposure, for both ecological and human receptors, was undertaken and incremental exposures are well below the dose benchmark for members of the public. As a result, all of the local foods will be safe to eat and there will be negligible change to overall exposure from the consumption of traditional foods (e.g. seal and seabirds)

Measures to mitigate both the Project's contribution to radiological exposure and the background exposure levels include:

- Implementation of the dust control measures (GML's Dust Control Plan); and
- Engagement with Greenland's Ministry of Health to better understand baseline radon exposure in Narsaq and to help residents understand how they can reduce this exposure.

Traffic Safety

The Project will require the upgrading of the existing access road / track from Tunu Peninsula at Narsap Ilua (location of the Port) to the mine area. The access road will be accessible to the public along the valley floor but access restrictions will apply closer to the mining area.

As part of the Company's noise modelling, estimates of traffic movement levels along the access road during the Project's operations phase were prepared. The traffic volume anticipated will potentially increase the traffic on the road by an order of magnitude or greater. From a community safety perspective this has the potential to increase the traffic safety risk in the Ilua Valley because of a lack of community experience with higher volumes of traffic.

To reduce this community safety risk, speed restrictions will apply, small convoys will be considered for heavy vehicles and community traffic safety campaigns will be coordinated with the town of Narsaq.

Communicable diseases

Development of the Project will require the recruitment of significant numbers of, predominantly male, foreign employees and Greenlandic employees who are not residents of Narsaq. These employees will interact to varying degrees with residents in Narsaq and other local communities.

This interaction could generate increased transmission of communicable diseases, including sexually transmitted diseases (STDs) and tuberculosis (TB).

The following measures will be implemented to reduce these impacts:

- Construction workers will be largely segregated from the town of Narsaq and operations workers will live within a security-controlled environment;
- All employees and visitors will be required to sign a Code of Conduct requiring workers to engage with community members respectfully and in a socially beneficial manner;
- GML will provide and will require its contractors to provide:
 - STD (including HIV) testing and diagnosis and access to counselling/referral services as necessary;
 - Epidemic and pandemic management plans in accordance with Government of Greenland requirements;
 - Pre-employment medical screens targeting TB and regular health checks; and
 - Accommodation that ensures adequate space is available for all workers in order to reduce the risk of TB transmission.
- GML will monitor and share health outcomes and develop campaigns to change behaviours as necessary.

Non-communicable diseases

The Project, by increasing the level of income in the local community and introducing workforce catering, may further accelerate changes in the dietary intake of households. This development, together with the move away from traditional, higher energy lifestyles towards more sedentary working environments, has the potential to affect the level of cardio-vascular disease, obesity and type 2 diabetes in the community.

The Project also has the potential to positively affect the level of non-communicable diseases by encouraging good health behaviours (e.g. no-smoking working environment and zero tolerance for drugs and alcohol).

GML will undertake the following measures to further manage these impacts:

- A strict no-smoking policy and random drug and alcohol testing will be applied to all employees, contractors and visitors;
- Workforce accommodation will include areas for exercise; and
- Caterers will create balanced diet offerings and Village store will provide healthy alternatives and local foods where possible.

Social and Emotional Well-Being

Social and emotional well-being comprises a range of health concerns, from drug and alcohol abuse, to depression and suicide and it is a significant issue in Greenlandic society.

The development of the Project has the potential to positively influence the social and emotional well-being of the town of Narsaq by offering new opportunities to community members and providing incentives to reduce drug and alcohol consumption.

GML will stimulate, support and encourage improvements to social and emotional well-being in Narsaq and Kommune Kujalleq by:

- Engaging with local health providers to deliver campaigns targeting mental health;
- Developing policies for the Project which highlight non-tolerance of discrimination; and
- Actively promoting successful Greenlandic employees and business partners as success stories, which can be shared locally, regionally and nationally.

1.4.7 Social structures and community life

The Project has the potential to create impacts upon social structures and community life. Specifically, potential impacts include: changes to population demographics, changes to infrastructure and service level demand, impacts to traditional knowledge and interactions with vulnerable groups and social issues.

In-Migration

The Project has the potential to generate local in-migration as people move to the Narsaq area to benefit from the economic opportunities associated with the development and operation of the Project.

The nature of the Project and the development strategy for the Project will tend to limit in-migration for a number of reasons:

- The Project will use a fly-in fly-out workforce;
- The Kvanefjeld mineralisation is not appropriate for small-scale or artisanal mining; and
- The modular approach to construction will reduce the Project related demand for small construction enterprises in Greenland and Kommune Kujalleq particularly.

In addition to these Project related factors, Greenland's geographic isolation and harsh winter conditions will also tend to limit in-migration.

