Camp facilities in Kirkespirdalen, August 2019.

Nalunaq A/S

Nalunaq Gold Project

Social Impact Assessment 2023

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Table of contents

List of Abbreviations

BIP	Benefit and Impact Plan
DCE	Danish Centre for Environment and Energy
EAMRA	Environmental Agency for Mineral Resource Activities
EIA	Environmental Impact Assessment
ERP	Emergency Response Plan
GE	Greenland Business Association
GOG	Government of Greenland
IBA	Impact and Benefit Agreement
ICC	Inuit Circumpolar Council
ILO	International Labour Organization
KNAPK	Fishermen and Hunters Association
KTI	Tech College Greenland
MLSA	Mineral License and Safety Authority
MMR	Ministry of Mineral Resources
MRA	Greenland Mineral Resource Authority
NUSUKA	Employers Organization
OHS	Occupational Health and Safety
PPE	Personal Protective Equipment
SIA	Social Impact Assessment
SIK	Greenland Workers Union
SOP	Standard Operating Procedure
ToR	Terms of Reference

1. Non-technical summary and conclusions

This is the non-technical summary of the Social Impact Assessment (SIA) for the Nalunaq Gold Project, South Greenland.

Nalunaq A/S ("the Company") is currently developing its Nalunaq Gold Project ("the Project") in South Greenland. The Nalunaq gold mine opened for the first time in 2004, following the discovery of visible gold in an outcropping quartz vein 12 years earlier. The mine operated until 2013, after which it was closed and decommissioned in 2014.

The Nalunaq license is held by Nalunaq A/S, a 100 % owned Greenlandic subsidiary of Amaroq Minerals, a public company listed on the Toronto Venture Stock Exchange and on the AIM Stock Exchange in London. The Company is engaged in the identification, acquisition, exploration and development of gold properties in Greenland.

The SIA report covers all phases in the life of mine (construction, operation and closure).
An Environmental Impact Assessment (EIA) has been carried out in parallel to this SIA.

The non-technical summary describes the project, the SIA methodology and process and the result of the impact analysis.

1.1 Overview of social impacts

The project will have four overall positive impacts on the Greenlandic society:

- It will **create job opportunities** for Greenlandic workers, with up to 100 employees during the construction phase and approximately 175 employees in the operation phase.
- It will give **training and skill upgrading opportunities** to Greenlandic workers and students and give opportunities to build experience in the mining sector.
- It will create **opportunities for Greenlandic companies to provide goods and services** to the project.
- It will **generate a public revenue** through the payment of royalties, corporate taxes and income taxes.

The SIA process has, however, also identified some negative social impacts from the project. These include:

- There are potential parallel or overlapping construction activities of the three mining projects in Southern Greenland and their subsequent operation. The cumulative impacts primarily relate to the **competition over labour**.
- The project will **increase the pressure on certain public services** including tasks for the Greenlandic police and health sector in case of emergency.
- There are **risks of accidents** and risks of negative impacts on employees related to working on a mining project.

The negative social impacts from the project are relatively small and can to a large extend be mitigated. The mining and processing are simple processes, and many positions at the project can therefore be given to people with no formal education. The closest town to the project is Nanortalik, located in Kommune Kujalleq. The formal educational attainment for inhabitants in

Kommune Kujalleq is lower than the average in Greenland. The project can potentially have a positive impact on employment opportunities and therefore as a result upgrade skills at a local level.

1.2 Overview of the project

The historical Nalunaq gold mine operated under Crew Gold Corporation ("Crew") from 2004 to 2009 when Run-of-Mine ("ROM") material was mined and shipped offshore for processing to extract gold. Subsequently, Angel Mining PLC ("Angel Mining") operated a small underground gold processing facility at Nalunaq from 2009 to 2013 and produced gold doré on the site.

It is envisaged that the project will be in production during 2024/2025. It is not possible to produce a more detailed timeline currently due to disclosure restrictions in place connected to Amaroq Minerals, the parent company of Nalunaq A/S, being listed on the AIM Market in the UK.

Table 1-1: Overall timing of the Project.

Phase	Timing	Activities
Construction and predevelopment	1 year	Repair of roads. Packaged equipment will arrive on site and be installed by specialist construction workers. Buildings will be erected to provide protection against weather events. There will be continuous deliveries of elements to Plant and equipment from/ to the Project site.
Operations	5 years	Once operations commence, the Mine and Plant will gradually be developed until steady state operation is achieved. Mined areas will progressively be back filled. Waste rock generated from the underground excavations that is not suited for construction, road maintenance or the DTSF, will remain underground and be deposited in mined excavations as unconsolidated waste rock backfill.
Closure and de-commissioning	1 year	Buildings, plant and utilities will be removed. Last mined area will be rehabilitated and sealed off. Waste rock from the mine temporarily used for roads, dams etc. during the operation phase will be returned to the mine where it will be deposited.
Post-closure	5 year	Yearly inspections of site to assess condition of DSTF cover, stability and potential risk of erosion in the DSTF.

The required project facilities for getting the mine into operation are the following:

- Camp facilities
- Power generation
- Fuel storage facilities
- Helipad, jetty and beach landing area
- Underground development before mining operation
- Process plant
- Dry Tailing Storage Facility
- Access roads

Below is a general layout of the mining area and its surroundings with the main facilities included.

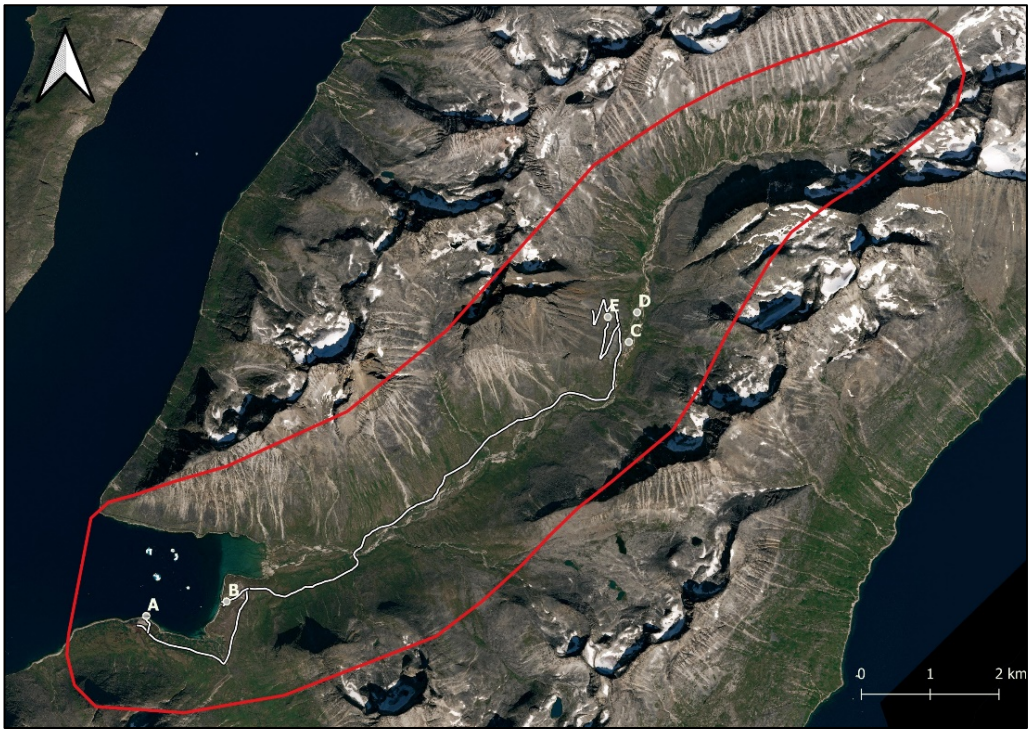

Figure 1-1: Graphic of the Overview of Project Area with major project elements, including the road between the jetty and the mine area, shown with a white line. A: Jetty, B: Camp, C: Process plant, D: Tailing storage, E: The mine.

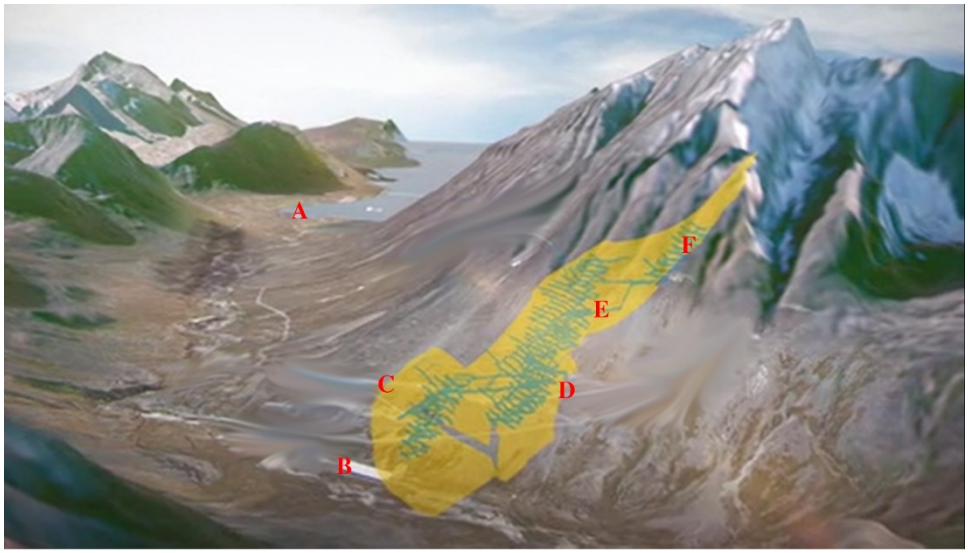

Figure 1-2: Project layout where project facilities are lettered. A: Camp, B: Process Plant, C: South Block, 300 Portal and Valley Block, D: 350 Portal, E: 400 Portal, F: 600 Portal.

The above facilities will be constructed during the one-year long construction phase. The workforce during construction is expected to be between 80 and 100 workers.

The required workforce at the different mining facilities during the operation phase is as stated in the table below out of which around 89 is expected to be on site at any given time.

Table 1-2: Workforce at different facilities.

Facility or job function	Number of positions
Mining	66
Processing	42
Camp	28
Shop, warehouse and machine operators	18
Administration	6
Safety, security, health. environment and quality	9
General and administrative Services	9
Total	**178**

The new temporary Camp Facilities ("Camp") for field activities, approved by the MLSA in November 2020, will be established near the Amitsup Saqqaa Fjord. The new temporary Camp, consisting of dormitories, a kitchen and lunchroom, a laundry unit, a mud room and a change room, as well as a recreation building and an administration office, will be capable of hosting 100 persons.

For ease of access to site during regular operations, but also for emergencies, two Helipads will be constructed; one will be located at the Camp, and the other is the historic pad near the mine and process facility.

The majority of equipment to be delivered to the site during construction will be transported by vessels and barges to the beach landing. Approximately 19,000 m^3 of bulk cargo and 8,000 m^3 of containerized cargo will be delivered to the site. Depending on the shipment size and cargo consolidation methodology in Greenland, approximately 250 to 300 Twenty-foot Equivalent Units (TEU) will be sent to Nalunaq during the construction period. The strategy behind the logistics of these operations will be to consolidate cargo from international suppliers and to optimize shipments to Greenland, where cargo would then be barged to site. It is estimated that approximately 50-75 trips of barges from Nanortalik or Qaqortoq will be carried out to bring the cargo to site. The Company is also considering chartering vessels directly to Nalunaq to avoid multiple re-handling of cargo and overcrowding of local ports. A detailed logistics plan will be developed prior to the start of construction.

During operations, a much smaller amount of cargo is expected relative to the Construction Phase. Most of the cargo will consist of consumables for the mining and processing operations. It is expected that the cargo will be consolidated in South Greenland and barged into and out of the site on a regular basis. Gold concentrate from the flotation plant will also be handled by barges and shipped off site. It is expected that on an annual basis, approximately 3,000 tonnes of gold flotation concentrate will be barged off-site to a consolidation point in South Greenland, from which point the concentrate will be exported for further processing.

It is estimated that approximately one barge a week will service the project during operations for concentrate shipment. According to marine traffic information, the Amitsup Saqqaa fjord is currently rarely visited by vessels. It is expected that the increase in number of vessels and operations resulting from the project will be very limited.

1.3 SIA methodology and process

The purpose of this Social Impact Assessment (SIA) is to identify potential positive and negative socio-economic impacts from the Nalunaq Gold Project. The analysis of potential impacts is based on the socio-economic baseline and the project description.

The Social Impact Assessment and related engagement process for the Nalunaq Gold Project has been prepared in accordance with the Government of Greenland '*Guideline on the process and preparation of the SIA report for mineral projects 2016*'.

The report is prepared by WSP and Copenhagen Social, independent consultants on behalf of Nalunaq A/S.

The SIA process consists of several steps, for which the approach and methodology is described in the following:

1. **Scoping phase and terms of reference**
   The purpose of the scoping phase was to identify key potential impacts and relevant aspects to be assessed in the SIA. The scoping formed the basis for the Terms of Reference (ToR). The ToR of the project was submitted for public consultation in December 2020 - January 2021. A White Paper was prepared based on the incoming consultation responses from stakeholders, and subsequently the ToR was updated for final approval by the authorities.
2. **Collection of secondary data and preparation of socio-economic baseline**
   Most of the baseline information presented in this SIA is based on information available from secondary sources. The sources include research reports, relevant studies, official strategies and development plans, and statistical data from Statistics Greenland. Efforts have been put into presenting the most updated information available at the time of the SIA preparation.
3. **Stakeholder consultation and collection of primary data**
   Due to the COVID-19 pandemic the opportunity for stakeholder engagement have been limited to online teleconference meetings and written responses from stakeholders, in the period December 2020 – March 2021.
4. **Analysis of social impacts and identification of mitigation measures**
   Based on the project description, the socio-economic baseline and the stakeholder consultation, the severity and likelihood of the impacts are analysed. Furthermore, mitigation measures that can minimise negative impacts and maximise positive impacts are identified and described. The results of the assessment are shown in this SIA report.
5. **Development of benefit and impact plan (input to IBA agreement)**

A Benefit and Impact Plan (BIP) is presented in the SIA, describing the goals of each impact category, and related proposed mitigation and enhancement measures. Furthermore, the BIP include indicators that can help monitor and evaluate the project's impacts.

The social impacts of the project are described and analysed at three levels:

- Local: Nanortalik, Alluitsuup Paa and Tasiusaq
- Regional: Kommune Kujalleq
- National: Greenland

For the above-mentioned local towns and villages it is assessed whether they will be particularly affected by the activities of the Nalunaq Gold Project.

The impact assessment is based on an evaluation of the identified positive and negative impact of the project. For each identified impact, the risk or chance of the impact occurring have been qualified taking into consideration the likelihood of the impact to happen (*likely, possible or unlikely*) and the severity of the impact if it occurs (*significant, moderate, minor or insignificant*).

The result of the evaluation of each impact is presented using the colour codes presented in the table below. The colour indicates whether the impact is *high, medium or low* (positive or negative) or *insignificant*. The result is found by combining the likelihood and the severity of the impact.

Table 1-3: Impact assessment codes

		Severity of impact							
		Negative				**Positive**			
Likelihood of impact		**Significant** *High impact with large influence*	**Moderate** *Effects are felt and influence some stakeholders*	**Minor** *Effects are observed*	**Insignificant** *Little to no effect if impact occur*	**Insignificant** *Little to no effect if impact occur*	**Minor** *Effects are observed*	**Moderate** *Effects are felt and influence some stakeholders*	**Significant** *High impact with large influence*
	Unlikely *Impact is unlikely to occur*								
	Possible *Impact will likely occur*	High impact	Medium impact	Low impact	Insignificant impact	Insignificant impact	Low impact	Medium impact	High impact
	Likely *Impact is expected to occur*								

1.4 Assessment of social impacts

As part of the SIA process, a list of issues have been analysed with focus on how the project can potentially impact these issues.

The issues are divided in eight categories:

- Employment
- Education and training

- Sourcing from Greenlandic businesses
- Public sector pressure and revenues
- Public health
- Social aspects
- Land use and cultural heritage
- Cumulative impacts

All potential issues are assessed for the construction phase (2024-2025), the operation phase (5 years) and the closure phase (after 5 years). The assessment is based on the project design as described in chapter 5 of the SIA. The evaluation of impacts is made considering the effects of the proposed mitigation and enhancement measures presented under each impact aspect.

An overview of the results of the impact assessment is shown in the table below. A brief description of each impact is given in the following sections. For the potential negative impacts, mitigation measures that can minimize these impacts have been identified. Similarly, for positive impacts, measures have been identified that can maximize these impacts. Proposed mitigation measures are provided in the Benefit and Impact Plan.

Table 1-3: Overview of the results of the impact assessment

Aspect	Construction phase	Operation phase	Closure phase
Employment			
Direct employment	Positive medium impact	Positive high impact	Positive low impact
Indirect employment effects	Positive medium impact	Positive medium impact	Positive low impact
Labour conditions and occupational health and safety	Negative low impact	Negative low impact	Negative low impact
Education and Training			
Development of competences	Positive low impact	Positive medium impact	Insignificant impact
Sourcing from Greenlandic businesses			
Business opportunities	Positive medium impact	Positive medium impact	Positive low impact
Public sector pressure and revenues			
Pressure on the public sector, infrastructure and services	Negative low impact	Negative low impact	Negative low impact
Public revenue	Positive medium impact	Positive high impact	Insignificant impact
Health			
Public health including prevalence of diseases, treatment and services	Insignificant impact	Insignificant impact	Insignificant impact

Social aspects			
Social coherence / social conflict	Insignificant impact	Insignificant impact	Insignificant impact
Vulnerable groups	Insignificant impact	Insignificant impact	Insignificant impact
Land use and cultural heritage			
Local use of the project area	Negative low impact	Negative low impact	Insignificant impact
Cultural heritage	Insignificant impact	Insignificant impact	Insignificant impact
Cumulative impacts			
Competition over labour, public sector pressure, social coherence etc.	Negative low impact	Negative medium impact	Negative low impact

1.4.1 Employment

Direct employment

The impacts of the direct employment during the construction and operation phase is assessed to be positive with medium to high impact respectively. The project will employ 80-100 workers during the peak of construction and 150-175 during operations. The more Greenlandic workers that are employed, the larger the positive impact.

It is expected that Nalunaq can attract and employ a number of unskilled workers and skilled artisans from Nanortalik, mainly during operation. Graduates from the mining school and people with vocational training would be hired during the operations and are expected to be from other towns in Greenland. However, a large number of positions are specialized requiring experience from similar mining project. These positions will for the majority part be occupied by international workers although the Company will be implementing a comprehensive training programme to upskill local workers so that they can undertake more complex roles.

The project can impact employment at local, regional and national level. As the number of employment opportunities are relatively limited, the largest impact is expected to be seen at local and regional level, where opportunities for both unskilled and skilled positions will increase. People employed on the project will experience an increased income which will have a positive impact on their household income.

Indirect employment effects

The Project can generate both indirect and induced employment effect in Greenland.

- **Indirect employment effects** will be created through suppliers hiring additional workers to meet the increased demand of their products and services from the mine.
- **Induced employment effects** occur due to the increased overall activity, as the increased income of workers (direct and indirect) are used to purchase products and services in other sectors.

The impacts of the indirect and induced employment effects during the construction and operation phase are assessed to be positive with medium impact. The project will have a positive impact on indirect and induced employment through the use of suppliers locally and regionally and increased economic activity in the society in general.

During construction it is expected that most of the construction materials will be sourced from outside of Greenland. It is, however, expected that some Greenlandic services and potentially contractors will be used to assemble the processing facility and provide services at the camp during construction. During operation there are opportunities for Greenlandic small or medium sized companies as well as Greenlandic transport companies, to provide services to the project. The project is expected to increase personal income for direct and indirect employment which will contribute to an increase in demand of goods and services.

Labour conditions and occupational health and safety

The Company 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. Three government authorities administer labour and working conditions:

- Greenland Working Environment Authority responsible for occupational health and safety considerations in the workplace.
- Greenland MMR
- Danish Agency for International Recruitment and Integration responsible for processing applications for residence and work permits in Greenland.
- Nalunaq A/S intends to commence negotiations with SIK with regard to concluding a collective agreement.

Project employees will be accommodated in the camp on the Project site. The Camp Facilities, capable of hosting 100 persons through its Camp Complex, will be established near the fjord. The Camp Complex is designed in accordance with best international standards. It is expected to consist of dormitories, a kitchen and lunchroom, a laundry unit, a mud room and a change room, as well as a recreation building and an administration office. The Camp Complex was designed with health and safety professionals to operate under pandemic conditions such as for the COVID-19.

Common to all industries where heavy machinery, heights and kinetic energy are involved, the nature of mining activities has the potential to generate unsafe circumstances in which an accident can occur. The risk of accidents on a mine site is tied to the presence of potential hazards. The Project will likely have a standard suite of acute safety hazards including explosions, rock falls, manual handling, vehicle accidents, fire, hazardous chemicals, slips, trips and falls. Each of these hazards has the potential to result in short or long-term injuries, and in the worst case, can result in fatalities.

The Company will establish a comprehensive health and safety program, specifically developed around the various activities to be undertaken during construction, and during operations to cover surface support, process, and mining. An Emergency Response Plan (ERP) will be developed, covering all potential health, safety and environmental emergency situations and the management of such situations. The development of the ERP and related procedures will

be developed in line with industry best practice and will include necessary contingency and required resources to adequately manage emergencies.

The impacts on labour conditions and occupational health and safety is assessed to be negative with low impact in all project phases. The project will be implemented in compliance with national labour law. Given the size of the project it is not expected to involve significant influx of workers and will not impact negatively on labour conditions and OHS practices.

1.4.2 Education and Training

While 30-35 positions during operation will be for unskilled workers, the need for skilled labour and skilled artisans constitutes a large employment opportunity for Greenlandic workers. In order to achieve the goal of a high percentage of local workforce on the project, extensive training will be required to close the gaps between existing competences and required skills.

Nalunaq A/S will cooperate with existing education institutions to address these gaps. Vocational education providers such as Tech College Greenland (KTI), including Greenland School for Minerals and Petroleum will be the main actors in this cooperation for competence development.

The impact from education and training of employees is positive and include both on-the-job training, formal training and education provided in conjunction with KTI, and the provision of internships offered by the company. The impact during the construction and operation phase are assessed to be positive with low and medium impact respectively. Local, regional and national level depending on the resident municipality of employees. Employees at the mine, students at the mining school and other relevant studies.

1.4.3 Sourcing from Greenlandic businesses

In compliance with Section 18 (2) of the Mineral Resource Act procurement and contract package for infrastructure components, equipment, goods and services will be issued to Greenlandic bidders. Pre-qualified international bidders may be used if Greenland enterprises are not technically or commercially competitive. Contracts shall be awarded to Greenlandic enterprises if they are regarded as technically and commercially competitive.

Several technical Greenlandic regulations concerning safety and infrastructure exist which apply during construction and operation. These will be considered when identifying Greenlandic companies that could potentially provide assistance for the Nalunaq Gold Project.

During the construction phase infrastructure facilities will be established including camp complex, storage facilities, processing plant, portable water treatment plant, sewerage treatment facility, and power plant.

A procurement policy for Greenlandic suppliers has been prepared for the project and has been shared with stakeholder during the stakeholder meetings undertaken in March 2021. The procurement policy is included as Appendix 4 in the SIA Report. The policy describes Nalunaq A/S commitment to make a significant contribution to Greenland in form of awarding contracts to Greenlandic enterprises providing that they are considered technically and commercially

competitive pursuant to section 18 (2) of the Mineral Resources Act as mentioned above. Greenlandic enterprises that are interested in supplying goods and services to the project are encouraged to register in Nalunaq A/S supplier database.

Potential positive impact on local businesses as suppliers for services and logistical support are assessed to be positive medium for both construction and operation.

1.4.4 Public sector pressure and revenues

Pressure on the public sector, infrastructure and services

The project will impact certain infrastructure and public services such as flight services, freight services, telecommunication, supervision authorities, police, Greenland custom services and Danish Immigration Services, and health services.

In order to mitigate these risks, the company will be in close dialogue with multiple stakeholders (Kommune Kujalleq, Greenland health authorities, Greenlandic transportation providers etc.) regarding the related pressures.

The impacts on public infrastructure and services, including health services in case of emergency are assessed to be negative with low impact for both construction, operation and mine closure phase, due to the size of the project. The projects impact on the public sector is expected to be limited due to the size of the project. Expatriates will be flown into Greenland on a rotation basis. They will be transported directly to site from Narsarsuaq. Locals will be travelling to site, mainly from Nanortalik and Qaqortoq, by sea. The company may subcontract a local party or operate its own vessel to bring its employees from the consolidation point in Nanortalik.

Public revenue

The project is expected to create a positive public gross revenue through royalties, corporate tax and income taxes.

Nalunaq A/S will pay 2.5% in royalties, expected to amount to DKK 62.15 M. The corporate tax rate is 25% and will likely total to DKK 212.95 M, amounting to a total of 275.10 M over the 5-year period. Depending on the combinations of Greenlandic and International employees, it is estimated that an average of DKK 143.13 M will be paid in income tax during construction (1 year) and operation (5 year).

1.4.5 Public health

Impacts of nuisance such as noise, dust and air emissions are assessed in the EIA of the project. Impacts will be generated during both construction and operation and are assessed to be low and limited to the Kirkespir Valley and the inner part of the Amitsup Saqqaa Fjord. As the project area is located 32 km northeast of Nanortalik with the nearest settlement Tasiusaq 18 km south of the project site, these will not impact on public health.

Although there will be an influx of workers to the project, these will be accommodated on site and transportation of international workers will directly from the international airport in Narsarsuaq to the site by boat, hence, there will be limited interaction between international workers and the local communities. Workers from other regions of Greenland will use the same lines of transportation. Since the interaction between influx workers and local communities will be limited increase in communicable diseases such as STDs and tuberculosis are not expected.

The COVID-19 pandemic has emphasized the need for disease control measures to be in place in workers accommodation camps and related to the transportation of worker to and from site. Nalunaq A/S has in 2020 put in place a COVID-19 Standard Operating Procedures (SOP) that has been implemented for all exploration activities in 2020.

The impacts on public health are assessed to be negative however with insignificant impact. The project will have potential positive impact on the local workers and their families' health due to higher income. Due to the size of the project and the limited influx of workers no negative impacts on public health are expected.

1.4.6 Social aspects

Social coherence / social conflict

Due to the limited influx of workers, the remote location of the camp site and the minimum interaction of workers with local communities, impacts on social coherence and conflict is expected to be limited.

The impacts on social aspects of the local communities are assessed to be negative with low impact for all project phases. Due to the limited influx of workers, the remote location of the camp site and the minimum interaction of workers with local communities, impacts on social coherence and conflict is expected to be limited.

Vulnerable groups

Three vulnerable groups were defined in the scoping phase:

- People experiencing mental disabilities or affected by drug and alcohol abuse.
- Households with no recent history of anyone having secured employment.
- Unemployed young men.

It is not expected that vulnerable groups will be directly affected by the Project. At the same time vulnerable groups are not likely to benefit directly from the project through e.g., employment. Although support for training opportunities in Nanortalik, and the employment opportunities at the end of the training, may encourage more young people to complete the Majoriaq courses as a way out of unemployment.

The impacts on vulnerable groups are assessed to be positive with insignificant impact.

1.4.7 Land use and cultural heritage

Local use of the project area

For safety reasons access to the mine area will be restricted during the construction phase. The effects of these restrictions will be low, as there is only limited traditional use of natural

resource on the land in Kirkespir Valley. Except for the Project port area, the marine areas off the Project area will remain open for subsistence fishing harvest and recreational use.

There are three sheep farmers near Tasiusaq and five around Nanortalik. These will not experience any impacts by the project.

The expected increase in number of vessels through the Amitsup Saqqaa fjord during construction is estimated to 40-50 barges. During operation the shipping will be limited to one barge a week. The shipping is not expected to affect the fishing in the fjord.

The impacts on local use of the project area are assessed to be negative with low impact for all project phases.

Cultural heritage

A smaller group of Inuit ruins were located on the North side of the bay, some 500 m from the delta (high tide level). Since these were outside the concession area they have not been considered further. They will not be disturbed by the mine's operations.

The impacts on cultural heritage are assessed to be negative with low impact. Where possible and relevant archaeological sites will be fenced off to avoid machinery from accidental damaging the ruins.

1.4.8 Cumulative impacts

Cumulative impacts are those that results from successive, incremental, and/or combined effects of a project or activity when adding to other existing, planned and/or reasonable anticipated ones. The risk of cumulative impacts related to pressure on the public sector is a particular concern related to the health sector in Southern Greenland. Potential parallel or overlapping construction activities on the three mining projects and the regional airport all depend on the regional hospital in Qaqortoq in case of crises or emergency.

The cumulative impacts primarily relate to the competition over labour and the pressure on public sector including health services. The impacts are assessed to be negative with low to medium impact for construction and operation respectively.

1.5 Benefit and impact plan

The draft Benefit and Impact plan have been prepared based on the impact assessment findings. The purpose of the Benefit and Impact plan is to consult the finding of the SIA with authorities and stakeholders. The final Impact and Benefit Agreement (IBA) will incorporate the Benefit and Impact plan in appendices including the feedback received during the public consultation. The IBA will follow the standards and procedures formulated by the MMR.

The Impact and Benefit plan addresses main impacts identified in the SIA with the following descriptions:

- **Main goal**: describes the goal of each impact category

- **Mitigation and enhancement measures** describes proposed measures that can be implemented to achieve the goal. Such measures may be initiated by the mining company, authorities or civil society
- **Risk and assumption**: list the main assumptions for achieving the goal or risk that may hinder such achievements
- **Verifiable indicators**: list indicators that can be used to measure the project's success in achieving the goals set.

Table 1.4: Benefit and Impact Plan

Impact category	Main goals	Mitigation and enhancement measures	Risk and assumptions	Verifiable indicators
Direct employment	The average target for employment and use of Greenlandic workers during construction and operation is 50% of the total workforce employed by Nalunaq A/S. The number of Greenlandic workers will be as high as possible, subject to availability, qualification, experience and the possible mobilization.	• Develop a local recruitment strategy with focus on hiring priority to Greenlandic workers, active promotion of job opportunities, and co-operation with local job centres and labour market parties. • Establish transparent employment policies and hiring procedures. • Launch campaign to inform potential employees on the employment opportunities at the mine, including visuals from the mine site, camp area and specific information on the different job categories. • Prepare and disclose detailed job descriptions and requirements for each position for mine operation during the construction phase, specifying skills and language requirements. Such information will be made available for key stakeholders including communities, Kommune Kujalleq, unions and vocational training institutions. • Publish job advertisements in relevant Greenlandic media and relevant national job portals, including www.suli.gl, job advertisements will be published in Greenlandic and Danish languages. • Cooperate with the public job centre (Majoriaq) in Nanortalik, as well as vocational training institutions and labour market entities in Kommune Kujalleq and Greenland to target the search for local applicants and ensure competency and skills development through pre-employment training. • Develop an active on-the-job training scheme that will help increase the number of local workers during the operations phase. • Create an attractive working environment with focus on diversity, supporting and encouraging the employment of women on equal basis, through promoting women's awareness of job opportunities and encouraging their applications.	Local workforce is available and interested in working in the construction and operation of the mine. • The gap between required skills and available local skills remains a barrier for local employment. • Difficulties in attacking local employees because of the rotation periods on site. • Difficulties in attacking local employees because of the lack of flexibility of the mining operation compared to the traditional lifestyle.	• Number of employees from local area, from Kommune Kujalleq and from Greenland. • Percentage of Greenlandic workforce per job categories. • Number of local job applicants per job advertisement.

		• Provide on-site measures allowing Greenlandic workers to remain connected with their culture including provision of traditional Greenlandic food, as well as access to recreational areas and telecommunication in the accommodation camp. • Provide cross-cultural training to Greenlandic and International employees, to foster mutual respect and cultural consideration. • Exploring the possibility for increasing the transportation services between Nalunaq and towns and settlements in South Greenland such as Nanortalik, Qaqortoq and Alluitsup Paa through continuously dialogue with Department of Housing and Infrastructure in the GoG.		
Labour conditions and occupational health and safety (OHS)	Working conditions and OHS are in compliance with national legislation and good international standards. Accidents avoided at the mine site.	• Early and continuous engagement with SIK and other Greenland labour unions to establish working conditions which meet Greenlandic requirements, and which will avoid distorting the labour market. • Worker's rotation will be developed to support family-friendly employment and take into consideration the frequency of home visits necessary to maintain semi-traditional lifestyles. • Establish a workplace diversity and anti-harassment policy (see section 7.2.1 on diversity and culture). • Setting workers accommodation standards that comply with international good practice. • Establish a worker's grievance mechanism available in English, Danish and Greenlandic. • Prepare a workplace OHS risk assessment prior to the commencement of construction consistent with the requirements in Order No. 1168. • Close cooperation with authorities for emergency response and evacuation.	Public authorities have the necessary capacity and resources allocated for response.	• Number of labour disputes and grievances • Number of staff trained • Number of accidents compared to working hours • Lost time injuries

		• Prepare safe work procedures for key activities which will remain living documents throughout the duration of Project activity. • Maintain plant and equipment in safe working condition. • Provide 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. • Collect and monitor all relevant safety statistics including near misses and identified risks. • Establish a safety committee responsible for managing, providing advice on, informing and supervising activities concerning health and safety within the Company. • Allocate responsibility for occupational health and safety to senior management within the Project team. • Undertake regular emergency drills at the mine site. • Pre-notification of operations and traffic of vessels to relevant authorities. • Ensure that at least two people at site at any given time have taken the compulsory occupational and health and safety course. • Having a zero-tolerance policy when it comes to possessing or consuming alcohol and drugs among employees. • Ensure that foreign workers are familiar with Greenlandic legislation and guidelines.		
Education, training and competence development for the Greenlandic workforce	Skills development and proficiency of Greenlandic workforce created from practical work experience in the mining sector.	• Cooperate with Greenland School of Minerals and Petroleum and other vocational training institutions, on establishing and operation of mining related vocational and technical training programmes (such as courses under e.g., Project Skills Development for the Unskilled" (PSDU) and apprenticeships.)	Local workforce is interested in mining related training and competence development.	• Percentage of Greenlandic job applicants with relevant competences and qualifications.

	Apprenticeships are offered to Greenlandic students from vocational training institutions.	• Pre-employment and on-the-job training programs developed in co-operation with local authorities, educational and training institutions, and labour organizations. • Develop a strategy on the skills development of Greenlandic workers including retaining and career training.		• Number of Greenlandic students completing apprenticeships at Nalunaq
Sourcing from Greenlandic enterprises	Contracts granted to Greenlandic enterprises, subject to availability, qualification, experience and competitiveness. Contracts include both services, goods and equipment during construction and operation.	• Implement the established procurement policy that supports local procurement and disclose the criteria for Greenland enterprises to assess their commercial and technical competitiveness. • Develop a local content strategy with focus on supplier development including strategy for strengthening local enterprises capacity to compete. • Unbundling of contracts with work packages split into smaller units to be in line with local capacity and to encourage greater local competition. • Identify packages that are within the capabilities of local enterprises and reserve such packages for local bid. • Close dialogue with to Greenlandic transportation providers Air Greenland and Royal Artic Line. • Close dialogue with Tusass to establish the necessary communication services.	Local enterprises have the necessary capacity to invest in service delivery. Risks: Greenlandic enterprises are not competitive compared to international enterprises.	• Number of contracts awarded to Greenlandic enterprises. • Value of contract awarded to Greenlandic enterprises (in DKK and % of total contracted amount). • Number of local enterprises involved in the tender process
Pressure public infrastructure and services	Public infrastructure and services are not overburdened by increased demand from the project.	• Close dialogue with Kommune Kujalleq on project related pressure on municipal infrastructure and services. • Close dialogue with Greenland health authorities on emergency response plan and access to health services for International employees. • Close dialogue with to Greenlandic transportation providers Air Greenland and Royal Artic Line. • Close dialogue with Tusass to establish the necessary communication services.	Public authorities have the necessary capacity and resources allocated for response.	

Public health	Prevalence of communicable diseases remain at existing levels.	• Arrange transport directly from Narsarsuaq to and from site for international workers and workers from other regions of Greenland. • Additional measure to be included in the COVID-19 SOP for onsite implementation – including testing, quarantining and vaccination requirements related to the rotation.		
Social aspects	Social conflict at site avoided.	• Arrange transport directly from Narsarsuaq to and from site for international workers and workers from other areas of Greenland. • Establish a workplace diversity and anti-harassment policy • Cooperate with public job centres (Majoriaq), education and training institutions in the Nanortalik and Qaqortoq to target the search for local applicants and ensure competency and skills development for vulnerable groups. • Regular meetings with the local council in Nanortalik and the settlement councils in Alluitsup Paa and Tasiusaq.		
Land use and cultural heritage	The local population using the area and fjords surrounding Nalunaq experience as few restrictions as possible without compromising security.	• Shipping schedules to be shared with local authorities. • Sourcing of local food • Where possible and relevant archaeological sites will be fenced off to avoid machinery from accidental damaging the ruins. In some cases, the museum will be asked to excavate and, if necessary, recover objects before project activities commence.		

2. Introduction

This report presents the Social Impact Assessment (SIA) for the Nalunaq Gold Project.
The report is prepared by WSP and Copenhagen Social, independent consultants on behalf of Nalunaq A/S. The report is prepared to fulfil Section 76 of the Mineral Resources Act stating that a SIA report needs to be submitted and approved by the Government before a license can be granted.

The SIA report covers all phases in the life of mine (construction, operation and closure).
An Environmental Impact Assessment (EIA) has been carried out in parallel to this SIA.

2.1 The Nalunaq Project

Nalunaq A/S ("the Company") is currently developing its Nalunaq Gold Project ("the Project") in South Greenland. The Nalunaq gold mine opened for the first time in 2004, following the discovery of visible gold in an outcropping quartz vein 12 years earlier. The mine operated until 2013, after which it was closed and decommissioned in 2014.

The historical Nalunaq gold mine operated under Crew Gold Corporation ("Crew") from 2004 to 2009 when Run-of-Mine ("ROM") material was mined and shipped offshore for processing to extract gold. Subsequently, Angel Mining PLC ("Angel Mining") operated a small underground gold processing facility at Nalunaq from 2009 to 2013 and produced gold doré on the site.

It is envisaged that the project will be in production during 2024/2025. It is not possible to produce a more detailed timeline currently due to disclosure restrictions in place connected to Amaroq Minerals, the parent company of Nalunaq A/S, being listed on the AIM Market in the UK.

Table 2-1: Overall timing of the Project.

Phase	Timing	Activities
Construction and predevelopment	1 year	Repair of roads. Packaged equipment will arrive on site and be installed by specialist construction workers. Buildings will be erected to provide protection against weather events. There will be continuous deliveries of elements to Plant and equipment from/ to the Project site.
Operations	5 years	Once operations commence, the Mine and Plant will gradually be developed until steady state operation is achieved. Mined areas will progressively be back filled. Waste rock generated from the underground excavations that is not suited for construction, road maintenance or the DTSF, will remain underground and be deposited in mined excavations as unconsolidated waste rock backfill.
Closure and decommissioning	1 year	Buildings, plant and utilities will be removed. Last mined area will be rehabilitated and sealed off. Waste rock from the mine temporarily used for roads, dams etc. during the operation phase will be returned to the mine where it will be deposited.
Post-closure	5 year	Yearly inspections of site to assess condition of DSTF cover, stability and potential risk of erosion in the DSTF.

Based on the current Inferred Resources, the Company plans to operate the mine for approximately 5 years from the date it reaches commercial production (Table 2-1). Through underground development, drilling and the sequencing of mining operations, the Company estimates that based on historical development at Nalunaq the Life-of-Mine ("LOM") could be extended.

There is also an Exploration Target which includes those areas in which the Main Vein is interpreted to extend, but that contain insufficient sampling to define a Mineral Resource and are some distance from the current infrastructure. This estimate is based on historic surface diamond drilling and channel sampling, and surface samples from 2015, 2016, 2019, 2020 and 2021 that demonstrate the continuity of the Main Vein. As detailed in the competent persons report (CPR) in Part VI, SRK Exploration Services Ltd. (SRK 2020) estimates an Exploration Target of between 200,000 oz. to 2.0 Moz. of gold contained within 2.5 to 10.0 million tonnes, grading between 2.4 to 6.0 g/t Au.

However, for the purpose of the SIA, the LOM is considered to cover a period of 5 years, after which the closure plan for the mine will be undertaken according to a plan to be approved under Section 43 of the Mineral Resources Act as required by Greenlandic law.

2.2 Project setting

The Nalunaq Gold Project is located in South Greenland at latitude 60°21' N and longitude 44°50' W about 32 km northeast of Nanortalik, Greenland's 10th largest town with a population of approximately 1,350 (Figure 2-1).

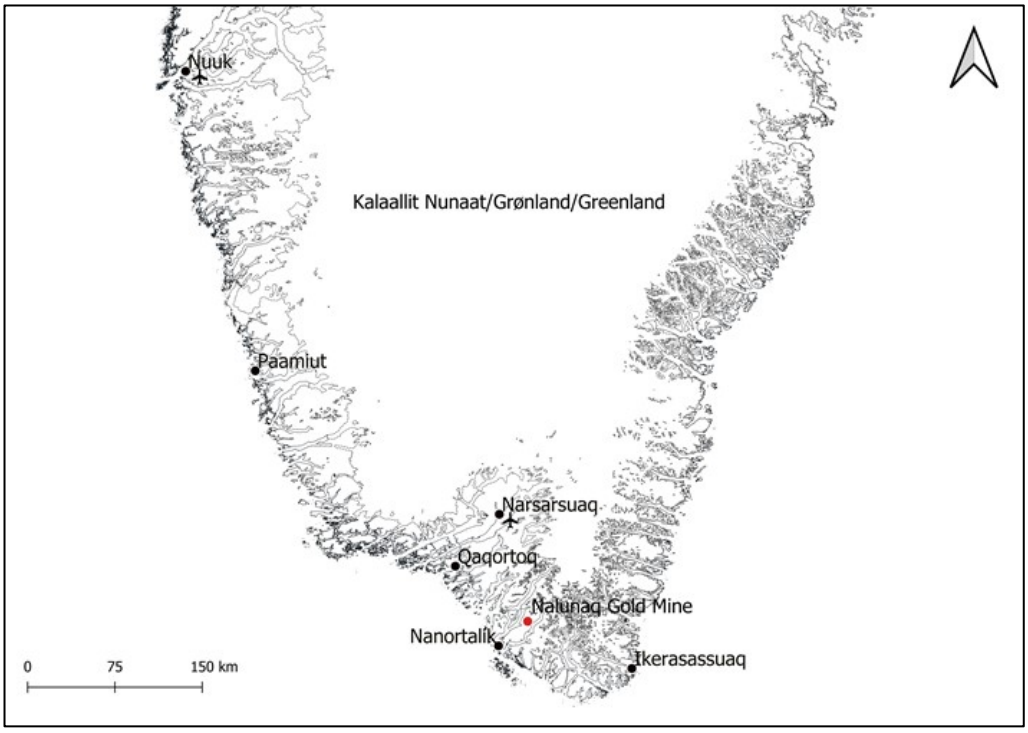

Figure 2-1: Location of the Nalunaq Gold Project in South Greenland.