While significant in-migration is not anticipated, the following measures will be put in place to manage in-migration impacts if they occur:

- Effective communication of the nature of Project employment opportunities; and
- Engagement with Kommune Kujalleq to respond to pressure placed on services.

Infrastructure, Services and Government Delivery Capacity

The development of the Project has the potential to increase the demand for government services and infrastructure. The Project is expected to increase the population of Narsaq by at least 25 % during the operations phase. Typically, this scale of population increase would have the potential to exceed the existing capacity of services in a town. However, the scale of the impact in Narsaq is likely to be somewhat moderated by the recent decline in the town's population (leaving services under-utilised) and the establishment of Project specific facilities / services.

Given these factors, the potential impacts to infrastructure, services and government delivery capacity include:

- Education facilities

Due to the high proportion of FIFO workers, the number of students living in Narsaq is not expected to rise significantly. To the extent that an increase in student numbers is seen, this would likely be considered a positive impact as it would boost school enrolments;

- Health facilities

The Project will establish its own medical clinic, which will treat Project workers. The clinic will be staffed with a full-time nurse with video link to an emergency doctor as required. Families of workers who move to Narsaq will likely make use of the existing health services in Narsaq, equating to an increase in public health service demand of approximately 25 %;

- Police services

Increased population in Narsaq has the potential to generate additional crime, potentially increasing the demands on existing police services;

- Skilled staff

There is a risk that skilled employees currently working with the GoG or Kommune Kujalleq delivering key services (e.g. town administrators, teachers, nurses etc.) may apply for jobs at Project thereby creating a resource shortage for Government services.

Impacts to infrastructure, service and government delivery capacity will be mitigated through implementation of the following measures:

- Engagement between GML and Kommune Kujalleq administrators in respect of the number of new residents anticipated as a result of the development of the Project;
- GML will engage with Greenland's Ministry of Health to determine how best to support the expansion of health services in Narsaq to meet increased demand; and
- The requirement for Project employees, contractors and visitors to comply with the company's Code of Conduct will reduce the risk of increased crime in the area.

Protection and Promotion of Traditional Knowledge and Culture

The recruitment of a mining project workforce and an increased level of cash income in remote communities can have an impact on the maintenance of traditional values and practices. Traditional values can come under pressure but can also benefit from increased focus from those who see the importance of protecting this knowledge in the face of greater exposure to external influences.

GML places very high importance on the protection and promotion of traditional knowledge in Narsaq, and Greenland more broadly, and will implement the following measures to support activities:

- The working language of the Project will be English, however all safety, information, consultation and management documents will also be translated into Greenlandic to protect local language skills;

- Opportunities to support Greenlandic culture through the use of the local dialect and coordination of community activities reinforcing culturally relevant practices; and
- Work rosters will be developed to ensure Greenlandic workers can maintain their connection with family and traditions.

Vulnerable Groups and Social Issues

Three vulnerable groups were defined in the SIA, namely:

- People experiencing mental disabilities or affected by drug and alcohol abuse;
- Households with no recent history of members having been employed; and
- Unemployed young men.

The Project has the potential to positively affect these groups through employment and training opportunities and by increasing the level of income in Narsaq. There are also potentially negative effects, in particular the potential for increased income to lead to an increase in drug and alcohol consumption thereby reinforcing existing social challenges.

The Company will take steps to, where possible, stimulate the positive impact and mitigate the negative impacts felt by these vulnerable groups including strict implementation of the Company's Code of Conduct and coordination with the Narsaq police to develop strategies targeting drug abuse in the community.

1.4.8 Cumulative impacts

Cumulative impacts are defined as "impacts that result from the incremental impact, on areas or resources, used or directly impacted by the Project, from other existing, planned or reasonably defined developments at the time the risks and impacts assessment process is conducted" (IFC, 2012).

Society will be potentially exposed to cumulative impacts associated with the development of several mining projects in Greenland at the same time and from the effects of climate change.

The assessment of cumulative impacts is often challenging given a lack of detailed information about other developments. However, based on experience from countries with expanding minerals sectors, potential cumulative impacts could include:

Negative Price inflation, skills shortages, pressure on community infrastructure and services, loss of community identity, pressure on fish stocks.

The Project is not expected to significantly affect the levels of fishing stocks and only expects to have a low to moderate impact on social services and facilities. Should local inflation become evident the Company will work with MIE to minimise its impact and co-ordination between the proponents of projects and relevant authorities will help to mitigate the impact of pressure on skills availability.

Positive Employment opportunities, investment, tax revenue, commercial opportunities, training and skills development, increased viability of service delivery.

The Company will work with other project owners and relevant stakeholders in the Project to endeavour to maximise the beneficial impacts of the development of the Project on society.