2.3 Description of the mine company

The Nalunaq license is held by Nalunaq A/S, a 100 % owned Greenlandic subsidiary of Amaroq Minerals, a public company listed on the Toronto Venture Stock Exchange and on the AIM Stock Exchange in London. The Company is engaged in the identification, acquisition, exploration and development of gold properties in Greenland.

The Nalunaq Gold Project is a past-producing underground gold mine located in South Greenland. The mine was first operated under Crew Gold from 2004 to 2009, and then by Angel Mining from 2009 to 2013, until the mine closed and decommissioned in 2014.

Nalunaq A/S saw an opportunity to acquire a past producing high-grade gold asset with significant exploration potential and benefitting from extensive infrastructures that remain in place, including an underground processing plant, underground mine workings, a mine access road and a jetty.

The mine is located within Exploitation license 2003/05, while some of the facilities are located in the adjacent exploration license 2006/10. Both are 100% owned by Nalunaq A/S. Nalunaq hosts an Inferred Mineral Resource of 251 koz in 422,770 tons at a grade of 18.5 g/t Au as described by the latest Competent Person Report (''CPR'') from SRK (2020).

Additionally, the above Inferred Mineral Resource is supplemented by a Tailings Resource, also covered in the CPR, representing 48,220 tons of slurry at a grade of 4 g/t, for a total of 6,200 ounces of gold.

3. Administrative and legislative framework affecting the project

3.1 Introduction

Greenland is part of the Kingdom of Denmark. Autonomous local governance (so-called: "Home-rule") was introduced to Greenland in 1979 followed in 2009 by a new Act of Greenland Self Government, which states that Greenland can take over the administration of mineral resources. In 2010, Naalakkersuisut (the Government of Greenland, GoG) took over mineral resource administration from Denmark. The Ministry of Mineral Resources (MMR) and the Environmental Agency for Mineral Resources Activities (EAMRA) are responsible for the mineral resources area in Greenland.

The MMR and the underlying Mineral License and Safety Authority (MLSA) is the administrative authority for license issues and is the authority for safety matters including supervision and inspections. Furthermore, the Ministry is responsible for the SIA and Impact Benefit Agreement (IBA) for mineral resource companies including mining projects' use of Greenlandic enterprises and Greenlandic labour.

EAMRA is the administrative authority responsible for environmental matters relating to mineral resources activities, including the EIA. EAMRA is an agency under the Ministry of Agriculture, Self-Sufficiency, Energy and Environment.

3.2 The Mineral Resources Act

The main legislation under which this project will be developed and operated is the Greenland Parliament Act no. 7 of 7 December 2009 on Minerals and Resources and mineral resource activities (the Mineral Resources Act) which came into force on January 1, 2010 (including later amendments)

The Mineral Resources Act stipulates the conditions which need to be met in order to conduct mining activities in Greenland. Initially, a licensee must apply for and obtain an exploitation license for the area, which can be granted pursuant to Section 29 of the Minerals Resources Act upon submission to the authorities of the following documents:

- An application with key information on the proposed mining project
- An Environmental Impact Assessment
- A Social Impact Assessment

The Mineral Resources Act aims to ensure that mineral resource activities under the Act are securely performed in regard to social sustainability cf. Section 1 (2) of the Mineral Resources Act.,. It is further stipulated in Section 76 in the Act that exploitation activities, which are assumed to have a potential significant impact on social conditions, an exploitation license cannot be granted before submitting a Social Impact Statement which has been approved by the GoG cf. Section 76 (1) of the Mineral Resources Act.

Section 77 (2) further stipulates that the SIA must appropriately demonstrate, describe and assess the direct and indirect impacts of the activity on social conditions as well as the interaction between the conditions, mutual impact between the conditions and cumulative effects of impacts on the conditions.

The most relevant provisions for the SIA process in the Mineral Resources Act are:

- Section 77 (2) – identification and assessment of direct and indirect project impacts
- Section 78 (a) – the legal basis for the IBA
- Part 18a – public pre-consultation and public consultation
- Section 18 (1) – use of Greenland labour
- Section 18 (2) – use of Greenland enterprises
- Section 18 (3) – processing of minerals in Greenland

When an exploitation license is granted, the licensee needs to apply for and obtain an exploitation plan from the Greenland Government (Section 19 of the Act), which includes submission of a closure plan (Section 43 of the Act). Provided that Section 19 and 43 approvals are granted by the GoG, all specific constructions, processes, vehicles, devices etc. must be individually approved under Section 86 of the Act. Generally, the authorities will request a single application for all Section 86 approvals, which need to be renewed on an annual basis.

In addition to the requirements relating to the preparation of the SIA, the Project must also comply with all other applicable Greenlandic and Danish legislation, including international conventions to which Greenland is a signatory. The administrative and legislative framework is described in details in Appendix 2.

4. The SIA Process for the Nalunaq Gold Project

Greenland Parliament Act no. 7 of 7 December 2009 (the Mineral Resources Act) requires that mining companies prepare a Social Impact Assessment (SIA) in connection with the development of any proposed mineral project. The Act also stipulates that an exploitation license for a proposed project will only be granted once the project's SIA has been approved by the GoG. The Company already has an exploitation license and the latest addendum to the license issued by the GoG states the commencement of exploitation is to begin on January 1, 2023. In the exploitation license 2003/05 it is also stated that Nalunaq A/S has to prepare an SIA Report.

4.1 The purpose of the Social Impact Assessment

The aim of the SIA is to identify, predict and communicate the potential social impacts of the planned mining project in all of its phases - construction, operations and closure. The assessment should also identify mitigation measures designed to eliminate or minimize negative social effects, such measures, as far as possible, being incorporated into the project design.

4.2 The Greenlandic procedure for preparing an SIA for mineral exploitation

The SIA process and the preparation of the SIA report has been carried out according to *Guidelines on the process and preparation of the SIA report for mineral projects* prepared by the GoG in 2016 and the requirements in the Mineral Resources Act, among others part Section 18 (1), Section 18 (2), Section 18 (3) in Part 5 and Part 18a.

The guidelines identify the main objectives of the SIA process for mineral projects to be:

- To provide a satisfactory and impartial description for Greenlandic society in general about what Greenland, the local communities affected and individuals will gain from the project.
- To inform and involve relevant and affected individuals and stakeholders early 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 optimize 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.
- To develop an Impact and Benefit Plan.

An integrated aspect of the SIA is to highlight the project's potential impact on the following essential issues in the Greenlandic context:

- Use of Greenlandic labour.
- Skills enhancement through training and education.

- Use of Greenlandic enterprises.
- Processing of minerals in Greenland.

4.3 Geographical scope

The geographical scope of the SIA is determined as the social area of influence and covers the area directly impacted by the Project's operation and ancillary facilities and the towns and settlements where the benefits of employment, business opportunities and developments directly and indirectly created by the Project are expected to be more noticeable.

The SIA also identifies towns and settlements, which are assessed to be particularly affected by activities, cf. Section 87c in the Mineral Resource Act.

The social impacts of the project are on the basis of stakeholder engagement conducted during the SIA process described and analysed at three levels:

- Local: Nanortalik, Qaqortoq, Alluitsuup Paa and Tasiusaq
- Regional: Kommune Kujalleq
- National: Greenland

5. Project description

5.1 Introduction

The Nalunaq Gold Project, being developed by Nalunaq A/S ("the Company"), is located in South Greenland at latitude 60°21' N and longitude 44°50' W. The project mine site is located about 32 km northeast of Nanortalik, Greenland's 10th largest town, which has a population of approximately 1,350 persons. The mine lies in Kirkespirdalen which is a broad glacial valley to the west of the permanent icecap in the municipality of Kujalleq approximately 8 km from the tidal, ice-free, Amitsup Saqqaa fjord.

The Nalunaq gold mine opened for the first time in 2004, following the discovery of visible gold in an outcropping quartz vein 12 years earlier. The mine operated until 2013, after which it was closed and decommissioned in 2014.

All references to appendices and literature in the Project Description refers to the Environmental Impact Assessment.

5.2 Mineral Resources

The Nalunaq Gold Project is reported to have, as of 2020, an Inferred Mineral Resource of 250,970 oz. (422,770 tonnes at 18.5 g/t Au), covering only the area in and around the existing mine area and remaining stopes. The Inferred Mineral Resource estimate combines 233,080 oz. of gold in the mine area (396,080 tonnes at 18.3 g/t) and an additional 17,890 oz. of material in the remaining stopes left by the previous operator (26,690 tonnes at 20.8 g/t) as shown in 5-1.

Table 5-1: Mineral Resources at the Nalunaq Mine

Zone	Classification	Tonnes (t)	Grade (g/t Au)	Contained Gold (oz)
Mine Area	Inferred	396,080	18.3	233,080
Remaining Stopes	Inferred	26,690	20.8	17,890
Total Inferred		422,770	18.5	250,970

The identified Inferred Resource surrounds the historically mined areas around three blocks:

a) The Mountain Block;

b) The Target Block; and

c) The South Block.

In 2020, after the drilling season, a fourth block was identified, adjacent and parallel to South Block, which is known as the Valley Block. The presence of this fourth block was confirmed during the 2021 drilling programme as well as indications of a potential fifth block to the south known as the Welcome Block.

The tailings from previous operations will not be re-handled or recovered without being subject to a supplementary EIA and a subsequent application and approval procedure by the authorities. The possibility of rehandling tailings from previous operations was identified as a potential Mineral Resource in an independent Technical Report on the Nalunaq Gold Project from 2016

(SRK, 2016) and a Competent Person's Report on the Assets of Amaroq Minerals, South Greenland report from 2020 (SRK, 2020), but is not currently being considered as an option at this stage of the project. The Inferred Resource is supplemented by an Exploration Target estimated to be between 200,000 oz. and 2.0 Moz. (2.5 to 10 million tonnes at 2.4 to 6.0 g/t Au).

5.3 Nalunaq Geological Setting and Vein Material Description

The Nalunaq gold mine is situated in the basement rocks of southern Greenland. According to Dominy *et al.* (2006) Nalunaq is situated within the Ketilidian Mobile Belt, which is related to the accretion of a Palaeoproterozoic continental margin against the Archaean Core of southern Greenland. Dominy *et al.* (2006) report that the site lies in the Psammite Zone, a supracrustal succession of psammites with pelites and interstratified mafic volcanic rocks. Gold mineralisation at Nalunaq is hosted by a meta-volcanic unit composed of basaltic pillow lavas and pyroclastics intruded by dolerite sills. The volcanic rocks are reported (Dominy *et al.*, 2006) to be metamorphosed to amphibolites and the area is intruded by late- and post-tectonic granitoid plutons. It is also reported by Dominy *et al.* (2006) that at Nalunaq granitoid rocks surround three sides of the meta-volcanic mass hosting the vein mineralisation.

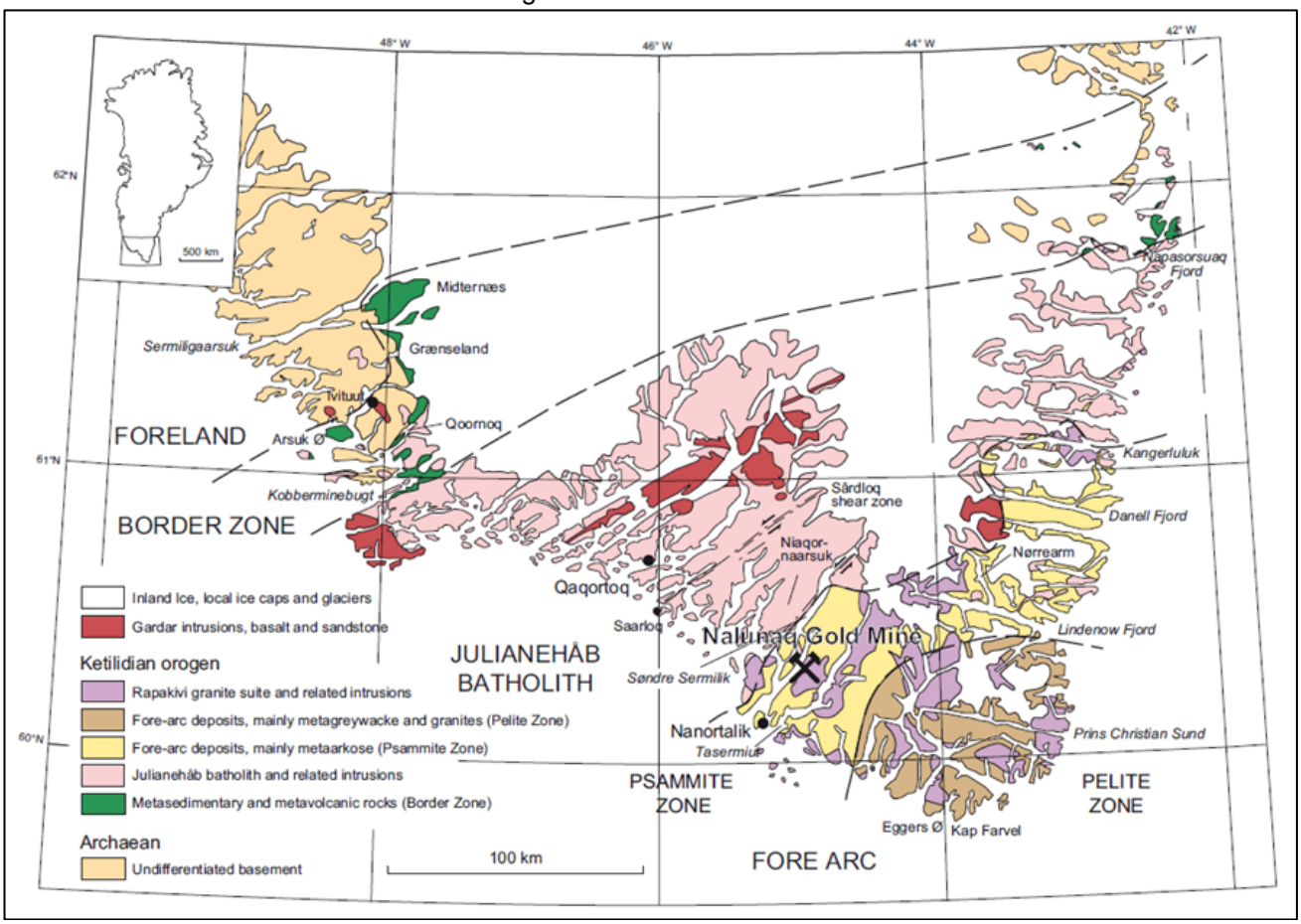

Figure 5-1: Geological Map of Southern Greenland with the location of the Nalunaq Mine (from Secher et al., 2008)

On the Nanortalik peninsula metabasic rocks have been found in three areas, including Nalunaq. These three areas have been interpreted, by Petersen *et al.* (1997) as separate parts of the Nanortalik Nappe where tholeiitic basalt flows and doleritic sills have been thrust over

metasediments and intruded by later granites and several generations of late aplite and pegmatite dykes. The local geology consists mainly of fine-grained amphibolites and coarse-grained dolerite. The stratigraphy has been assigned into the structural footwall ("FW") and structural hanging wall ("HW") with respect to the main mineralised vein (Nalunaq Main Vein, "MV"). Between the granite of the deep footwall and the amphibolite and dolerite of the shallow footwall, silicified and pyrite-impregnated siltstones with intercalations of graphitic beds and altered fine-grained siltstones are present. The gold mineralised quartz vein is located at or close to the contact of fine-grained amphibolite and coarse-grained dolerite.

Nalunaq is a high-grade narrow vein gold deposit hosted in a package of metabasic rocks including metadolerites and fine grained amphibolites (Kvaerner, 2002). The Nalunaq Main Vein is exposed on two faces of Nalunaq Mountain (Figure). The vein is subparallel to the foliation and to the regional thrust/ shear planes, occurring about 100 m above the thrust-base (Petersen *et al*., 1997). On a local scale, the vein occurs along the contact between a medium grained metadolerite and fine-grained amphibolite in the footwall. The ore horizon is a calc-silicate zone with a discontinuous central filling of sheeted quartz veins often made up of slightly off-set flat quartz lenses which onlap laterally to yield swelling ore shoots connected to others by quartz-calc-silicate seams. Intensive calc-silicate altered amphibolites occur in discrete bands elsewhere in the series, particularly below the Main Vein, and may represent internal shear zones with enhanced fluid flow (Petersen *et al*., 1997).

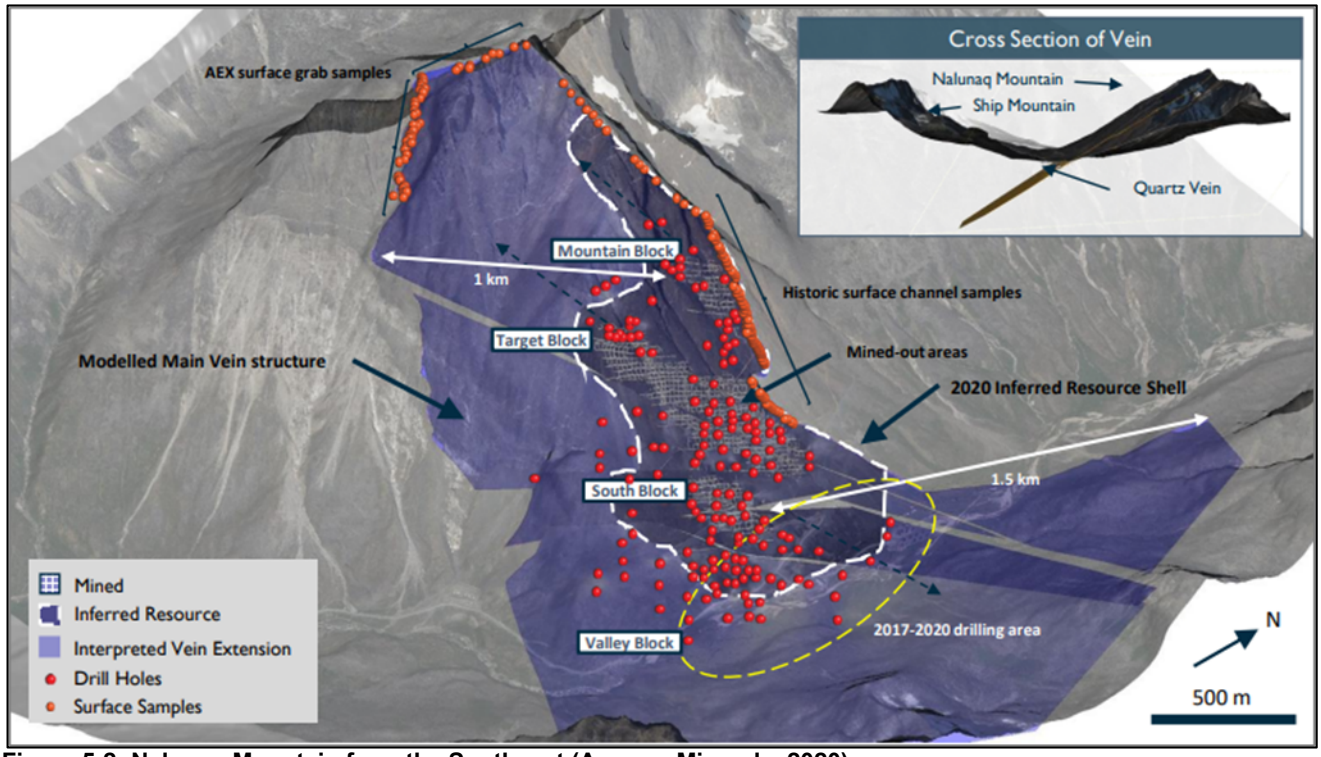

Figure 5-2: Nalunaq Mountain from the Southeast (Amaroq Minerals, 2020)

The mineralogy and composition of the waste rock and both flotation and gravity tailings samples reflects their geological origin. The concentration of most constituents is low and the only identified potential contaminant of concern (PCOC) based on trace element composition is Arsenic with an average concentration 149 mg/kg (median 98 mg/kg) with the tailings' samples showing a net buffering capacity and low sulphide content ranging from <0.04% sulphide sulphur in the flotation tailings to a maximum of 0.36% in gravity tailings (Golder, 2021g; Tailings

Waste Characterisation Review, 5 July 2021. Report ref: 21467213.500.A.0). The tailings samples are generally considered inert with respect to sulphide content and neutralisation potential based on European Union's classification of inert extractive waste (European Commission, 2009). The highest concentration of PCOCs exist within the ore which will enter the process stream and end up in tailings or shipped offsite as gravity concentrate.

An analysis of the uranium content of the ore and waste rock has been undertaken (Golder, 2022c; Nalunaq Gold Mine, Greenland - Uranium Concentrations - Technical Memo, 25 March 2022. Report ref: 21467213.C04.4.B.0) to compare with the statutory limit of 100 ppm as set out in Greenlandic legislation (Greenlandic Parliament Act of December 1, 2021, on a Ban on Preliminary Investigation, Exploration and Exploitation of Uranium, etc). Recent testing has been carried out on samples of tailings, which are processed from Nalunaq ore using both gravity and flotation extraction methods. The Uranium concentrations reported in flotation tailings samples range from 0.12 mg/kg to 0.65 mg/kg, with a mean concentration of 0.44 mg/kg. For gravity tailings samples, uranium concentration range between 0.15 mg/kg to 0.87 mg/kg, with a mean concentration of 0.52 mg/kg. These concentrations are considerably less that the statutory limit of 100 ppm (100 mg/kg). The detailed assessment is included in Appendix XI in the EIA.

5.4 Project Timeframe and Phasing

The overall project plan, proposed by Nalunaq A/S, for exploiting the resource is split into three main phases which are outlined in Table .

Table 5-2: Project Timeframe and Phasing

Phase	Timing	Planned Activities
Construction and predevelopment	1 year	Repair of roads and new access to the orebody via a new portal and the extraction of a bulk sample to assist in final Resource definition and mining planning. Packaged equipment will arrive on site and be installed by specialist construction workers. Buildings will be erected to provide protection against weather events. There will be continuous deliveries of elements to Plant and equipment from/ to the Project site.
Operations	5 years (likely to extend as new resources are found)	Once operations commence, the Mine and Plant will gradually be extended until steady state operation is achieved. Mined areas will progressively be back filled. Waste rock generated from the underground excavations that is not used for construction, road maintenance or the DTSF will remain underground deposited in mined excavations as unconsolidated waste rock backfill.
Closure and decommissioning	1 year	Buildings, plant and utilities will be removed, and the last mined area will be rehabilitated.
Post-closure		A preliminary Closure Plan containing a conceptual Monitoring Plan is available in Appendix XV. In summary, Nalunaq will develop and implement an Environmental Monitoring Program (EMP) as part of an Environmental Management Plan in accordance with

Phase	Timing	Planned Activities
		the Greenlandic guidelines to monitor the potential impact of the mining operation for 5 years following closure. The monitoring program will focus on physical monitoring of meteorology, groundwater, surface water and air (dust). The results of the monitoring programme will be submitted in an annual monitoring report to regulatory authorities for review.

5.5 Project Facilities

The facilities required to bring the project into operation include the following:

- Camp facilities;
- Power generation;
- Fuel storage facilities;
- Helipad, jetty and beach landing area;
- Underground development before mining operation;
- Process plant;
- Dry Tailings Storage Facility (DTSF); and
- Access roads.

The above facilities will be constructed during the 12-month construction phase. The workforce during construction is expected to be between 80 and 100 workers.

An overview of the Project Area is shown in Figure 2 and the Project Layout is shown in Figure .

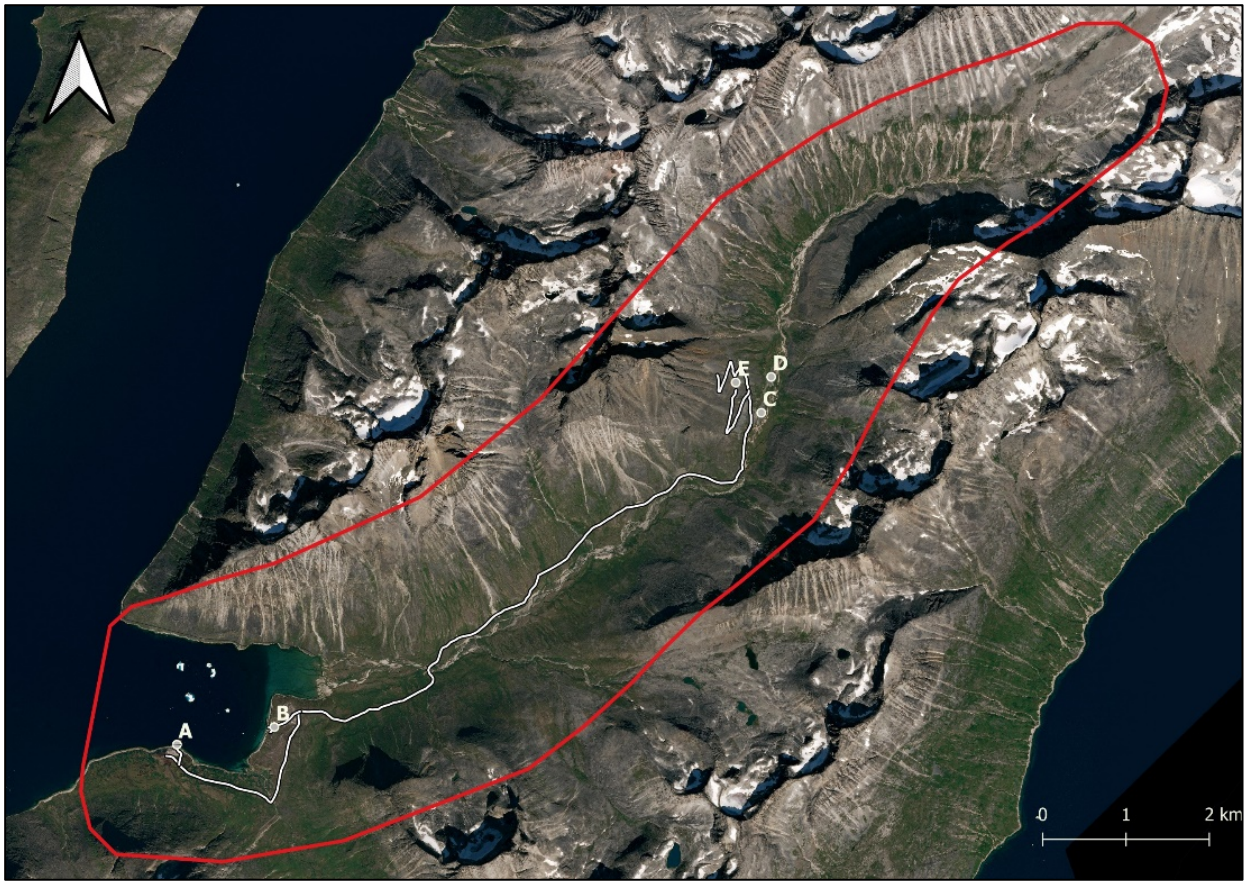

Figure 2-3: Overview of the Project Area

(A: Jetty; B: Camp; C: Process plant; D: Tailing storage; E: The mine. The road between the jetty and the mine is shown with a white line.)

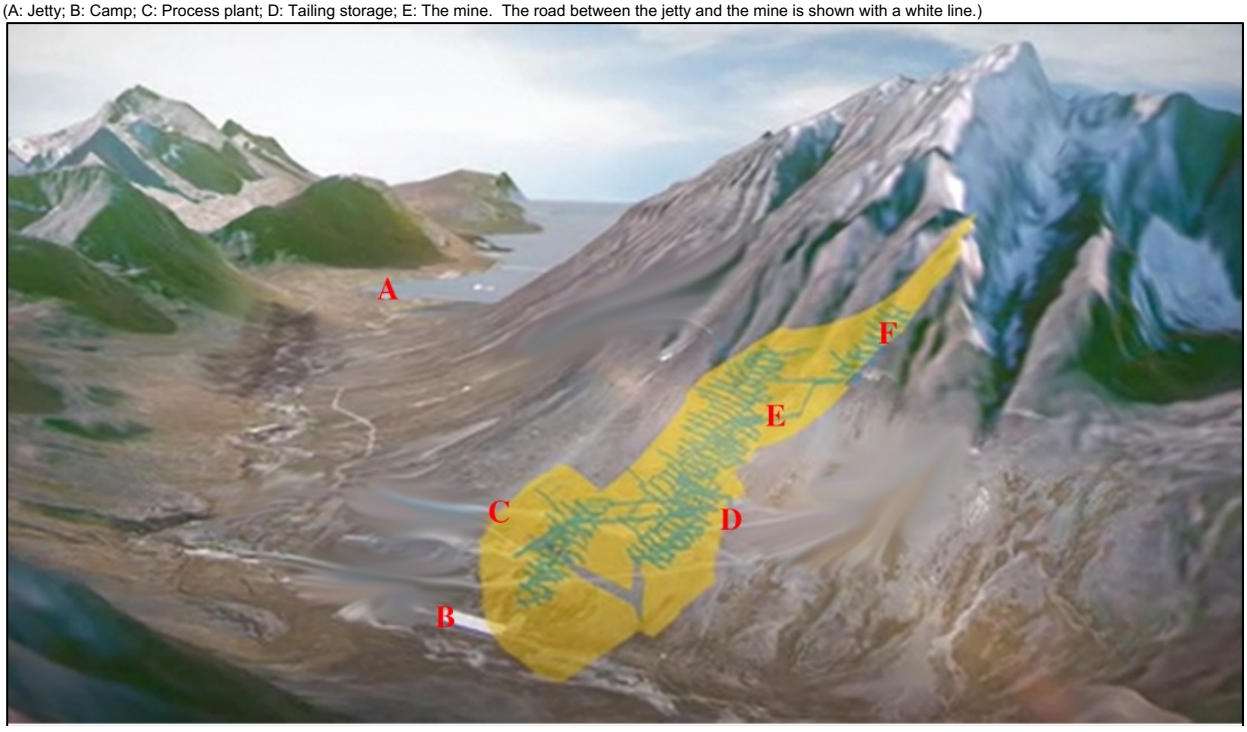

Figure 5-4: Project Layout

(A: Camp; B: Process Plant; C: South Block, 300 Portal and Valley Block; D: 350 Portal; E: 400 Portal; F: 600 Portal.)

5.6 Construction Phase

5.6.1 Introduction

The construction of the different facilities required to return the mine to operations will be carried out in a number of discrete tasks which are described in the following sections.

5.6.2 Establishment of Permanent Camp Facilities

The temporary Camp Facility for field activities was approved by the MLSA in November 2020 and was established near the Amitsup Saqqaa Fjord. The temporary Exploration/Construction Camp was moved into position during the latter part of the 2020 field season and will be expanded in capacity to support construction activities while the permanent Camp is being built. The new Camp, consisting of dormitories, a kitchen and canteen, a laundry, a mud room and a changing room, as well as a recreation building and an administration office and will be capable of hosting 100 persons. The Camp will be supported by other facilities, such as a sewage treatment plant, potable water treatment plant, fire protection system, freshwater pumps located in the fjord, incinerator and diesel generators. The Camp Complex has been designed with the assistance of health and safety professionals to enable operation under pandemic conditions, such as COVID-19. The camp will be constructed in accordance with the Greenlandic Building code. The location and layout of the facilities is shown in Figure 5-5 and Figure 5-6 and the detailed layout of the Camp Complex is shown in Figure 5-7.

Figure 5-5: Location and Layout of Camp Facilities

(A: Camp Facility; B: Fjord Pumps; C: Beach Landing; D: Fuel Storage Area; E: Exploration / Construction Camp; F: Jetty; G: Camp Power Generation; H: Camp Helipad.)

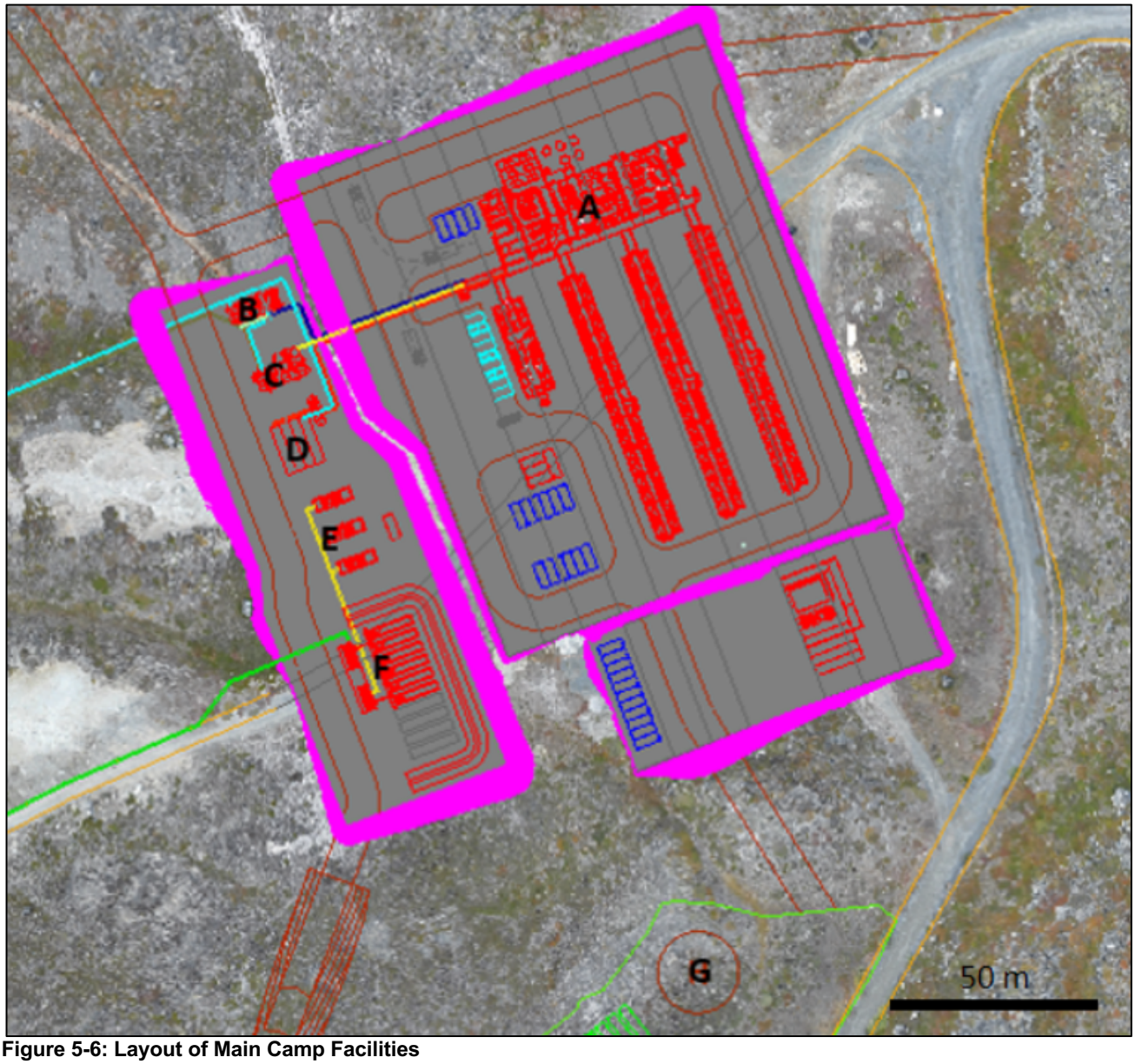

Figure 5-6: Layout of Main Camp Facilities

(A: Camp Facility; B: Potable Water Treatment; C: Sewage Treatment; D: Fire Water Tanks; E: Camp Power Generation; F: Fuel Storage Area; G: Camp Helipad)

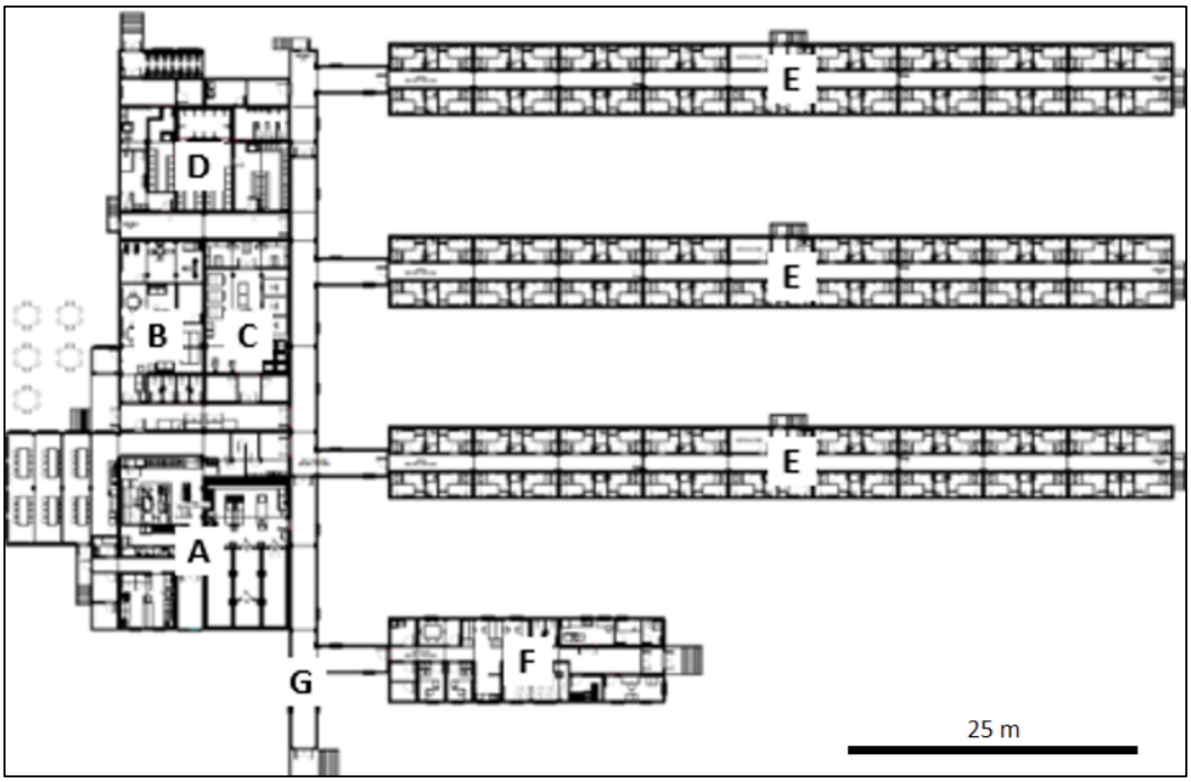

Figure 5-7: Detailed Layout of Camp Complex

(A: Kitchen; B: Recreation Room; C: Laundry. D: Changing Room; E: Dormitories; F: Administration Building; G: Arctic Corridors)

5.6.3 Power Generation

Electrical power to power the project facilities will initially be supplied by diesel generating sets, although Amaroq Minerals is currently in discussions to utilise green energy, including a small hydro plant. Two separate power plants will be established on site, one near the Camp and another near the mine and processing facility. At the Camp, a power generation facility with a peak power demand of approximately 500kW will be installed, whereas for the process plant and the mine the power generation facility will be designed for a peak power of approximately 2,000kW.

All electrical installations, including electrical production and distribution facilities, power cables and electrical machinery will be designed, constructed, and maintained in accordance with Greenlandic laws, regulations, provisions and guidelines and comply with all requirements. Approvals will be required from the Greenland Electrical Authority.

5.6.4 Fuel Storage and Management

The main fuel storage facility will consist of a 414 m^3 of storage capacity, located near the Camp. This will include 6 tanks of 69 m^3 capacity each. The tanks will be of the double wall type and will be installed inside secondary containment consisting of a High-Density Polyethylene (HDPE) membrane surrounded by rock fill berms.

Fuel is expected to be dispatched from the main storage area to the mine area by a 25 m^3 capacity fuel truck. At the mine site, two 30 m^3 double wall tanks will be located near the process facility, servicing the process plant and the mine.

Fuel will be delivered to Nalunaq by fuel barges in the Amitsup Saqqaa fjord, which will pump fuel towards the main fuel facility. The Company will establish a fuel supply scheme whereby fuel consumed in a week will be replenished by barging fuel tankers of 60 m^3 capacity between the site and Nanortalik using a local operator at a frequency of 1 or 2 tankers per week.
The fuel storage and management will comply with the executive order No. 9 dated 6th of March on flammable liquids, part of the approval of the activity plan pursuant to section 86 of the Mineral Resources Act.

5.6.5 Helipads and Beach Landing

For ease of access to site during regular operations and for emergency use, a helipad will be constructed to be located at the Camp and the existing historic pad near the mine and process facility will be upgraded so as to be fit for operation.
The shipping of material in and out of Nalunaq will be supported by upgrading the historical barge beach landing area near the Camp. The beach landing area will also be used to support operations. The jetty, constructed in the early 2000s, may be used occasionally to support other logistical requirements.

5.6.6 Construction of Process Plant and Auxiliary Infrastructure

The process flowsheet was established and selected based on various key historical data and supported by various metallurgical test work program in the Project's Feasibility Study (Kvaerner E&C, 2002) and updated by the Company in 2020 by optimizing flotation test work. The latter provided important key findings pertaining to the performance of a flotation process versus a typical cyanide leaching recovery process.
The processing facilities will comprise the following main systems:

- Crushing;
- Dust collection;
- Grinding;
- Gravity recovery;
- Flotation;
- Tailings thickening;
- Tailings filtering; and
- Gold room (used for smelting the gravity concentrate into doré).

The major process area will be surrounded by containment where appropriate.

The process plant building will be constructed on an engineered platform in the Kirkespirdalen in an area previously utilized by past operators and effectively considered as a brownfield site. The engineered platform will be built above the 1:1000-year event flood contour. The process plant building will be located between the Dry Stack Tailings Storage Facility (DTSF) (see Section 5.6.7) to its north and the new 235 level Portal to its south. A mill feed will also be located on the south/west area of the process plant's pad. Roads will be located on both sides of the process plant to provide access to both sides of the building. The process plant will have capacity to treat approximately 100,000 tonnes of feed material per year. The general layout of the process plant is shown in Figure 5-8.