1.5 Benefit and Impact Plan

The Benefit and Impact Plan summarises the benefits and impacts identified in the course of this SIA and the mitigation / enhancement measures, which will be implemented by GML to maximise the benefit and minimise the impact of the Project. Table 1.3 outlines the draft Benefit and Impact Plan. The mitigation and enhancement measures referenced in Table 1.3 are defined in Table 1.4.

Table 1.3 Benefit and Impact Plan

Impact	Project Phase	Pre-Mitigation Significance	Mitigation Actions	Post-mitigation Likelihood	Post-mitigation Consequence	Post -mitigation Significance
National and Local Economy						
Greenlandic Employment and Procurement	Construction	Moderate	EC1, EC2, EC3, EC4, EC5, EC6, EC7	Possible	Moderate	High
	Operations	Moderate	EC1, EC2, EC3, EC4, EC5, EC6, EC7	Likely	Moderate	Very High
	Closure	Moderate	EC1, EC2, EC3, EC4, EC5, EC6, EC7	Likely	Minor	Moderate
Greenlandic Processing	Operations	High	N/A	Almost certain	Major	Very High
Government Revenue	Construction	Moderate	EC8	Likely	Minor	Moderate
	Operations	Moderate	EC8	Likely	Minor	Moderate
Distribution of Benefits	Operations	High	EC8, EC9, EC10, EC11	Likely	Minor	Moderate

Impact	Project Phase	Pre-Mitigation Significance	Mitigation Actions	Post-mitigation Likelihood	Post-mitigation Consequence	Post -mitigation Significance
Employment and Labour Conditions						
Greenland Employment Levels	Construction	High	EM1, EM2, EM3, EM4, EM6, EM7, EM8, EM9	Likely	Moderate	High
	Operations	High	EM1, EM2, EM3, EM4, EM5, EM6, EM7, EM8, EM9	Likely	Major	Very High
	Closure	Moderate	EM1, EM2, EM3, EM4, EM6, EM7, EM8, EM9, EM10, EM11	Likely	Minor	Moderate
Training and Work Skills Capacity Building	Construction Closure	Low	EM1, EM3, EM4, EM13, EM14, EM15, EM16	Likely	Minor	Moderate
	Operations	Moderate	EM1, EM3, EM4, EM12, EM13, EM14, EM15, EM16	Likely	Moderate	High
Indirect employment and local procurement	Construction Operations	Moderate	EM17, EM18, EM19	Possible	Moderate	High
Labour Conditions	Construction Operations Closure	Moderate	EM20, EM21, EM22	Unlikely	Minor	Low
Workforce accommodation – living standards	Construction	Moderate	EM23, EM24, EM25, EM26, EM27, EM28, EM29, EM30, EM31	Unlikely	Moderate	Moderate
	Operations	High	EM23, EM24, EM25, EM26, EM27, EM28, EM29, EM30, EM31	Remote	Moderate	Low
Workforce accommodation – interaction with Narsaq	Construction	Very High	EM23, EM24, EM25, EM26, EM27, EM28, EM29, EM30, EM31	Possible	Major	Very High
Workforce accommodation – interaction with Narsaq	Operations	Very High	EM23, EM24, EM25, EM26, EM27, EM28, EM29, EM30, EM31	Possible	Moderate	High

Impact	Project Phase	Pre-Mitigation Significance	Mitigation Actions	Post-mitigation Likelihood	Post-mitigation Consequence	Post -mitigation Significance
Land Use and Land Based Livelihoods						
Land-Based Economic Displacement – Ilua Valley cattle farm	Construction Operations Closure	Moderate	LA1, LA2, LA3, LA4, LA5, LA6, LA7, LA8, LA10, LA11	Possible	Minor	Moderate
Land-Based Economic Displacement – Ipuitaq and Tuttutooq Farms	Construction Operations Closure	Low	LA1, LA2, LA3, LA4, LA5, LA7, LA8, LA10, LA11	Remote	Negligible	Low
Land-based Economic Displacement – Gemstone Collectors	Construction Operations Closure	High	LA8, LA9, LA12	Possible	Moderate	Moderate
Land-based Economic Displacement – Kayak Tourism Operators	Construction Operations Closure	Low	LA13	Unlikely	Minor	Low
Food availability and ecosystem services	Construction Operations Closure	Moderate	LA14, LA15, LA16, LA17	Possible	Minor	Moderate
Tourism	Construction Operations Closure	Low	LA18, LA19	Possible	Minor	Moderate
Ocean Use and Ocean Based Livelihoods						
Ocean-based Economic Displacement	Construction Operations Closure	Low	OC1, LA1, LA5	Unlikely	Low	Low
Occupational Health and Safety						
Risk of Accidents	Construction Operations Closure	High	OH1, OH2, OH3, OH4, OH5, OH6, OH7, OH8	Unlikely	Moderate	Moderate
Radiation Exposure	Construction Operations Closure	Moderate	OH9, OH10, OH11, OH12, OH13, OH14, OH15, OH16, OH17, OH18, OH19, OH20	Unlikely	Minor	Low

Impact	Project Phase	Pre-Mitigation Significance	Mitigation Actions	Post-mitigation Likelihood	Post-mitigation Consequence	Post -mitigation Significance
Community Health Safety and Security						
Dust and Air Quality	Construction Operation Closure	Low	CH1, CH2, CH3, CH4, CH5, CH6	Unlikely	Negligible	Low
Noise Exposure	Construction	Moderate	CH7, CH8, CH10	Unlikely	Moderate	Moderate
	Operation	Low	CH7, CH9, CH10	Unlikely	Low	Low
Radiation Exposure	Operations	Low	CH11, CH12, CH13	Remote	Minor	Low
Traffic Safety	Operations	Very High	CH14, CH15, CH16	Unlikely	Major	High
Communicable Disease	Construction	Very High	CH17, CH19, CH20, CH21, CH22, CH23, CH24, CH25, CH26, CH38	Possible	Moderate	High
	Operations	High	CH18, CH19, CH20, CH21, CH22, CH23, CH24, CH25, CH26, CH38	Unlikely	Moderate	Moderate
	Closure	Low	CH19, CH20, CH21, CH22, CH23, CH24, CH25, CH38	Remote	Moderate	Low
Non-Communicable Disease	Construction	High	CH27, CH28, CH29, CH30, CH31, CH32	Possible	Minor	Moderate
	Operations	Very High	CH27, CH28, CH29, CH30, CH31, CH32, CH33	Possible	Moderate	High
	Closure	Moderate	CH27, CH28, CH29, CH31	Remote	Minor	Low

Impact	Project Phase	Pre-Mitigation Significance	Mitigation Actions	Post-mitigation Likelihood	Post-mitigation Consequence	Post -mitigation Significance
Social Structures and Community Life						
Social and emotional well-being	Construction Operations	Moderate	CH34, CH35, CH36, CH37	Likely	Moderate	High
In-migration	Construction Operations Closure	Low	SO1, SO2	Unlikely	Minor	Low
Infrastructure, Service and Government Delivery Capacity	Construction Closure	Moderate	SO3, SO5, SO6, SO7	Unlikely	Minor	Low
	Operations	High	SO3, SO4, SO5, SO6, SO7	Possible	Moderate	High
Protection and Promotion of Traditional Knowledge	Operations	Low	SO8, SO9, SO10, SO11, EM4	Possible	Minor	Moderate
Vulnerable Groups and Social Issues	Construction Operations Closure	Low	SO12, EM4, CH18	Unlikely	Minor	Low

Table 1.4 List of Mitigation / Enhancement Measures

Topic	ID	Mitigation / Enhancement Measure
National and Local Economy	EC1	Organisation of a tri-party forum comprising GML, the Government (both regional and national) and the Greenlandic business community to allow for direct communication on business opportunities associated with the Project
	EC2	Preparation of a list of goods and services, which will need to be sourced during each phase of the Project. These lists will be shared with the Greenlandic business community to help them organise to maximise their participation in the supply chain for the Project
	EC3	GML will work with local businesses (both national and regional) to explain the tendering and contract process which will be used by the company
	EC4	Provision of support to local businesses on the specific health and safety requirements which will need to be met by supplier companies when working with the Project
	EC5	GML will seek to break up large contracts into smaller value contracts which could be won by Greenlandic enterprises
	EC6	The GML procurement team will include staff Greenlandic speaking staff familiar with the Greenlandic business environment
	EC7	Provision of support to trading organisations such as the recently formed Bygge og Anlaeg og Rastof Klynge in Kommune Kujalleq and the Local Trade Forum to coordinate efforts around capacity building of companies
	EC8	GML will make public the tax values paid on an annual basis
	EC9	Community development activities targeting vulnerable households will be implemented as part of the Project's community programs
	EC10	All employees, contractors and visitors will be required to sign the Project Code of Conduct, minimising the risk of anti-social spending (i.e. spending on drugs, alcohol, prostitution, and gambling etc.) in Narsaq
	EC11	Women living in Narsaq will be specifically targeted for participation in vocational training courses relevant to indirect employment opportunities