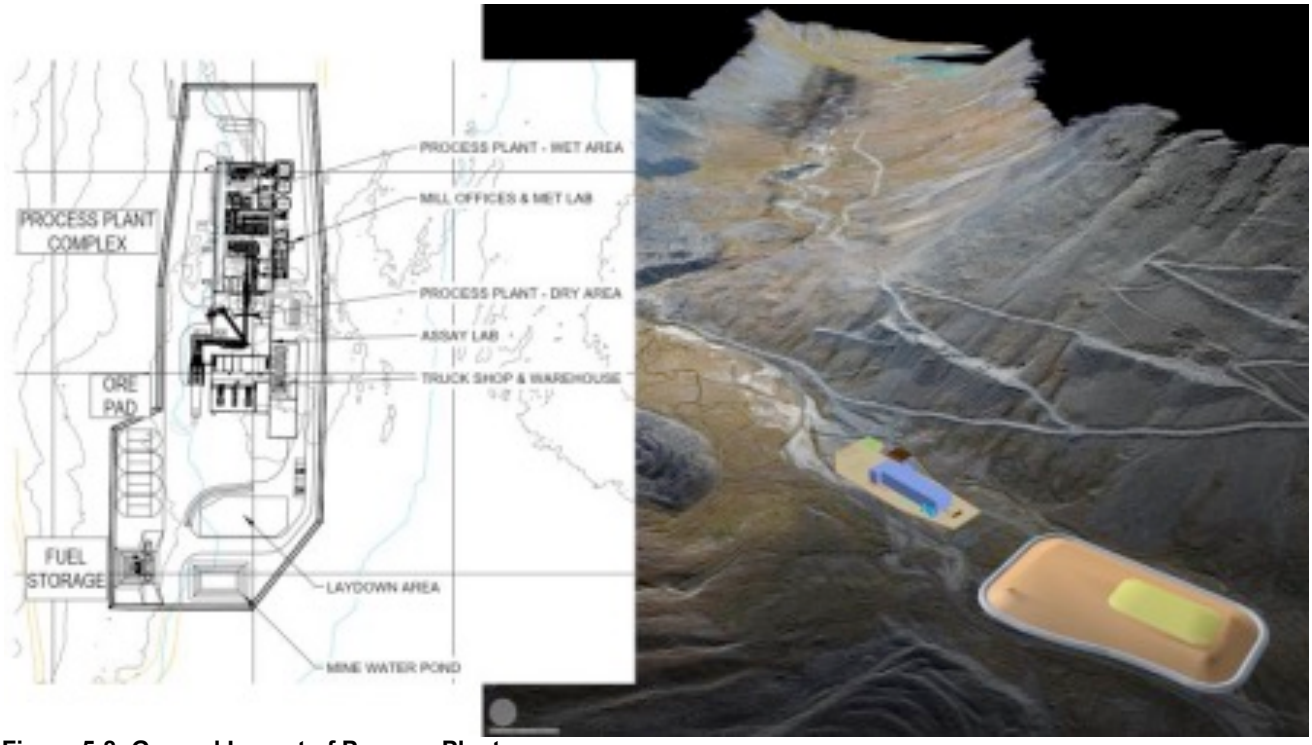

Figure 5-8: General Layout of Process Plant

The building will consist of insulated prefabricated sandwich panels for the walls and the roof system, using non-combustible material. The building will be installed on top of prefabricated concrete foundations. In the middle of the building a separation wall will divide the crushing and stockpiling area to the rest of the process area. The perimeter of the process plant building will house the control room, metallurgical lab, reagents storage, workshops, material storage, electrical room, process water tanks, clean water tanks and fire water tanks. The other buildings such as the offices, the warehouse and the assay lab will be of a modular type.

Raw water supply for the process plant requirements will be provided by 2 to 4 shallow groundwater wells that will be located close to the process plant area. The average water requirements are approximately 3 m^3/hour. A fire protection system will be included in the process plant building and will be comprise of fire hose stations.

Material will be fed to the primary crusher on the south side of the building and filtered tailings will be stockpiled in day piles to the north side, before being trucked to tailings disposal facility (see Section 5.6.7). The smelting facility will produce doré from the gravity concentrate and the flotation concentrate will be filtered, bagged and exported for additional refining.

The process plant and the underground mine will be supported by auxiliary infrastructures such as a maintenance shop, offices, warehouse, assay lab, fuel storage facility and power generation as illustrated in Figure 5-95-9.

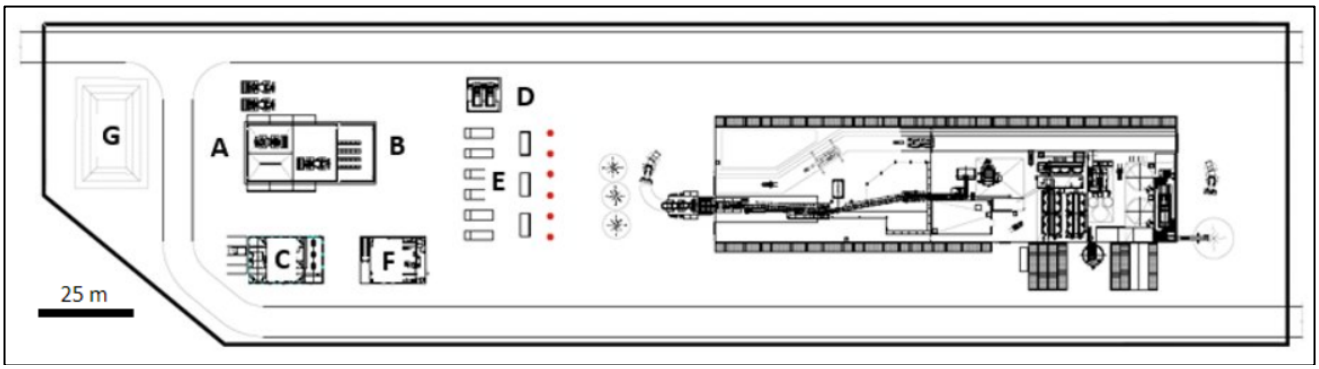

Figure 5-9: Auxiliary Infrastructure to Support the Processing Facilities

(A: Maintenance Shop; B: Warehouse; C: Offices; D: Fuel Storage; E: Power Generation; F: Assay Lab; G: Holding Pond.)

5.6.7 Establishment of Dry Stack Tailings Storage Facility

A key element of the Project will be the implementation of a process waste disposal facility, commonly known as tailings storage facility (TSF). Various tailings disposal technologies were investigated by Golder (Golder 2020) which ultimately culminated in the selection of a DTSF for the Project after an options analysis (see Section 5.9). The location of the DTSF was based on an assessment of the suitability of a number of alternative locations as set out in Golder (2022a; Tailings Storage Facility Options Analysis – Technical Memo, 7 March 2022. Report ref: 21467213.C04.1.B.0). This report is presented in Appendix IX.

The DTSF was designed to be an unlined and uncapped facility located on top of an engineered platform, above the 1:1000-year flood event line and protected by an outer berm from the maximum flood event, as shown in Figure 5-10.

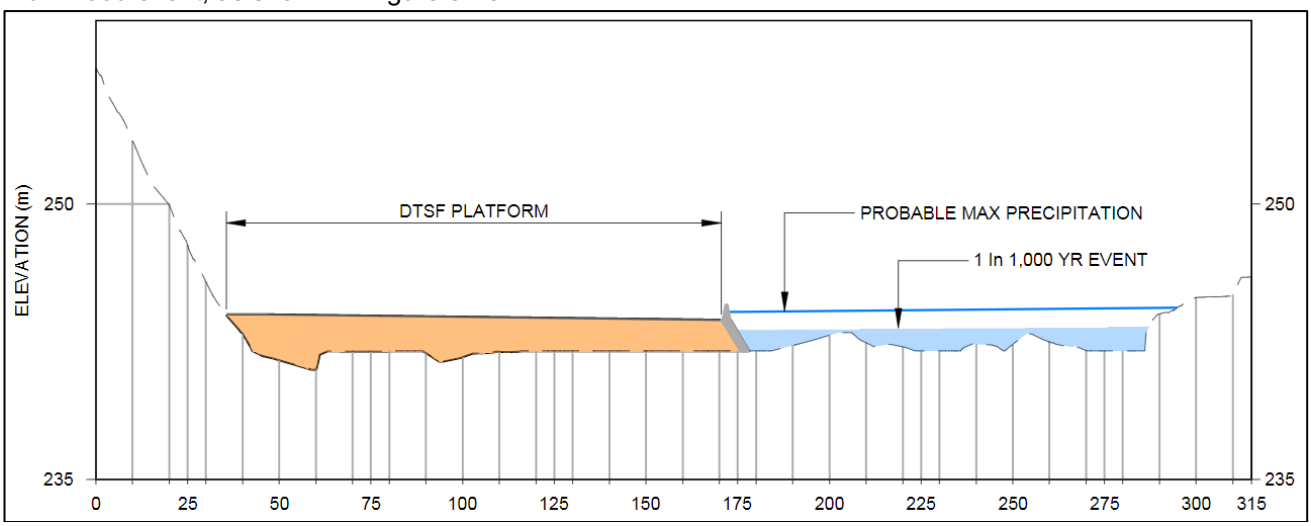

Figure 5-10: Typical Section through the DTSF Showing Elevations Relative to a 1 in 1,000-year Flood Event

The flood protection platform will be constructed in two stages. The first stage will be constructed to provide tailings storage capacity for the first two years of operation and the platform footprint will be expanded to provide a further 3 years capacity. The full storage capacity of the DTSF will be capable of holding the tailings generated during the entire Life of Mine (LOM). The concept of the phased development of the facility is shown in Figure 5-11.

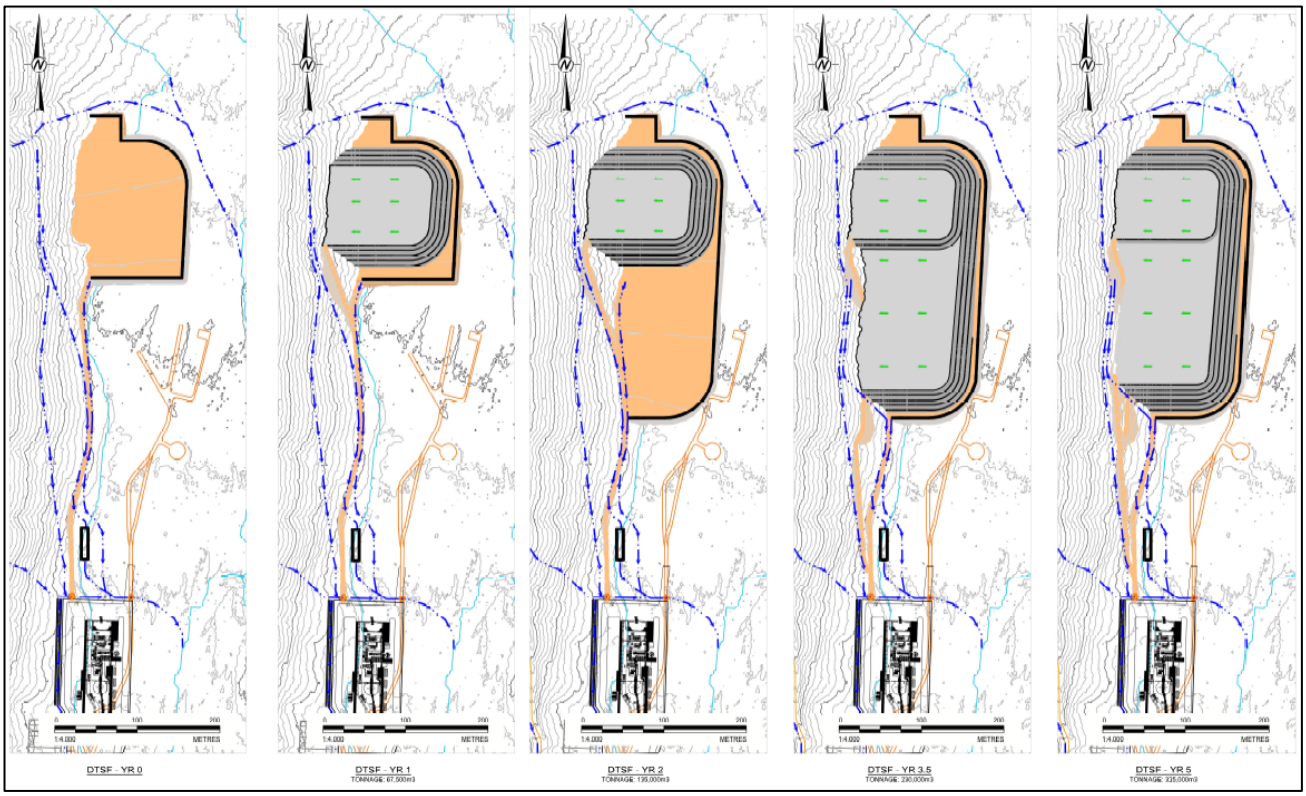

Figure 5-11: Conceptual Evolution of the DTSF Over the LOM (Golder, 2020)

Geotechnical test work was undertaken on representative tailings samples to establish a design criterion for the DTSF, as included in Golder (2021d; Tailings Storage Facility Design Report, 20 January 2021. Report ref: 20136781.619.A.1). The outer slopes of the DTSF will be protected against erosion by riprap armouring comprising rockfill and transition/filter layers (Golder, 2021d; Tailings Storage Facility Design Report, 20 January 2021. Report ref: 20136781.619.A.1). Site preparation for the DTSF will include clearing and grubbing, construction of access roads and salvaging topsoil for future reclamation use. After topsoil stripping, unsuitable materials within the footprint of the DTSF will be removed prior to construction of the DTSF platform.

As the DTSF is an unlined facility with no low permeability lining/capping system on the flanks or top that would inhibit oxygen ingress the facility will not become anoxic and will be free draining both internally and on the surface. It is noted that there is a potential for ice lenses to develop within the DTSF if rainfall is allowed to pond or snow left on the surface are subsequently covered with tailings material. This risk will be mitigated through maintenance of drainage and removing snow from the surface prior to tailings placement. A figure showing the relationship of the DTSF with the groundwater environment is presented in Figure 5-12.

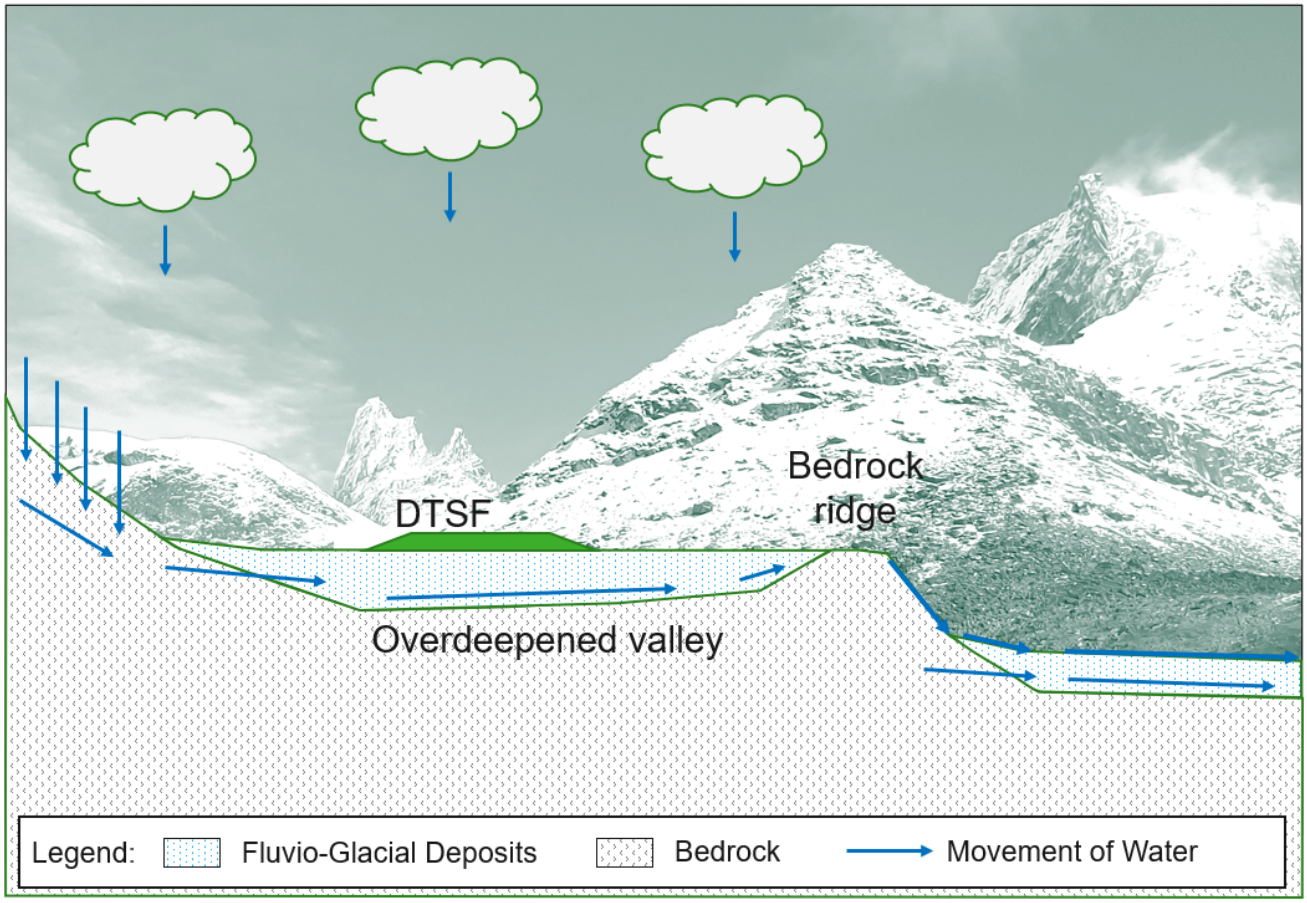

Figure 5-12: Conceptual drawing showing the relationship of the DTSF with the groundwater environment

Access roads will be developed during pre-deposition works to allow access to the DTSF platform and for access at the final elevation. The access roads will typically include a gravel surface placed onto graded, ripped and compacted subgrade and the upper road surface will be profiled to prevent ponding of surface water and to allow runoff and drainage.

Surface water from the hillside to the west of the DTSF and process plant will be intercepted by series of diversion channels and drains. This non-contact water will then be discharged to the Kirkespir river. All surface water from DTSF and the process plant area will be collected in a sediment pond (see Section 5.7.8) for controlled discharge to the Kirkespir river. Full details of the surface water assessment and management are described in the technical background reports on hydrology (Golder, 2023a; Water Management Plan Technical Background Report, 17 March 2023. Report ref: 20136781.611.A.3; and Golder, 2021e; Hydrological and Hydrogeological Study Technical Background Report, 27 January 2021. Report ref: 20136781.613.A.0).

Tailings samples were generated in 2020 and 2021 for geochemical testing at SGS Lakefield in Ontario, Canada. Rock core samples representative of areas of the mine were subjected to gravity and flotation processing. It is noted that the Project intends to move forward with flotation processing methodology for the mine planning, however, sometimes discharge of gravity tailings to the Dry Tailings Stack Facility (DTSF) may be required due to operational constraints. Therefore, both flotation and gravity tailings were tested using static and kinetic test methods. The static testing results received including chemical composition and acid base accounting indicate that on the basis of assessment against NP and NAG pH all samples are likely to be Non Acid Forming (NAF). The NNP indicates that for some flotation and gravity samples the acid generation potential is uncertain. Humidity cell testing was recommended to assess the

drainage chemistry of the dry stack filtered tailings. Bottle roll testing was recommended on the basis of the site setting, as the test method is suitable for assessing solute release rates from tailings that end up in an aqueous setting subject to mechanical abrasion (such as tailings in a stream).
Humidity cell results to week 25 show that pH values in the cells are neutral to alkaline and the samples are not acid generating. Some common CoPCs are identified between both the HCT and Intermittent Bottle Roll Tests, including aluminium, arsenic, cobalt, copper, magnesium, nickel, and phosphorus. Concentrations decrease and stabilise in the humidity cells over the testing period, with fewer metals exceeding limits by week 25 (only aluminium, arsenic, cobalt, and mercury (one sample only)).
Further detail of the geochemical testing is provided in Section 5.11.3.

5.6.8 Shipping During Construction

The majority of equipment to be delivered to the site during construction will be transported by vessels and barges to the beach landing. Approximately 19,000 m^3 of bulk cargo and 8,000 m^3 of containerized cargo will be delivered to the site. Depending on the shipment size and cargo consolidation methodology in Greenland, approximately 250 to 300 Twenty-foot Equivalent Units (TEU) will be sent to Nalunaq during the construction period. The strategy behind the logistics of these operations will be to consolidate cargo from international suppliers and to optimize shipments to Greenland, where cargo would then be barged to site. It is estimated that approximately 50-75 trips of barges from Nanortalik or Qaqortoq will be carried out to bring the cargo to site. The Company is also considering chartering vessels directly to Nalunaq to avoid multiple re-handling of cargo and overcrowding of local ports. A detailed logistics plan will be developed prior to the start of construction.

5.6.9 Access Roads

The project benefits from an existing gravel road running from the jetty to the mine area. The road was repaired in 2019 and maintenance work will be ongoing during the construction and the operations. The Kirkespir river bridge was upgraded in 2021 and is considered to be sufficient for planned operations.

5.7 Operation Phase/Production Phase

5.7.1 Introduction and General Overview

Nalunaq A/S is planning an initial underground development programme followed by a five-year production period. Mining is expected to ramp up to 100,000 tonnes of mill feed per annum. Two products will be produced for export:

- Gravity concentration doré; and
- Gold flotation concentrate.

In the planned production profile, recovery of the gold is first by gravity concentration followed by additional recovery by flotation. The production plan from the underground development program and the mining operations thereafter is summarized in Table 5-3. At closure and post-closure, the volumes represented in Table 5-3 will be 0 for all materials in accordance with the cessation of mining and processing activities.

Table 5-3: Production Plan for the Project

Production Plan	Total	Average	Year 1	Year 2	Year 3	Year 4	Year 5**
Waste Rock (tonnes)	750,000	122,000	50,000	140,000	140,000	140,000	140,000
Mined Production (tonnes)	540,000	100,000	30,000*	100,000	100,000	100,000	100,000
Gold Grade (g/t)	-	14	14	14	14	14	14
Mill Production (tonnes)	500,000	100,000	100,000	100,000	100,000	100,000	100,000
Gold Grade (g/t)	-	13	11	14	14	14	14
Contained Gold (koz)	214.6	43	34.6	45.0	45.0	45.0	45.0
Dore Gold Recovery	-	68%	68%	68%	68%	68%	68%
Dore Gold (koz)	145.9	29	23.5	30.6	30.6	30.6	30.6
Concentrate Recovery	-	75%	75%	75%	75%	75%	75%
Concentrate Gold (koz)	51.5	10	8.3	10.8	10.8	10.8	10.8
Tailings (tonnes)	485,000	97,000	97,000	97,000	97,000	97,000	97,000

* Material suitable for mill feed will be stockpiled during the underground exploration development program

** Production plan to be extended if further resources are found

5.7.2 Exploration Activities Prior to Mining Operations

The Nalunaq Gold mine will be reactivated through an exploration development programme, which will then be succeeded by a ramp up of the mining activities. The aim of the programme is to expand the mineral resource. The exploration development will take place in the Valley Block from a new mine portal at level 235 and will consist of a tunnel through waste rock to access the mineralized structure, from which exploration development on the vein will be initiated. The intended development length and tonnage as provided by the conceptual design stage is provided in Table 1.