Topic	ID	Mitigation / Enhancement Measure
Employment and Labour Conditions	EM1	Coordination with the GoG to sponsor students through the PKU-Kurser program in fields of relevance to the development of the Project. The range of courses to be made available are likely to include as a minimum: environmental science, mining, geology, engineering, management, human resources and language
	EM2	Providing information sessions in Narsaq, the other towns and larger settlements in Kommune Kujalleq and in Nuuk on career opportunities at GML
	EM3	Working with vocational institutions (such as the School of Minerals and Petroleum, INUILI among others) to help develop coursework to support Greenlandic students to gain either direct or indirect employment associated with the development of the Project. The goal is to recruit at least 40 graduates from the School of Minerals and Petroleum
	EM4	Development of promotional material showcasing role model Greenlandic employees
	EM5	Establishment of an apprentice training program to train approximately 15 apprentices a year during the operations phase
	EM6	Establishment of a Kvanefjeld human resources department with appropriate Greenlandic language speaking personnel, with responsibility for negotiating contracts with local mediators and unions
	EM7	Preferential hiring of women when male and female candidates are equally qualified for a position
	EM8	Continuing to conduct open days to engage with the community and provide information on the Company's goals and labour requirements
	EM9	Implementing a mentoring program for junior staff to ensure progression through the workforce overtime, with a view to increasing the proportion of Greenlandic labour in management positions
	EM10	Development of up-skilling and retraining programmes for employees (also accessible to contractors) to facilitate their transition into future employment at mine closure
	EM11	A social exit strategy will be developed at least 5 years in advance of closure to address the transition process for employees (both direct and indirect), by providing job-matching support services to employees to assist them to secure future employment after mine closure and to address socio-economic impacts associated with the closure of the Project.
	EM12	Operational staff will be hired at least 6 months in advance of the commencement of operations in order to allow effective training to be conducted

Topic	ID	Mitigation / Enhancement Measure
Employment and Labour Conditions	EM13	Coordination with Kommune Kujalleq administrators to enhance the training opportunities provided within the municipality to better support the development of the mineral industry
	EM14	Work with Majoriaq and the local schools in Kommune Kujalleq to help students understand the job opportunities available at the Project (and indirectly generated by the Project) to see how they can best prepare themselves to secure employment in the future
	EM15	Development of a comprehensive internal training and mentoring program to accelerate the progression of Greenlandic workers within the company. This may involve partial duplication of some roles in the early stages of operations in order to expose junior workers to the experience of more senior, potentially foreign, workers. The objective of these programs will be to steadily increase the proportion of Greenlandic workers (and consequently, reduce the proportion of foreign workers) across every level of the Company as time progresses
	EM16	Engagement with other training centres across Greenland to explain the nature of roles which will be required by the Project and to determine how best to develop this capacity within Greenland
	EM17	Stocking of the “general store” within the Village with Greenlandic products where possible, and if local production is not possible, sourcing goods from Greenlandic suppliers
	EM18	Support for home-based industry which can support the Project, e.g., the development of sewing businesses which could manufacture uniforms and cold weather clothing
	EM19	Encouraging local procurement by contractors through establishing contractual language to support this activity. Local procurement should only be given preference where the local product is largely comparable in terms of quality and cost to internationally available alternatives
	EM20	Early and continuous engagement with SIK and other Greenlandic labour unions to establish working conditions which meet Greenlandic requirements and which will avoid distorting the local labour market
	EM21	Engagement with SIK and the GoG to agree a “skilled workers” wage, which be sufficient to attract and retain top quality local employees. This agreement will also be topped up with supplements for shift work and overtime as necessary. The salary agreement will be negotiated with the GoG and SIK prior to the commencement of employment
	EM22	Workforce rotations will be developed to support family-friendly employment and will take into consideration the frequency of home visits necessary to maintain semi-traditional lifestyles
	EM23	Code of Conduct – All workers (including contractors) will be required to sign and agree to a code of conduct when working for the Project

Topic	ID	Mitigation / Enhancement Measure
Employment and Labour Conditions	EM24	Zero tolerance of alcohol and drug consumption and anti-social behaviour when working for the Project and when residing in workforce accommodation. All facilities will be designated as non-smoking. In the event that activity contrary to these policies is observed, disciplinary measures will be taken
	EM25	Respect for Narsaq community and for Greenlandic traditions, including the completion of cultural awareness training on commencement of employment with the Project
	EM26	Restrictions on the level of interaction between Narsaq residents and camp / Village residents. For example, residents of the camp / Village will not be permitted to frequent local bars, but will be encouraged to play sport with and engage with Narsaq residents in activities deemed socially beneficial. The identification of these activities will be undertaken with Narsaq and Kommune Kujalleq administrators as part of the discussion on the IBA
	EM27	Camp and Village facilities will be no-smoking areas
	EM28	Maximisation of Greenlandic labour in the temporary construction worker's camp and Village – GML will work with catering, cleaning and other support industries to best utilise local Greenlandic labour to run these facilities
	EM29	Workforce accommodation standards – Accommodation at the temporary construction worker's camp will be designed and managed by the construction contractor. Details of the planned accommodation were not available at the time of the preparation of the SIA, however, any final designs will need to be approved by GML and will also be reviewed by SIK to ensure compliance with Greenlandic standards. The Village will be designed to comply with international good practice, as outlined in the IFC / EBRD guidance note titled 'Workers' Accommodation: Processes and Standards' (IFC, 2009b)
	EM30	In the event of accommodation shortage during the construction phase, GML plan to utilise a marine vessel to provide additional short-term accommodation on an as needed basis. This would be a short-term measure only and may be initiated during peak tourism months to ensure impact to tourism are minimised
	EM31	GML will work with Narsaq and Kommune Kujalleq administrators to identify apartments and houses that are sitting idle, which could be made available to Greenlandic workers who want to move into town as permanent residents. Up to an additional 50 beds could be made available during these refurbishment activities. It is anticipated that this option might carry some appeal for residents of settlements in Kommune Kujalleq and may also encourage former Narsaq residents to return home when labour opportunities eventuate