The mineralized material will be stockpiled at site until permits for commencement of processing have been obtained, while the waste rock, which is assessed as non-acid generating (Golder, 2021g; Tailings Waste Characterisation Review, 5 July 2021. Report ref: 21467213.500.A.0) will be placed in the mine, the external waste rock dump or used to build and maintain mine infrastructure.

Initially, 40,000 tonnes of material will be stockpiled for processing during the exploration phase, prior to the commencement of processing. The material will be generated from the exploration development activities (tunnels) excavated along the mineralized structure. The stockpile will be located directly adjacent to the processing plant. Once processing has commenced the stockpile will be drawn down when there is capacity at the mill due to unplanned production shortfalls from the mine. Additional material may be added to the stockpile (up to the total stockpile capacity of 40,000 tonnes) when the mine is operational, but the mill is unavailable. Final drawdown of the stockpile will occur prior to closure.

Table 1: Lengths and Quantities Relating to the Underground Exploration Programme

Description	Total
Access/Infrastructure Tunnel Length	500 m
On-Vein Tunnel Length	1,800 m
Total Tunnel Length	2,300 m
Waste Rock Tonnage	50,000 t
Mill Feed* Tonnage	40,000 t
Total Tonnage	90,000 t

* Material suitable for mill feed will be stockpiled during the underground exploration development program

The company will continue its exploration activities in the Target Block and other high-grade domains through underground and surface drilling programs, which will provide the information to support a possible re-initiation of mining activities in those areas. If further exploration leads to revaluation of the amount of mineralized material, Nalunaq will prepare a supplementary EIA application.

5.7.3 Mining Activities

The mining activities will be centred around the promising Valley Block, which will be accessed through the new mine portal at level 235. The overall mining and processing site layout is shown in Figure 5-13.

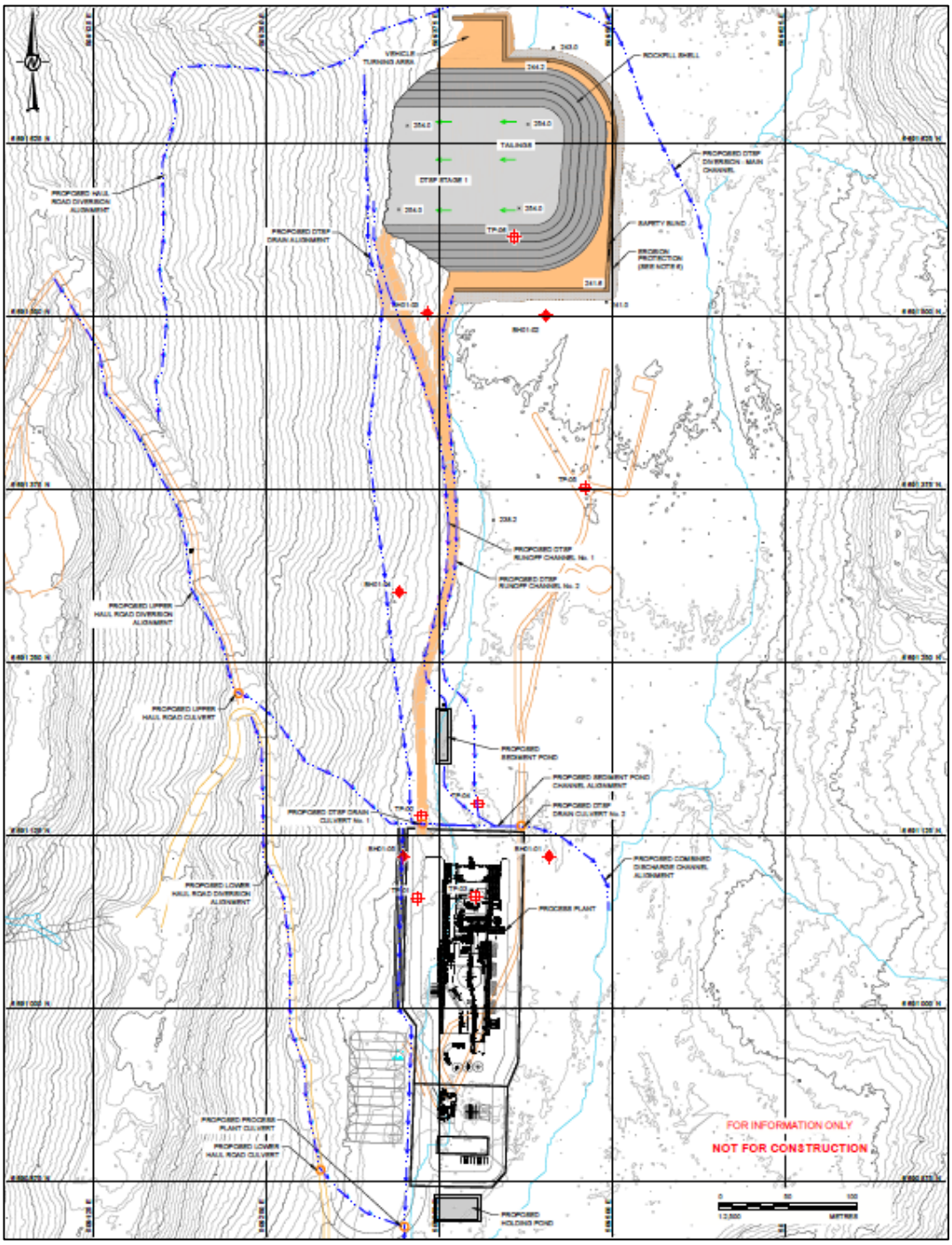

Figure 5-13: Schematic Showing Mine Layout

In the current plan for the LOM, the mine is expected to be in operation 24 hours per day, seven days per week and 365 days per year. It is expected that on average 300 tonnes of material will be mined underground inside the Nalunaq Mountain every day. Blasting will occur at the end of each shift once the mine is cleared. Material mined in the Valley Block will be brought to surface by the underground mining truck fleet to the dedicated pads. Material generated by the future mining operations from the Target Block and Mountain Block will be trucked out of the level 300 portal by the underground mining truck fleet and stockpiled outside the entrance at Portal 300 before being re-handled by surface support equipment and hauled down to the

dedicated pads at the processing plant. Development and mining at the Target Block could start as early as year three.

The underground mining fleet is expected to consist of jumbo drills, long-haul-dump machines (LHDs), underground haulage trucks, production and exploration drills as well as other service vehicles. All vehicles are currently planned to be diesel powered and the company is exploring the possibility of integrating battery powered equipment in the future as technology evolves.

Waste rock will be used, in so far as is possible, as construction material, rock fill material and for maintenance during the Operational Phase of the project.

5.7.4 Use and Storage of Explosives

Explosives management will be according to the Greenlandic Executive order no. 16 of 16th of July 2007 concerning explosives. It has been suggested that explosives will be stored above ground at the location indicated on the site layout drawing below (Figure 5-14). Should this location not be acceptable, another location will be agreed in writing with the Greenlandic Authorities.

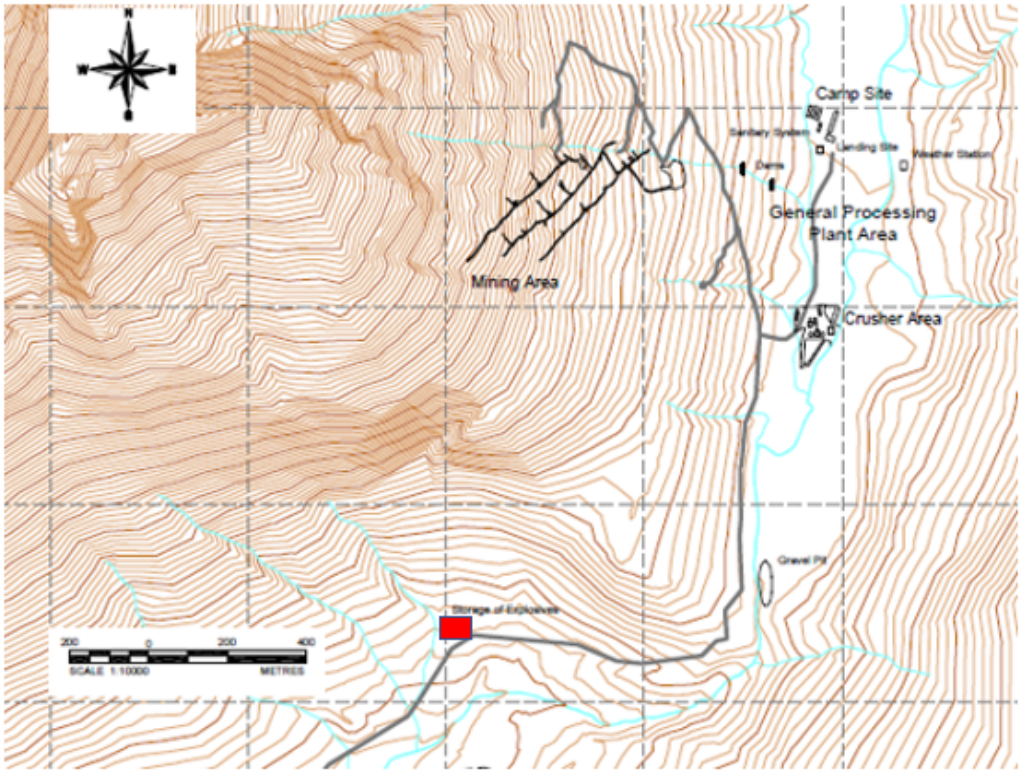

Figure 5-14: Position of explosives store (red rectangle)

Two types of explosive are currently being considered:

- Packaged emulsion; and
- Bulk emulsion.

The estimated quantity of explosives required for the exploration program is 150,000 kg, and the estimated yearly consumption of explosives is 400,000 kg, regardless of type of explosive selected.

Emulsion (either packaged or bulk) will be used for blasting activities. The nitrogen contained in emulsion is surrounded by a film of oil which minimizes contact with external water sources. Emulsion was selected for use in the project specifically due to its low capacity to introduce

nitrogen into the water system. All explosives will be managed to maintain not only security but so as to mitigate the risk of pollution of water resources.
Any spill of emulsion in bulk will be contained and cleaned up by using non-flammable take-up material such as bentonite. Any material relating to spill clean-up will be disposed of in accordance with Greenland government guidance (Government of Greenland, 2000).
Details of the likely explosive systems are provided in Table 5-4.

Table 5-4: Likely explosives to be used

Name	Type	Environmental aspects
Subtek Velcro	Bulk emulsion explosive; Ammonium nitrate emulsion (>60%) also containing distillates, thiourea, water (10-30%), urea, vegetable oils and other non-hazardous components.	Highly water resistant, which minimises nitrate leaching and reduces environmental impact. Ammonium nitrate is a plant nutrient that can stimulate algal and week growth in surface waters. It must therefore be kept out of waterways.
Cordtex N - Pentrit (PETN, pentaerythritol tetranitrate)	Flexible detonating cord, containing explosives. The cord consists of a PETN core, covered by a fibre fabric, covered by PVC.	Product is insoluble in water and therefore is considered to have minimal environmental impact.
Eurodyn 2000	Nitroglycol based, high strength, detonator sensitive explosive. Contains ammonium nitrate and ethylene dinitrate	Highly water resistant, which minimises leaching and reduces environmental impact. Does not contain any aromatic nitro compounds (DNT and TNT) which are considered to be carcinogenic.
Poladyn	Nitroester dynamite explosive	Highly water resistant, which minimises nitrate leaching and reduces environmental impact.
Exel Lead-in Line	Flexible tubing for initiating blasts	N/A
Exel LP	Non electric detonators with yellow Exel signal tube, with base charge inside aluminium shell	Base charge is sealed within waterproof shell

Destruction of explosives, explosive articles, blasting and igniting agents will be by burning or blasting in accordance with the Greenlandic Explosive Act no. 16 of 16 July 2007 on explosives.

5.7.5 Processing Activities

The ore will be processed in the processing facility, which will consist of the following extraction circuits: crushing, grinding, gravity recovery, flotation, thickening, and tailings filtering with disposal to the DTSF. There will also be a gravity concentrate smelting facility.

Stockpile systems will be used to blend various run of mine feed material to ensure the consistency of sulphides to the flotation process. It is expected that the majority of gold is recovered in the gravity concentration circuit with the remainder recovered using flotation methods, downstream of the gravity concentrator circuit (Halyard 2021).
It is expected that flotation tailings will be the predominant waste stream into the DTSF. However, due to operational requirements it may be required to discharge gravity tailings at isolated times and therefore both gravity and flotation tailings have been subjected to geochemical test work to support the assessment of seepage from the DSTF.
The following section regarding process activities is largely taken from Halyard (2022) with details regarding the plant reagents used and environmental impact of these from the technical note 2962-NT-004 by Soutex Inc..2021.

Material will be fed to a processing facility at a rate of approximately 100,000 tonnes per year. The processing facility will consist of the following processes:

- Crushing;
- Grinding;
- Gravity flotation;
- Thickening;
- Filtering tailings; and
- Gravity concentrate smelting.

A system for mixing the various types of rock material when feeding the crushing and grinding process from the stockpiles will be used to secure a steady input of sulphides to the flotation process needed to bind the reagents. The processing will take place inside a building equipped with a dust suppression system. Captured dust will be recirculated into the processing plant.
The process flow is developed around the high propensity of the gold at Nalunaq to be recovered in a gravity concentration circuit, calculated to be in the order of 65-75%. An additional 20 to 25% of the gold in the remaining slurry will be recovered by the flotation circuit downstream of the gravity concentration circuit. The process relies on the flotation behaviour of the auriferous pyrite minerals, by using reagents to separate these from the non-sulphide gangue. Using this technique, pyritic elements are concentrated to the top of a flotation cell and collected through an overflow launder, while other materials remain in suspension and are supplied to the tailings stream.
A block diagram of the process flow is presented in Figure 5-15 and reagents used within mineral processing are listed and described in Table 5-5 .

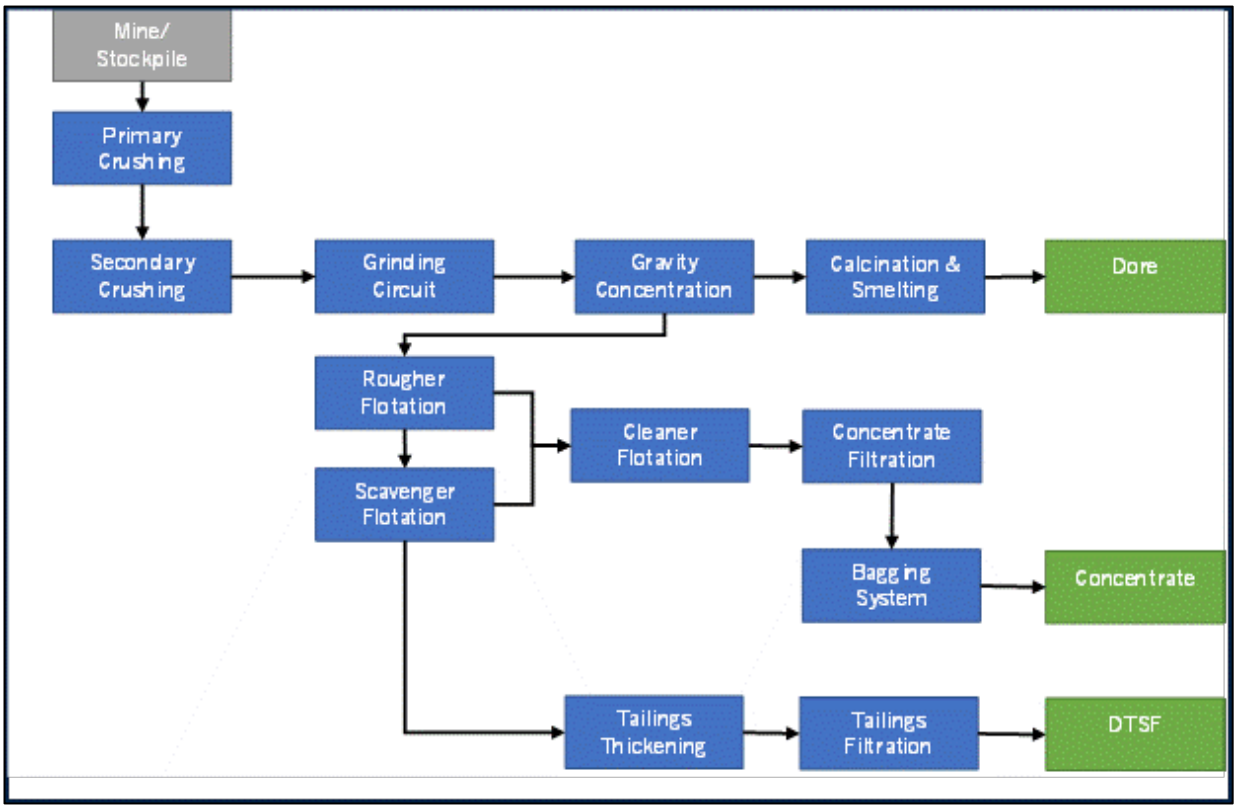

Figure 5-15: Block Diagram of the Processing Flowsheet

The processing steps are as follows:

Crushing – The crushing plant will process approximately 285 t/day. Ore is crushed in stages and transferred to the screen feed conveyor which is equipped with a magnet and tramp metal detector, passed through vibrating screens and further crushed to finally pass an aperture of 15mm. Ore is then conveyed to the indoor crushed ore stockpile. Dust collected is also discharged to the stockpile feed conveyor. Crushed ore from the stockpile is then conveyed to the ball mill feed chute.

Grinding and Gravity – Ball mill media is added to the ball mill to grind the crushed ore to a product size where 80% of the material passes 75 μm. Oversize material is returned to the ball mill via the ball mill conveyor. Screen undersize (-2 mm) is fed to one of two centrifugal gravity concentrators and the gravity concentrate then discharge periodically to a concentrate storage hopper, which in turn feeds to a hydrocyclone classifier. Hydrocyclone overflow is then supplied to the flotation circuit whilst the underflow is returned to the ball mill feed chute.

Grinding is performed at neutral pH and therefore the grinding media must resist oxidation. The recommended grinding media are Hi Chrome balls from Magotteaux or low oxidation balls from MolyCop.

Hydrocyclone overflow is supplied to the rougher conditioning tank (part of the flotation circuit) where PAX and A208 collectors are added. The role of the collectors is explained below. The flotation circuit consists of a rougher, scavenger and three cleaner stages.

Hydrocyclone overflow is supplied toThe rougher conditioning tank (6.5 m^3 capacity) where PAX and A208 collectors are added.

Flotation is a physico-chemical separation process that utilizes the difference in surface properties of the valuable minerals (at Nalunaq these are pyrite, arsenopyrite, precious metals) and the unwanted gangue minerals and is based on the surface properties and on the hydrophobicity and hydrophilicity properties of the mineral phases and takes place in a flotation

cell. To facilitate the separation, chemical reagents can be used to condition the surfaces of the particles or to modify their properties to promote a selective flotation. Chemical reagents are of three categories: collectors, modifiers and frothers.

The principle of mineral flotation requires that the solid particles are suspended by stirring in water in a cell after wet grinding has freed the valuable mineral species from the gangue minerals. The pulp (the solid-water mixture) is conditioned with a chemical reagent called a collector. The role of the collector is to make the surface of the valuable minerals hydrophobic, to provide a greater affinity for the gas phase (the air bubble) than for the liquid phase. The collector reagent sticks mainly to the surface of valuable minerals and then follows the concentrate. Minimal amounts remain in the tailings.

After being conditioned with reagents, some particles become hydrophobic (not wettable), while others remain hydrophilic. The air bubbles bind the hydrophobic particles, lifting them to the surface of the water and forming a stable foam which is removed (concentrate). The hydrophilic particles remain inside the pulp and are removed (tailings).

MIBC frother is also added to the rougher's first cell, and the tailings from the rougher stage feed a bank of scavenger cells. The tailings from the scavenger stage feed the tailing thickener. The rougher and scavenger concentrates are then combined and enter the first cleaner via a cleaner conditioning tank. PAX and A208 collectors are also added to the first cleaner conditioning tank. Tailings are circulated through a series of three cleaner cells. Concentrate from the third cleaner cell is expected to contain 3-4% arsenic.

The flocculant FLOPAM FO4140 is added to the tailings thickener to increase the slurry density from 30% solid to 55% solid by causing suspended solids to agglomerate to form larger particles which can then be more easily removed from the solution.

Dewatering of the concentrate is undertaken on the final flotation concentrate when it is approximately 45% solids. The concentrate is pumped to the concentrate filter feed tank and pressure filtered to a moisture content of approximately 9%. The filter cake is then discharged into a hopper with screw conveyor and fed into bulk bags for transport.

Scavenger flotation tailings are thickened to 55-60% solids in a 5.5m diameter thickener. The thickened tailings are then fed to a pressure filter to produce a filter cake with a moisture content of less than 15%. The filter cake is transported to the Dry Tailings Stacking Facility (DTSF) by truck. Filtrate from the tailings thickener is recirculated back to the tailings thickener and overflow water from the tailings thickener is used as process water within the process plant.

The gravity concentrate received from the gravity concentrators will be processed in the gold room. The concentrate will be pumped to a magnetic separator to remove iron particles. Magnetic particles are placed in a separator bin and non-magnetic particles are separated into concentrate streams and tails using a shaking gravity table. Tails are returned to the flotation circuit and the concentrate collected for filtering and calcining prior to smelting within the diesel fired smelting furnace and poured into doré.

Doré produced on site will be stored in a vault in the gold room and flown offsite to a refinery to increase gold purity to 99.99%. The flotation concentrate bags will be stored on site and regularly barged off-site to Nanortalik or Qaqortoq, from where they will be shipped out of Greenland to a refinery.

Process water, including the water from the thickening dewatering process, is continually recycled within the process and is added from a process water tank of 156 m^3 capacity. Make-up water, provided from wells adjacent to the process plant, is added in proportion to the amount of water lost from the process through being entrained within the concentrates and tailings filter cakes. The process plant also has a combined clean / fire water tank of 320 m^3

capacity. The clean water tank feed consists of filtered process water and fresh water and is used for reagent preparation, within the gravity concentrator and for the washing of tailings and concentrates, and in the event of a fire.

Table 5-5: Reagents used in mineral processing

Chemical / Reagent	Stage of Process	How supplied	Environmental Aspects
PAX – Potassium Amyl Xanthate PAX	Collector of sulphides	Delivered in solid form, in clearly identified containers. A 10% w/w solution will be prepared in site and added to the flotation pulp at a dosage of 70 g/t. Annual consumption is 7.3 t/yr and daily consumption of 20 kg/d	Stored in a dry, weatherproof, covered storage area with impermeable floor. Handling and preparation of the reagent will be carried out in a dedicated tank. The tank will be installed in a contained area that provides a facility for the safe disposal of the solution in case of any accidental spillage. The handling area will be well ventilated for health and safety by a fan system during reagent preparation.
Sodium diethyldithiophosphate (A-208)	Collector Used for flotation of fine particles of gold	Delivered in solution, in clearly identified containers. A dosing pump is used to pump the solution directly into the container. Added undiluted to flotation pulp at dosage of 35 g/t Annual consumption is 3.6 t/yr and daily consumption is 10 kg/d.	Handling is limited to transportation from storage area to the addition location. Handling of reagent will be done in tank dedicated for that purpose. The tank will be installed in a contained area that provides a facility for the safe disposal of the solution in case of any accidental spillage.
Methyl-Isobutyl-Carbinol (MIBC)	Frother	Delivered in liquid form, in clearly identified containers. A dosing pump is used to pump the solution directly into the container. Added undiluted to the pulp at a dosage of 45 g/t. Annual consumption is 4.5 t/y and daily consumption is 12 kg/d	Handling is limited to transportation from storage area to the addition location. Hand will be in a contained area that provides a facility for the safe disposal of the solution in case of any accidental spillage.
FLOPAM FO4140 Based on polyacrylamide copolymers	Flocculation	Dry, granular powder. Annual consumption is 2.6 t/y and daily consumption is 7 kg/d	FLOPAM is a non-toxic, plant-based flocculant widely used in the water treatment industry.

The plant design is such that an expansion to 150,000 tonnes per year could occur with the addition of minimal critical equipment (for instance, a second ball mill) within the same plant footprint. The mine plan is based on 300 tonnes per day, however, if further exploration results in a sufficiently large mineral resource, it may justify installation of additional mill capacity. This would require a supplementary EIA application.

All chemicals and reagents associated with mineral processing will be handled according to industry best practice and safe storage and handling measures employed. Only a very minor amount of reagent will end up in the tailings and as the tailings are filtered and the water re-covered to the process, the quantity ending up in the environment is minimal. It is not common practice for base metal mines to treat their process water. The following comments are made more specifically regarding the reagents to be used at Nalunaq:

- MIBC frother is a volatile, easily degradable, alcohol-based reagent used in small quantities and at a low concentration in the flotation process.
- Xanthates and Dithiophosphates collectors are toxic to fish when at a defined concentration. However, these are added in small quantities during the flotation stage and strongly adhere to the hydrophobic sulphides, thus being removed with the concentrate that is sent off site for further processing. Therefore a low concentration of reagents is found in the water discharged to the tailings site.
- FLOPAM is used in water treatment plants and does not present any risk to the environment at the added concentrations.

The surface of the DTSF will be smoothed and graded to allow water to runoff. During winter, the placement area will be regularly cleared to prevent build-up of snow and ice. In summer during rainy periods or if “off-spec” tailings are generated by the plant (i.e., the water content is too high), the tailings will be managed by storing until they can be reprocessed (Golder, 2021d; Tailings Storage Facility Design Report, 20 January 2021. Report ref: 20136781.619.A.1).

Poisonous fumes from the calcination oven and furnace are captured by a wet scrubber.

5.7.5.1 Summary of Toxicity testing

Historic toxicity testing was carried out and reported in the 2002 feasibility study (Kvaerner 2002). The metallurgical processing using cyanidation and depositional environment chosen for toxicity species (marine) are both not applicable for the current project, and therefore these results have not been reported.

SGS Canada (SGS 2021) carried out acute lethality testing on rainbow trout and Daphnia magna using flotation and gravity tailings process water at full strength and dilutions of the effluent (50%, 25%, 12.5% and 6.25%). The gravity tailings process water reported 100% survival rates and non-lethal designations for both species. The flotation tailings process was non-lethal with a 100% survival rate for rainbow trout and nearly 100% survival for Daphnid species (single anomalous mortality at 12.5% flotation tailings process water).

5.7.6 Chemicals / Reagents on site

In addition to the reagents and chemicals used in mineral processing, the chemicals and reagents used on the site are:

- cooling fluids
- oils including: engine oil, transmission oil, hydraulic oil

- Fuels consisting of: jet fuel, gasoline, diesel
- Fuel additives: Adblue
- Paints and stains
- Glue
- eco friendly washing detergent and soap

Measures taken to protect the environment during the life of the project are detailed in **Error! Reference source not found.**, **Error! Reference source not found.**, **Error! Reference source not found.** and **Error! Reference source not found.**.

5.7.7 Operational Workforce

The operational workforce is expected to be approximately 90 persons on site at any one time. A summary of the required workforce at the different mining facilities is presented in Table 5-6.

Table 5-6: Workforce Requirements for Different Operations

Facility or Job Function	Number of Positions
Mining	66
Processing	42
Camp	28
Shop, warehouse and machine operators	18
Administration	6
Safety, security, health. environment and quality	9
General and administrative Services	9
Total	178

5.7.8 Shipping During Operations

During operations, a much smaller amount of cargo is expected relative to the Construction Phase. Most of the cargo will consist of consumables for the mining and processing operations. It is expected that the cargo will be consolidated in South Greenland and barged into and out of the site on a regular basis. Gold concentrate from the flotation plant will also be handled by barges and shipped off site. It is expected that on an annual basis, approximately 3,000 tonnes of gold flotation concentrate will be barged off-site to a consolidation point in South Greenland, from which point the concentrate will be exported for further processing.

It is estimated that approximately one barge a week will service the project during operations for concentrate shipment. According to marine traffic information, the Amitsup Saqqaa fjord is currently rarely visited by vessels. It is expected that the increase in number of vessels and operations resulting from the project will be very limited.

5.7.9 Water Management Strategy and Water Balance

The conceptual site water balance is summarised in Figure 5-16 (Golder, 2023a; Water Management Plan Technical Background Report, 17 March 2023. Report ref: 20136781.611.A.3). Figure 5-16 represents a conceptual water balance for the operational phase of the Project

(years 1 to 5). The following sections summarise the main components of the water management strategy.

Key processes for operational water management are as follows:

- Make-up water for the Process Plant (3.14 m^3/hr) is pumped from Supply Wells;
- Bleed water from the Process Plant will be recirculated within the Plant at a rate of 1.34 m^3/hr. Water will be consumed at a rate of 0.49 m^3/hr (i.e. production of the concentrate);
- Water required for other operational uses will also be pumped from the Supply Wells (10 m^3/hr);
- Tailings (low water content) from the Process Plant will be trucked to the DTSF with a water equivalent rate of 2.63 m^3/hr;
- Runoff from the DTSF is collected in a constructed drain, before being diverted to a settling basin ("Sediment Pond"); and
- Treated water from the Sediment Pond is discharged to the environment.

Additionally, some key processes involving water from the underground mine are as follows:

- Groundwater inflow to the underground mine is pumped from the 235 Level portal to a holding pond ("Holding Pond") at a rate of 15 m^3/hr, to be temporarily stored for drilling in the underground mine;
- Water from the Holding Pond will be pumped to the underground operations for drilling use. Note that, for planning purposes, it has been assumed that the Holding Pond will be constructed within the proximity of the Process Plant (i.e. within the open environment) rather than underground; and
- Excess groundwater inflows into the underground mine will bypass the Holding Pond, and will be discharged to the environment via a weir (i.e. to facilitate monitoring).

Inflows to the water management system include:

- Rainfall and snowmelt falling directly into the Sediment Pond, DTSF and Holding Pond;
- Pumped groundwater inflow to the Holding Pond;
- Freshwater pumped from the Supply Wells to the Process Plant; and
- Freshwater pumped from the Supply Wells to satisfy demands related to other mine operational uses (such as dust suppression), as well as equipment uses.

Outflows from the water management system include:

- Evaporation from the exposed water surfaces in the Sediment Pond, DTSF and Holding Pond; and,
- Releases to the environment from the Sediment Pond and Underground Mine.

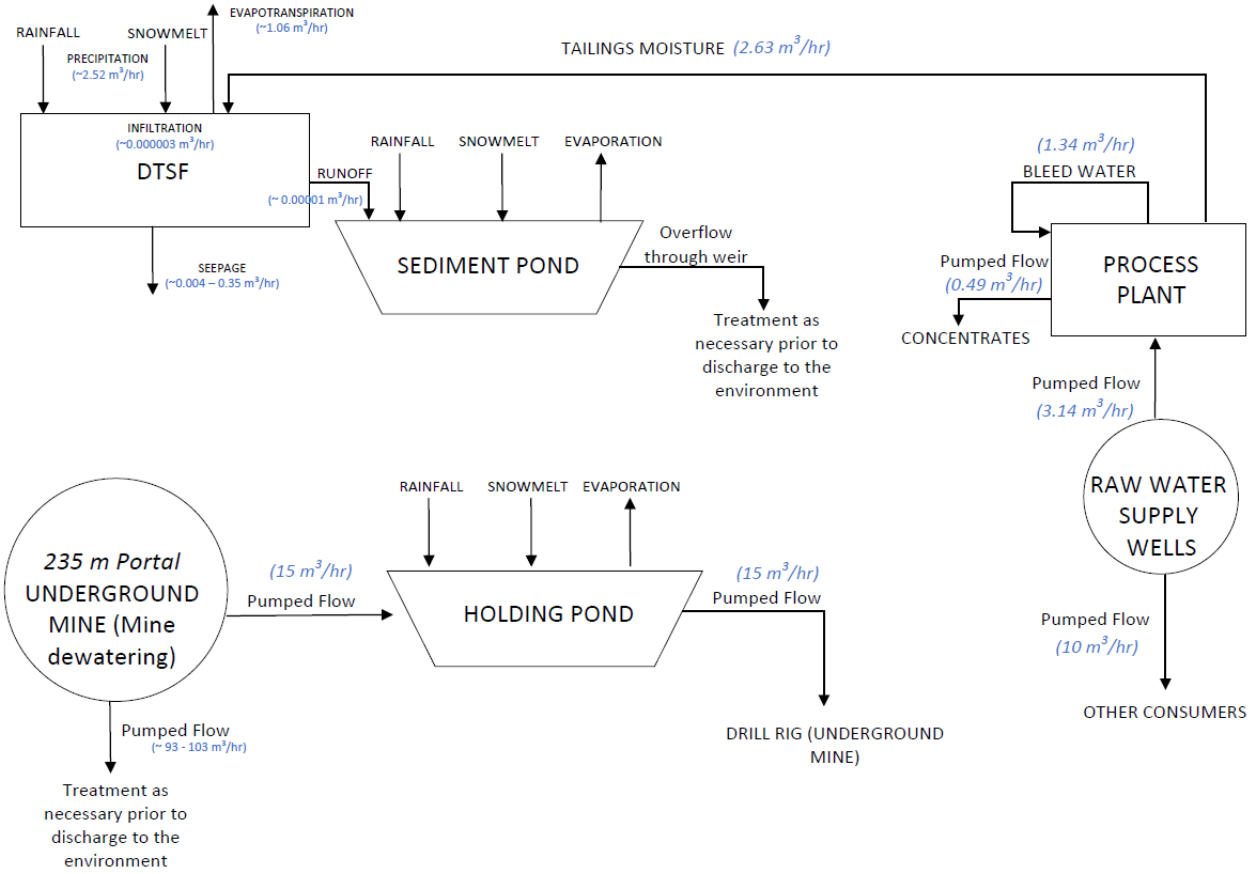

Figure 5-16: Block Diagram Summarising Site Water Balance (from Golder, 2023a)

5.7.10 Mine Water Storage

As mentioned previously, the operation of a settling basin ("Sediment Pond") and a holding pond ("Holding Pond") has been considered as part of the water management approach.

The purpose of the **Sediment Pond** will be to remove fines from the DTSF runoff during the 99.9th percentile daily rainfall conditions (i.e. a net inflow due to rainfall of 36 m^3/hr). The pond will also be sized to temporarily store runoff reporting from the DTSF resulting from a 1-in-2 year storm event (combined rainfall and snowmelt).

Only runoff reporting from the top of the DTSF (as opposed to the slopes and DTSF platform) will report to the Sediment Pond. Settling of runoff generated from the slopes of the DTSF will not be required, as it is not anticipated that fine particles would be mobilised from the slopes. However, due to the constant movement of haul trucks on the top surface of the DTSF, some mobilisation of particles is anticipated on the DTSF top surface. The runoff from the slopes of the DTSF will therefore be collected in a toe drain (without treatment) and be discharged to the Kirkespir River.

The **Holding Pond** will receive water pumped from the underground mine at a rate of 15 m^3/hr (i.e. equivalent to the anticipated demand for underground drilling), which will be temporarily stored for 24 hours. Water from this pond will then be supplied to the Drill Rig (located in the underground mine). The pumped quantity of 15 m^3/hr is for operational uses and is a proportion of the total groundwater inflows predicted to report to the underground mine, the balance of which will discharge to the environment. Predicted groundwater inflows to the underground mine are presented in Golder (2021a; Mine

Inflow Assessment - Groundwater and Surface Water, 12 January 2021. Report ref: 20136781.618.A.0).
Details of the Sediment Pond and Holding Pond designs are provided in Golder (2022f; Nalunaq Gold Mine Surface Water Infrastructure Design, 8 April 2022. Report ref: 21467213.C04.6.B.0).

5.7.11 Mine Water Control and Discharge

5.7.11.1 Pumping Requirements

During the operational phase, pumps will be required to transfer water between facilities. The maximum pumping requirements for each facility are presented below:

- An average groundwater inflow rate of 15 m^3/hr will be required to report to the Holding Pond from the underground mine (i.e. to satisfy drilling requirements), therefore a pump with 15 m^3/hr capacity is required;
- Similarly, a 15 m^3/hr pump will be required to pump water from the Holding Pond to the underground mine Drill Rig;
- The Process Plant will require water to be pumped from the Supply Wells at a rate of 3.14 m^3/hr; and
- A pump with 10 m^3/hr capacity is required to transfer water from the Supply Wells to the operational mine for ancillary operational uses.

5.7.11.2 Discharges to the Environment

Water will be discharged to the environment from the underground mine and the Sediment Pond.

- Water from the underground mine will be discharged to the environment via a gravity-controlled weir outlet. However, water will only be discharged following testing in accordance with the Environmental Monitoring Plan (Appendix II) and if the agreed discharge criteria are met; and
- Water from the Sediment Pond will be released to the environment via gravity flow, through a weir system. However, it will only be discharged once the water level in the pond reaches the height of the weir invert. This will allow the water within the sediment pond to achieve the intended retention time before passively being discharged to the environment.
- The discharge from the DTSF to the sediment pond will comprise surface water runoff only it is anticipated that any contaminants can be controlled through sedimentation.
- There will be no discharge from the process plant to the environment and process fluid will be reused within the processing circuit. Any residual concentrations of chemicals arising from process plant in the tailings will be *de minimis*.
- Any water discharged from the mine that is not recirculated back for use in the mine will be tested prior to discharge and treated if necessary to settle any suspended solids, and if necessary, passed via an interceptor to remove any residual hydrocarbons.

5.7.11.3 Flow and Water Quality Monitoring

A comprehensive flow and water quality monitoring system is will be implemented to improve certainty in hydrological and hydrogeological predictions, and to more fully understand the water environment within which the mine will be operating. Flow monitoring should be undertaken:

- As part of the underground dewatering system; and
- As part of the Process Plant circuit.

As noted previously, climate data from the Narsarsuaq Station was used in lieu of site-specific precipitation data. In addition, evaporation was calculated using the Thornthwaite (1984) method, which resulted in very high rates of evaporation during the summer. For this reason, a hydrometric station should be set up to monitor (i) rainfall (ii) snowfall and (iii) pan evaporation.

5.7.12 Considerations for Maintenance

A comprehensive water management and maintenance regime will be required to ensure the long-term integrity of the system throughout the life of mine (and beyond). As a minimum however:

- Water distribution systems will need to be monitored and maintained to prevent freezing or ice-build up in the systems;
- The Sediment Pond and Holding Pond need to be inspected and cleaned regularly to prevent build-up of sediment within the ponds, and to retain the required operating capacity throughout the life of mine; and
- During operations, as well as closure, any channels that collect runoff from the DTSF would need to be inspected and cleaned regularly to prevent build-up of sediment in the channels.

5.7.13 Extreme Event Planning

Considerations for extreme event planning include the following:

- High inflows to the Sediment Pond due to rainfall and/or snowmelt events that exceed the design capacity of the system;
- Sediment-laden outflows from the Sediment Pond due to rainfall and/or snowmelt events that exceed the design capacity of the system; and

Flooding of the mine site facilities due to significant rainfall and/or snowmelt events that may result in the inundation of the Sediment and/or Holding Pond.

5.7.14 Water Ingress to the Mine

Groundwater inflows to the Nalunaq Mine have been calculated for the purpose of informing water management requirements. These have been calculated by month as follows for South, Target and Mountain Blocks, and for Valley Block, respectively.

Table 5-7: Calculated Groundwater Inflows to Nalunaq Mine

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
South, Target and Mountain Blocks												
Assumed 5%ile Inflow (m^3/hour)	6	14	4	174	176	78	79	88	100	78	65	12
Assumed 50%ile Inflow (m^3/hour)	6	14	4	159	161	52	53	59	67	52	43	12

Parameter	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Assumed Minimum (95%ile) Inflow (m^3/hour)	6	14	4	144	145	26	26	29	33	26	22	12
Valley Block												
Assumed 5%ile In-flow (m^3/hour)	108	109	107	112	112	116	116	117	118	116	114	108
Assumed 50%ile In-flow (m^3/hour)	108	109	107	110	111	113	113	114	114	113	112	108
Assumed Minimum (95%ile) Inflow (m^3/hour)	108	109	107	109	109	110	110	110	111	110	109	108

On the restart of operations, a number of monitoring points will be established in the mine and that v-notch weirs are used to monitor the inflows to allow a refinement of these estimate and to establish the magnitude of seasonal variation and the response of the mine to rainstorm events based on the recommendations.

5.7.15 Potable Water

Potable water will be produced by a potable water treatment plant located at the Camp. The potable water treatment plant will be supplied by saltwater from the fjord through floating pumps. The potable water treatment plant will also produce an effluent from the reverse osmosis separation to be discharged to the fjord. The process creates approximately 40% water and 60% brine, which means that the return flow of brine to the fjord will be roughly 35 m^3/day. The brine will have an average salinity of 57 ppt with the same temperature as the intake water. The brine will be diluted into the fjord water as the plume descends into deeper parts of the fjord. The volume of brine to be discharged is too small to generate any significant effect on marine flora and fauna.

The water treatment plant will be a containerized potable water treatment plant that will produce 25 m^3/day of potable water. Treated water will conform to the European Union Directive 98/83/EC on the quality of water intended for human consumption.

5.7.16 Sewage Management

Domestic sewage or sanitary wastewater from the accommodation unit will be treated in the sewage treatment plant and subsequently discharged to the fjord. Sewage generated at the mine and process plant will be handled by a vacuum truck which will transport the sewage to the sewage treatment plant.

The plant will treat an average daily flow of 22 m^3/day. The plant comprises a membrane bioreactor treatment technology which is a combination of an activated sludge with membrane filtration. The process is automated, requiring no operator for day-to-day operation. The plant will be containerized, completely pre-assembled and pre-tested. A holding tank will be established upstream of the treatment plant to allow maintenance and repair of the treatment plant without allowing untreated sewage to be discharged to the environment.

As the quality of the treated effluent water will meet EU requirements for wastewater discharges to the marine environment it is not anticipated that the discharge of treated sewage will have any negative effect on the water quality of the fjord.

Slurry from the treatment plant will be collected in closed containers and disposed of to the camp incinerator.

5.7.17 Dust Management

Water will be used as the primary method of dust management when natural dust suppression is not occurring. The method of natural dust suppression will be dependent on the seasonality. During the wetter months the precipitation will result in natural suppression. The USEPA AP42 guidance (Compilation of Air Emissions Factors (5th edition); 1995) states that applying water can result in up to a 74% efficiency in controlling fine particulates (PM_{10}). Water for dust suppression is included in the 10 m^3/hour of water for operational and equipment demands detailed in Section 5.7.8. Most of this water will be sourced from raw water wells located near the process plant pad.

Dust will mostly be generated from three main areas:

- Access Road: dust along the road will mainly be generated during the summer season; a water truck will, as required, spread water along the road during the summer months to suppress dust generation.
- Process Plant: the main source of dust at the process plant is the crushing area. The primary and secondary crushers, as well as the crushed material stacking and reclaim conveyors, are all located inside an enclosed building. A dust collector with draw points at the primary and secondary crushers and the main transfer points along the crushed material conveying system will be covered by a piping network connected to a centralized bag house. Dust particles will be recovered from the dust collector bagging system and reintroduced into the grinding circuit.
- DTSF: In the winter, dust will not be an issue as the tailings stack and newly added layers will freeze rapidly, thereby inhibiting the movement of fine particles. In the summer, during dry periods, water will, when necessary, be sprayed over the stack to limit wind erosion. The build-up of the rock fill on the edges of the DTSF will also help in mitigation of dust generation.
- Stockpiles: There will be some stockpiling of material but stockpile size and duration will be minimised as far as practicable and water spraying will be undertaken where possible during prolonged dry periods.