Topic	ID	Mitigation / Enhancement Measure
Land-Use and Land Based Livelihoods	LA1	Displacement impacts will be avoided, or where avoidance is not possible, minimised by exploring alternate project designs
	LA2	Forced eviction will be avoided
	LA3	Land acquisition, where required, will where possible be agreed through a willing seller, willing buyer negotiation
	LA4	Where land acquisition is required or land access restrictions are applied, adverse social impacts will be reduced through a) providing compensation for loss of assets at replacement cost[1]; b) ensuring resettlement activities are implemented with appropriate disclosure of information, consultation and the informed participation of those involved
	LA5	Where economic displacement occurs, the company will aim to restore, or where possible, improve the livelihoods of affected households
	LA6	The Project and the owner of the Ilua Valley cattle farm have conducted informal discussions in the past. Once the Project obtains an exploitation permit, steps regarding a negotiation between the Company and the owner of Ilua Valley cattle farm regarding a possible acquisition of the farm can take place. It must be emphasized that at present no agreement has been entered into.
	LA7	Engagement and consultation activities will be pursued with all land users in the area to explain the impacts and provide additional information about the Project as necessary
	LA8	In the event that livelihood impacts are created by the Project, a livelihood restoration plan (LRP) would be developed by GML working in coordination with KNAPK and SPS, depending on the nature of the impact
	LA9	In the event that enterprise based livelihoods are affected by the Project, GML will support business development activities including training and business planning to expand existing businesses and generate local employment
	LA10	Dust and radiological mitigation measures will be implemented
	LA11	Dust and radiological monitoring stations will be established near the mine boundary, in Narsaq town, with the Ilua Valley and in Ipiutaq (as a reference location) with results shared with interested community forums
	LA12	GML will engage with gemstone collection license holders to provide access to the highest grade areas of tugtupit prior to construction / mining activity occurring. The access will be controlled to maintain safety standards
	LA13	GML will engage with kayak tourism providers to explain the Project design and schedules and to develop impact mitigation measures as necessary
	LA14	The size of the footprint of the Project and areas of restricted access will be minimised to the extent possible
	LA15	Access roads will be sprayed with water at regular intervals to minimise the generation of dust along the Ilua Valley

Topic	ID	Mitigation / Enhancement Measure
Land-Use and Land Based Livelihoods	LA16	GML will seek to acquire local produce from the valley area when available (e.g. berries) to encourage the continuation of traditional activities
	LA17	GML will work with Narsaq town administrators to identify alternate running / hiking routes which have lower amenity impacts
	LA18	Implementation of protocols for environmental considerations in order to preserve the quality in the environment to the highest extent as described in the EIA (GHD, 2018)
	LA19	Engagement with Kommune Kujalleq and the town of Narsaq specifically to support local tourism opportunities
	LA20	Investigation of opportunities to promote local tourism at a national and international level

Topic	ID	Mitigation / Enhancement Measure
Ocean-Use and Ocean Based Livelihoods	OC1	Engagement with KNAPK and other relevant agencies to better understand the cause of changes to local catches – if observed

Topic	ID	Mitigation / Enhancement Measure
Occupational Health and Safety	OH1	Comprehensive health and safety plan will be implemented by GML consistent with the Company's Occupational health and Safety Policy
	OH2	GML will prepare a written workplace assessment of occupational health and safety prior to the commencement of construction consistent with the requirements in Order No. 1168
	OH3	Preparation of safe work procedures for key activities which will remain live documents throughout the duration of Project activity
	OH4	Maintaining plant and equipment in safe working condition
	OH5	Providing information, signage, instruction, training and supervision required to ensure that all workers are safe from injury and risks to their health. Supplier instructions and workplace usage instructions will be provided in English, Danish and Greenlandic

Topic	ID	Mitigation / Enhancement Measure
Occupational Health and Safety	OH6	Collection and monitoring of all relevant safety statistics including near misses and identified risks
	OH7	Establishment of a safety committee responsible for managing, providing advice on, informing and supervising activities concerning health and safety within the Company
	OH8	Allocation of responsibility for occupational health and safety to senior management within the Project team
	OH9	All work clothing worn by employees will consist of long sleeve shirts and pants made from cotton and clothes will be laundered at the Plant to ensure no potentially radioactive materials are brought into private living accommodation
	OH10	A change room will be provided at both the concentrator and refinery sites
	OH11	A dust mask will be provided to employees where dust is a hazard
	OH12	All employees will undergo a regular (annual) medical exam. The medical exam will be performed by the Project medical clinic and will be financed by the Project
	OH13	Workers seeing an increase in dose will have the reasons for the high dose investigated by the Project's Radiation Protection Office and the worker will be moved to a different section of the operation if necessary. If the increase in dose is considered significant (by the Radiation Protection Officer) the worker will undergo a medical exam at the Company medical clinic
	OH14	Monitoring statistics related to dose exposures will be made available to the public through the Project's annual report and will shared directly with the GoG
	OH15	Areas where elevated radioactivity is expected will have engineering measures (shielding, distance) and procedural controls (exposure time, worker rotation and personal protective equipment (PPE)) to minimise radiation exposure
	OH16	The pit will be evacuated prior to blasting and until blast dust clouds have subsided
	OH17	Water trucks will be used to suppress dust across all areas of the mine
	OH18	Mine workers operating in the mine pit will be mainly located in air-conditioned cabins of mining equipment. The air filters in the cabins will be replaced on a regular basis
	OH19	A vehicle washing bay will be used to remove mine dust / dirt from all vehicles leaving the mining area
	OH20	High ventilation levels will be maintained in the crushing building (turning air over 10 times per hour)

Topic	ID	Mitigation / Enhancement Measure
Community Health, Safety and Security	CH1	Wetting of rock stockpiles, concentrates and waste materials with water sprinkler systems (summer) with any excess water captured for recycling
	CH2	Wetting of haul roads with water spray trucks (summer)
	CH3	Salting of haul roads to melt ice and snow from the roads. The salt can also increase surface moisture by extracting moisture from the atmosphere (winter)
	CH4	Setting appropriate vehicle speed limits, regular grading and maintenance
	CH5	Using vehicles and equipment with energy efficiency technologies to minimize emissions rates
	CH6	Maintaining power plant, vehicles and other fuel powered equipment in accordance with manufacture's specifications to minimize on emissions
	CH7	Noise monitoring will be conducted at the point of the nearest sensitive receptors (summerhouses and the southern / western edges of Narsaq) in addition to noise monitoring at Project facilities. The results of monitoring will be shared with Narsaq stakeholders through ongoing engagement forums
	CH8	High noise activities during the construction of the Port will be timed to minimise disruption to households and educational institutions
	CH9	Opportunities to reduce noise generation through engineering or noise attenuative measures will be investigated as part of the detailed engineering conducted prior to Project construction
	CH10	GML will establish a community grievance mechanism whereby residents and affected stakeholders can share concerns or grievances (anonymously if they choose) to which Project management will respond
	CH11	Implementation of the dust control measures in GML's Dust Control Plan
	CH12	Monitoring of radon and gamma radiation levels in Narsaq, and at the nearest sensitive receptors around the Project
	CH13	Engagement with Greenland's Ministry of Health to better understand radon exposure in Narsaq and to help residents understand how they can improve airflow in their homes to reduce this exposure
	CH14	Speed restrictions will apply for all vehicles using the access road
	CH15	GML will investigate options for small convoys to be used in heavy traffic conditions

Topic	ID	Mitigation / Enhancement Measure
Community Health, Safety and Security	CH16	Community traffic safety campaigns will be coordinated with the town of Narsaq to increase traffic understanding. Specific programs will be coordinated with the kindergartens and primary schools to minimise the risk to young children
	CH17	Construction workers will be largely segregated from the town of Narsaq, minimising opportunities for interaction
	CH18	Operations workers will live within a security-controlled environment where non-workers will not be allowed to stay overnight
	CH19	All employees, contractors and visitors will be required to sign a Code of Conduct requiring workers to engage with community members in respectful, socially beneficial manners. This policy will apply to workers from the time they land in Greenland (in Narsarsuaq or Qaqortoq) through to their departure
	CH20	Conduct awareness raising exercises with their workforce on sexually transmitted diseases, including HIV/AIDS
	CH21	Provide condoms for workers
	CH22	Provide STD (including HIV) diagnosis and testing at the work place clinic, and provide access to counselling, and referral services as necessary
	CH23	Monitor health outcomes within the workforce and engage with health service providers in Narsaq and Kommune Kujalleq to share data and develop campaigns to change behaviours as necessary
	CH24	GML will work with the Narsaq health service to develop public awareness campaigns on STD transmission and safe sex initiatives
	CH25	All employees (regardless of nationality) will be subject to pre-employment medical screens and regular health checks once employed. The medical screening will specifically target the presence of TB and potential candidates will receive treatment for TB before being offered work on the Project. STD prevalence will not be screened at pre-employment medicals
	CH26	The living conditions provided at the temporary construction camp and the Village will be designed to ensure adequate space is available for all workers to reduce the risk of TB transmission within the workforce (which can then spread into the community)
	CH27	A strict no-smoking policy will be implemented in all GML office buildings and enclosed spaces. Workers will be encouraged to give up smoking as appropriate with the Company medical clinic providing guidance on “how to quit” campaigns
	CH28	Random drug and alcohol tests will be implemented by the Project with zero tolerance for workers, contractors and visitors who fail these tests

Topic	ID	Mitigation / Enhancement Measure
Community Health, Safety and Security	CH29	Workers will be encouraged to participate in outdoor exercise and “tool box talks” will be developed to facilitate worker’s passing these messages onto their families when they go on break
	CH30	Workforce accommodation (both the temporary construction camp and the Village) will include a gymnasium and other areas for physical activity
	CH31	Workers will be encouraged to participate in sporting competitions in Narsaq and to support the development of new competitions as appropriate
	CH32	Catering service providers for the workforce accommodation will apply their knowledge to define appropriate serving sizes for worker’s meals and to balance the workplace diet
	CH33	The general store located in the Village will be stocked with healthy alternative snacks and will seek to stock local foods where possible
	CH34	Engagement between the Company and social health providers in Narsaq and Kommune Kujalleq to deliver campaigns targeting mental health
	CH35	Human resources policies for the Project which specifically highlight non-tolerance of discrimination on the basis of sex, race, sexual orientation, disability, health condition, religion or belief, political affiliation, union membership or marital status
	CH36	Active promotion of successful Greenlandic employees and business partners as success stories which can be shared within the municipality and the country more broadly
	CH37	Continuation of the settlement “road shows” which have been undertaken by GML in the past
	CH38	Epidemic and pandemic management plans in accordance with Government of Greenland requirements will be completed as necessary

Topic	ID	Mitigation / Enhancement Measure
Social Structures and Community Life	SO1	Effective communication of the nature of employment opportunities available on the Project and the skills required to be eligible for the job
	SO2	Engagement with Kommune Kujalleq to understand pressure placed on existing services and to develop a plan to reduce the pressure
	SO3	Engagement between GML and Kommune Kujalleq administrators in respect of the number of new residents anticipated as a result of the development of the Project. With this knowledge, the Kommune will be able to plan for service delivery requirements as necessary
	SO4	GML will engage with Greenland's Ministry of Health to determine how best to support the expansion of health services in Narsaq to meet increased demand during the operations phase
	SO5	Identification, in coordination with the town of Narsaq and Kommune Kujalleq administrators, of a new method / site for the disposal of animal carcasses and engagement over any modifications required to the existing waste management site
	SO6	The requirement for Project employees, contractors and visitors to comply with the company's Code of Conduct will reduce the risk of increased crime in the area. This will be further reinforced through the application of strict disciplinary measures for any employees or contractors found to be participating in behaviour contrary to the Code of Conduct, anti-social behaviour or illegal activities
	SO7	GML will engage with SIRI to determine how to support the work and residency permitting process, and with the Danish Foreign Ministry to support visa issuing services and to streamline the process to the extent possible. The GoG will also be engaged given their primary role in the approval of work and residency permitting processes. The Project may also engage with the Ministry of Labour to establish a fast-track process for visa and permit issuance.
	SO8	The working language of the Project will be English, however all safety, information, consultation and management documents will also be translated into Danish and Greenlandic to protect local language skills
	SO9	GML will take care to use the Greenlandic dialect spoken in Kommune Kujalleq when engaging with community members in community forums
	SO10	Opportunities to support Greenlandic culture through coordination of community activities reinforcing culturally relevant practices (e.g. celebration of Greenlandic food, kayaking, seal hunting, berry picking etc.) will be identified by GML
	SO11	Work rosters will be developed to ensure Greenlandic workers have the opportunity to return home on a regular basis and maintain their connection with family and traditions
	SO12	Coordination with the Narsaq police to assess the presence of drugs in the community and to develop strategies targeting drug abuse in the community