5.7.18 Waste Rock Management

Waste rock generated (Table 5-8) during the exploration program and as a result of the mining activities will be used for the construction and the maintenance of the various facilities. Waste rock is defined as being low-grade rock that will be mined but is not of sufficient value to warrant processing. Excess waste rock will be kept underground, in the mine or disposed to the external waste rock dump adjacent to the 300-level portal (Figure 5-17).

Table 5-8: Estimation of Waste Rock Generation During the LOM

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Tonnage (t)						
Underground Waste Rock	50,000	140,000	140,000	140,000	140,000	140,000
Portal Overburden Excavation	70,000	-	-	-	-	-

	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Stripping and Borrow Pits	239,000	-	-	-	-	-
Total Waste Rock/Overburden Generated	359,000	140,000	140,000	140,000	140,000	140,000
Waste Rock Stored Underground	-	140,000	140,000	140,000	140,000	140,000
Process Plant Backfill	99,000	-	-	-	-	-
DTSF Backfill	260,000	-	-	-	-	-
Total Waste Rock/Overburden Consumed	359,000	140,000	140,000	140,000	140,000	140,000
Tailings	-	97,000	97,000	97,000	97,000	97,000

Toxicity tests show that the process water is designated as non-lethal. Any concerns regarding the toxicity of the process water and its potential impact to the recipient surface water receptors should thus also be negated. In addition, the potential toxicity of leachate from the tailings were investigated and its non-lethal characteristics were verified.

In addition, it is noted that environmental monitoring undertaken by DCE following the previous closure of the mine in 2013 demonstrated that there was no significant detrimental impact to the environment following closure (Bach & Olsen, 2020). The similarity between the historically mined areas and future additional mining prospect as well as present mine waste and the future mine waste have been investigated and no major change of composition are to be expected in the future (SRK, 2021).

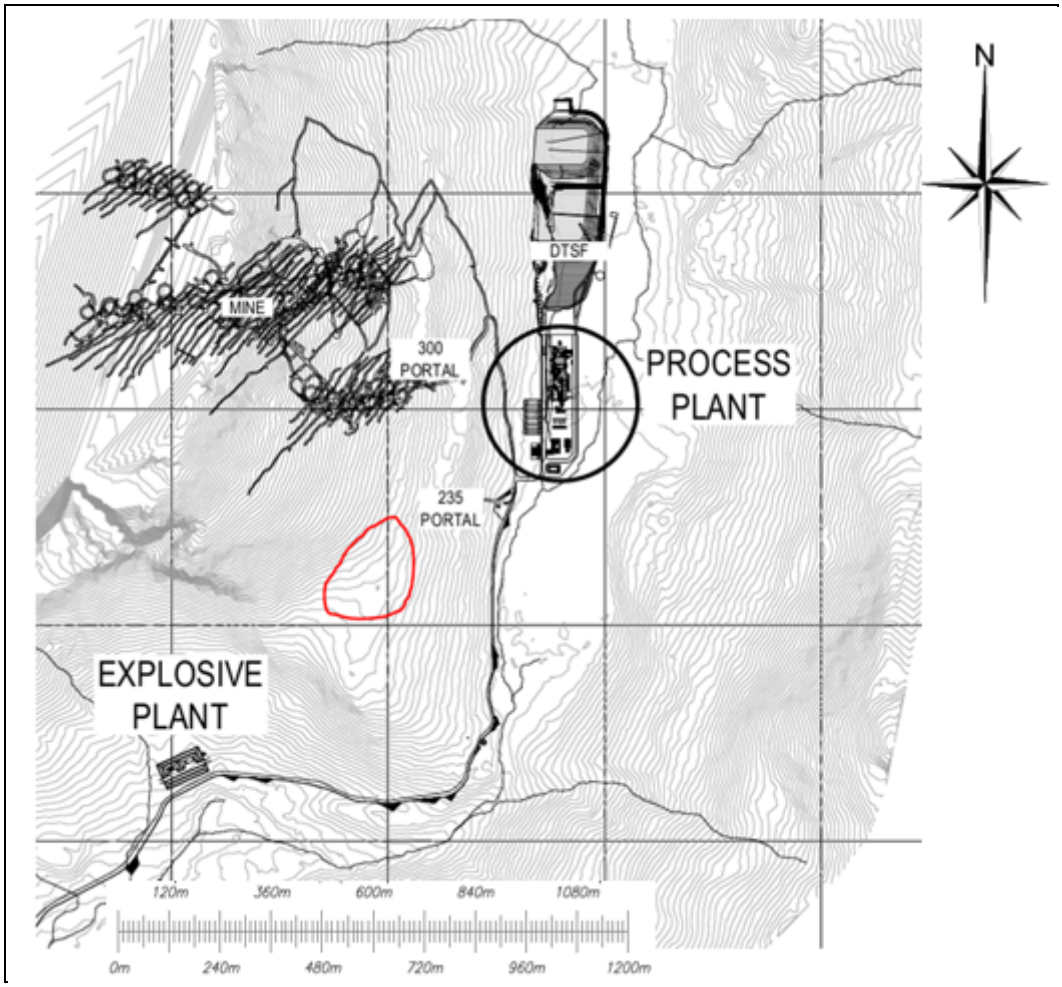

Figure 5-17: Plan View of Indicative Area of Potential Waste Rock Stockpiling (area enclosed by red line)

5.7.19 Solid Waste Management

Waste will be handled in accordance with all relevant regulations, including the statutory order nr. 3 of 7th January 2021 from The Government of Greenland about waste (Selvstyrets bekendtgørelse nr. 3 af 7. januar 2021 om affald). In general, hazardous waste will be shipped to Europe or North America and handled in compliance with the appropriate regulations in such jurisdictions, including any applicable trans-frontier waste shipment regulations. Hazardous waste will be registered and traced according to the guidelines established by accepted international regulations.

Accumulators, batteries, electronic devices, glass, etc. will be stored in temporary containers and periodically returned with supply ships for further disposal according to regulations and after mutual agreement.

The incinerator will not be used to dispose of hydrocarbon, plastic or wood waste. All hydrocarbon waste will be collected and stored and returned with supply ships for disposal at a suitable off-site facility. Plastic and wood waste will if it cannot be reused on site be sent where practicable to appropriate off-site recycling facilities, either domestically or outside of Greenland.

The incinerator will be used to treat selected waste streams with the exceptions being hazardous waste, hydrocarbon waste and recyclables. The incinerator will be containerized, complete with its own diesel fired generator and will be able to treat 250 kg/day of domestic waste. The

emissions from the incinerator will conform to the European Union Directive 2010/75/EU on industrial emissions.

5.8 Closure and Rehabilitation Phase

A closure plan has been prepared as required by The Mineral Resources Act. The Act specifies the requirement for a Closure Plan, a plan for steps to be taken on cessation of activities, which must be prepared and approved by the Government of Greenland before exploitation begins. A preliminary closure plan is presented at Appendix XV.

The overall closure goal is to return the Project Area to a viable and wherever practicable, self-sustained ecosystem compatible with a healthy environment and human activity.

In order to achieve this, the following core closure principles will be adopted:

- **Physical Stability**: project components remaining after closure will be physically stable for humans and wildlife;
- **Chemical Stability** (the DTSF being the major focal point);
- **No Long-Term Active Care** is anticipated; any project component that remains after closure will not require long-term active care and maintenance; and,
- **Post-closure monitoring**: managed via a monitoring plan agreed with the authorities. Towards the end of the life of the Project, post closure objectives will be refined to accommodate the site conditions prevailing at the time.

It follows from the principles for mine closure that:

- All mining related artifacts will be removed, and inert material will be disposed of.
- Mine entries will be suitably secured to prevent accidental trespass.
- Roads no longer required will be reclaimed via progressive ripping, scarifying and landscaping to encourage revegetation.
- Any culverts that could act as hydraulic conduits at closure will be removed.
- All infrastructure relating to the electrical power supply system will be dismantled and removed.
- All fuel transit areas remaining will be equipped with spill kits until full decommissioning of the fuel storage areas is undertaken in accordance with a suitable method statement to be protective of the environment.

5.8.1 Infrastructure

The jetty, the beach landing area and the road connecting the port and the DTSF may be left intact to facilitate future inspections and monitoring activities (if agreed with the Greenland authorities). In relation to water management, the following will be implemented as a minimum:

- Water distribution systems will need to be monitored and maintained to prevent freezing or ice-build up in the systems.
- The sediment ponds need to be inspected and cleaned regularly to prevent build-up of sediment within the ponds.
- During closure, any channels that collect seepage and runoff from the DTSF would need to be inspected and cleaned regularly to prevent build-up of sediment in the channels.

The design of the water management systems on closure will be updated as the closure plan is updated prior to closure.

5.8.2 Dry Stack Storage Facility

With regard to the DTSF the design which is presented in Golder, 2021a includes consideration of the need to mitigate risks to the environment during decommissioning and closure of the facility including:

- The facility will be constructed above the 1:1000 flood level to mitigate the risk of inundation by surface water flooding.
- The construction of berms to divert upslope runoff into collection channels and away from the DTSF.
- Riprap will be placed upon a geofabric filter material, between toe and crest of embankment to a minimum height of 300 mm above the design flood level.
- Compaction of material to reduce risk of slope failure and dust emissions.

The stability of the DTSF slopes has been considered in the design, together with the need for erosion protection during operations and throughout closure. This includes a cover and transition/filter layers being placed along the outside slopes so that it quickly establishes a stable surface to minimise the potential for wind and water erosion, promote long-term stability and allow an appropriate after use that requires minimal maintenance. Final heights of the DTSF will be confirmed during detailed design and as the construction and operations plans are updated during the mine life, in consultation with the Greenland authorities.

Concurrent reclamation of the outer slopes of the DTSF will begin during operations and as much as practicable the outer slopes will be reclaimed with rock fill to complement the natural stable landform terrain. The top of the tailings surface will be graded to direct all runoff from the surface of the facility and into perimeter water management structures.

During the post operational period intensive input will be required to achieve the final surface topography commensurate with the agreed after use and to ensure its long-term integrity. This could include the following:

- Progressive ripping, scarifying and landscaping of any stockpile areas to be reinstated to conditions prior to construction;
- Placement of any cover layer as considered appropriate. The depth and grading of the material comprising such a cover will depend on the geotechnical characteristics of the final tailings layers; and,
- Independent post closure auditing.

In accordance with industry practice, data on tailings deposition, geotechnical and geochemical properties, hydrology and meteorology will be collected throughout the deposition period to ensure that an appropriate closure strategy is adopted. This information will be used to update and finalise the closure plan, building on the preliminary closure plan that is presented at Appendix XV.

5.8.3 Monitoring

Nalunaq will develop and implement an Environmental Monitoring Program (EMP) as part of an Environmental Management System in accordance with the Greenlandic guidelines to mon-

itor the potential impact of the mining operation following closure and the effectiveness of implemented mitigation measures. The EMP will include the construction, operation, closure and post-closure phases of the project to identify any variances from predictions that occur and whether such variances require action, including any additional mitigation measures.
The monitoring program will focus on physical monitoring of meteorology, groundwater, surface water and air (dust) and will be consistent with those elements undertaken as part of the historical program summarised in Bach 2020. The results of the monitoring programme will be submitted in an annual monitoring report to regulatory authorities for review. It is not envisaged that monitoring of biota will be undertaken as part of this programme.
An annual inspection of the site will also be undertaken to assess the condition of the DSTF cover, stability and potential risk of erosion.
It is envisaged that the monitoring programme would be undertaken by Nalunaq for a period of 5 years post closure.

5.8.4 Implementation

The draft closure plan is based on the current mine configuration and production rates and that the mining operations will cease after 5 years of operation, at which stage mine closure activities will commence. Temporary suspension and possibly premature closure may be required if the operations are no longer viable due to a change in Project economics or other difficulties.
If the closure is temporary, various actions will include:

- The monitoring and maintenance of water distribution systems to prevent freezing or ice-build up within the system;
- The regular inspection and cleaning of the sediment ponds to prevent build-up of sediment within the ponds;
- The regular cleaning and inspection of any channels that collect seepage and runoff from the DTSF to prevent build-up of sediment in the channels.

Regular inspection of the site and hill slopes above will also be required to ensure that rockfall, debris flow or avalanche does not create a hazard that may damage the site during temporary closure or upon re-start of operations. Should operations recommence, then the site should be inspected for fallen rock that may be dislodged during storms. Regular inspections of the DTSF should also be undertaken during temporary closure and prior to re-commencement of operations to ensure that the DTSF has remained stable and that no flood damage has occurred.
A conceptual Monitoring Plan and a preliminary Closure Plan are included in Appendices II and XV respectively.

5.9 Analysis of Alternatives

5.9.1 Introduction

The following sections describe the main alternatives considered for the project and how the preferred options were identified.

5.9.2 Alternatives for Tailings Management

The advantages and disadvantages of the different options for the tailings disposal options for the Nalunaq mine has been assessed. The analysis has been undertaken using a multi account system where a simple scoring system was adopted to evaluate the preferred option to be developed.

5.9.2.1 *Underground Slurry Tailings Disposal*

The main advantages of underground slurry tailings disposal (not cemented) are the following:

- Low visual impact;
- Low environmental impact on surface water, although potential impacts on ground water may pose challenges; and
- There may be cost advantages to this option (lower capital expenditure ["CAPEX"]) but has not been developed to a point at which this can be confirmed.

The main disadvantages of this option are the following:

- Management of the contact (make-up) water pumped underground with the tailings will pose challenges, especially should the water quality be adversely impacted by the reagents used in the processing or the chemistry of the tailings. Return water will have to be collected and pumped back to the surface for re-use.
- Challenges with placement of the tailings and management of make-up water underground, especially with regards to tailings deposition in previously mined stopes situated at a higher elevation than one of the levels that will be mined as part of the project. Watertight bulkheads will be required to retain water and tailings and these could be expensive to design and install.
- A survey of the underground space available for disposal together with a projection of future space to be created by ore extraction will be needed to ensure sufficient volume for Life of Mine disposal of tailings will be available.
- The required bulkheads to ensure tailings and tailings water containment would require maintenance with personnel and equipment required to work in direct contact with a potentially unstable structure. The risk to personnel directly involved in the maintenance of the structures and operating personnel in lower areas of the mine could be significant without a realistic prospect of the risk diminishing with time. Failure of any part of the system could lead to fatalities underground.
- An underground Rock Mechanics detailed assessment will be required to ensure no discontinuities exist in the rock mass surrounding previously mined out areas that could lead to uncontrolled migration of tailings into current working areas or other sectors of the underground workings.

1.1.1.1 *Underground Paste Tailings Backfill*

The main advantages of underground paste tailings backfill (cemented) are the following:

- Low visual impact.
- Low environmental impact on surface water, although potential impacts on ground water may pose challenges (e.g. metal leaching).
- Thickened or paste tailings disposal for underground backfill often with the addition of cement (e.g., 3% by weight) has been used successfully for stope support for a number of decades and is therefore considered proven technology.
- Paste tailings disposal is therefore deemed to be a much safer option for underground disposal, as the risk of uncontrolled migration is significantly reduced if not eliminated.

- This backfill system (if cemented paste is used) however also represents an attractive opportunity in that pillar mining may be possible once the cemented backfill has reached sufficient strength to provide stope support.

The main disadvantages of this option are the following:

- Thickening of tailings to create paste generally has a high capex for mechanical equipment, requiring thickeners, filters, cement addition (if cemented backfill is used), positive displacement pumps and high-pressure pipelines. Operating expense ("OPEX") for power consumption and cement addition is also high.
- Management of the contact (make-up) water pumped underground with the paste may pose challenges, especially should the water quality be adversely impacted by the reagents used in the processing or the chemistry of the tailings. The volume of water in the paste is however much reduced when compared with slurry tailings.
- Challenges with paste deposition and management of bleed water underground, especially with regards to tailings deposition in previously mined stopes situated at a higher elevation than one of the levels that will be mined as part of the project. This is less of a risk than for hydraulic backfill as the risk is removed within a few hours after the initial cement set.

5.9.2.2 *On Surface Slurry Tailings Disposal*

On surface slurry tailings disposal was the third tailings disposal option discussed.

The main advantages of this option are the following:

- Moderate cost;
- Proven technology, with similar facilities being operated successfully in similar climates (Northern Europe, Canada etc).
- Relatively easy to develop using a phased approach, thereby reducing initial CAPEX;
- Ease of pumping tailings to the facility and return water back to the Processing Plant; and
- Easier monitoring of the facility should be possible, when compared to the underground disposal options, although monitoring during the winter months will also pose challenges.

The main disadvantages of this option are the following:

- Relatively large size (when compared to the alternatives) and associated high visual impact;
- Permitting of surface tailings storage facilities is expected to be more difficult than other options given the current climate influenced by recent tailings dam failures;
- Exposure to the environment and close proximity to potential erosive forces including snow avalanches and the river. This may also pose operating challenges during the cold winter months;
- Potentially higher maintenance requirements than alternatives, especially following closure due to long term degradation; and
- Higher risk profile (including potential for environmental contamination due to pipe burst or failure of the facility) than some of the alternatives (e.g. underground cemented paste backfill or on surface dry stacking).

5.9.2.3 *On Surface Filter cake (Dry Stack) Tailings Disposal*

The fourth option considered was on surface filter cake (dry stack) tailings disposal.

The main advantages of this option are the following:

- Medium visual impact when compared to alternatives for on surface tailings disposal;
- Proven technology, with similar facilities being operated successfully in similar climates (Northern Europe, Canada etc.);
- Reduced size and footprint when compared to alternatives for on surface tailings disposal;
- Reduced seepage from the facility when compared to on-surface slurry tailings disposal;
- Lower risk profile than for on-surface slurry tailings disposal;
- Relatively easy to develop using a phased approach, thereby reducing initial CAPEX;
- Reduced water volumes to be pumped back to the Processing Plant;
- Permitting considered more likely to be successful; and
- Easier monitoring of the facility should be possible, when compared to the underground disposal options, although monitoring during the winter months is expected to pose challenges.

The main disadvantages of this option are the following:

- Higher initial CAPEX due to the costs associated with the Filter Plant;
- Exposure to the environment and close proximity to potential erosive forces including snow avalanches and the river. This may also pose operating challenges during the cold winter months;
- Potentially higher maintenance requirements than (underground) alternatives, especially following closure due to long term degradation. These challenges however are significantly lower than those for a slurry tailing facility on surface;
- Management of the contact water to be pumped back to the Plant during the winter months may pose challenges, although the volume will be less than for on surface slurry tailings disposal; and
- Challenges with filter cake transportation and placement expected during the cold winter months.

5.9.2.4 *Marine Tailings Deposition*

Marine tailings deposition was the final tailings deposition option considered.

The main environmental impacts of marine tailings disposal are the loss of benthic habitat on the footprint area where tailings are deposited at the bottom of the fjord, the impact on the diversity and abundance of species and the risk associated with the bioaccumulation of heavy metals in the food chain.

When considering international best practice guidelines e.g. the EU BREF[1] document on mine waste disposal, marine disposal is usually only considered as an option when the waste is deemed to be inert and space is not available for tailings deposition on land (e.g. in the case of the Hustadmarmor Calcium Carbonate Mine in Norway, used as an example in the BREF).

[1] EU BREF = European Union Best Available Techniques reference documents

The World Bank's IFC issued sectoral EHS Guideline in 2007 stating that marine tailings disposal may be considered only in the absence of a socially and environmentally sound land-based alternative and based on an independent scientific assessment for mining. If this option is considered further, a detailed feasibility study and Environmental and Social Impact Assessment (ESIA) will be undertaken, including consideration of all tailings management alternatives, and only progress the option if it is shown that the discharge is not likely to have significant adverse effects on marine and coastal resources or on local communities. Any decision taken should further comply with international agreements such as the United Nations Convention on the Law of the Sea (UNCLOS), 1982.

Of the tailings deposition options considered, marine (or sub-aqueous) tailings deposition is probably the most controversial, primarily due to historical examples and the unknown long-term potential environmental impacts. In addition, due to the unbounded nature of the deposition, any remediation of the tailings should it ever become necessary would be impractical, difficult and extremely costly.

5.9.3 Options for Location of the DTSF

Seven potential areas (numbered 1 to 7) have been identified and are presented in Figure 5-18. Descriptions of Areas 1 to 7 are outlined below. Area 1 (Figure 5-18) was found to have a fatal flaw due to its presence on an archaeological site (SRK, 2002) and has not been considered further.

5.9.3.1 Area 1

Area 1 is located on a broad flat alluvial outwash fan area near the beach landing area. The identified site occupies an archaeological site which is considered a fatal flaw and the site is therefore not considered further.

5.9.3.2 Area 2

Area 2 is in the upper part of the Kirkespirdalen, to the north-east of the Repeater Station. This area is situated adjacent to Area 3 but lies within the middle of the valley floor within an area of braided streams. The area is underlain by alluvial deposits of sand and gravel (Golder, 2021f; Nalunaq Gold Mine, Greenland Preliminary Geotechnical Report - Mine Surface Infrastructure, 1 February 2021. Report ref: 20136781.615.A1).

5.9.3.3 Area 3

Area 3 is situated in the upper part of the Kirkespirdalen, to the north-east of the Repeater Station. The site is accessed via existing gravel roads and lies against the talus slope on the west side of the valley.

Subsurface conditions were investigated by the installation of 5 boreholes and 6 trial pits. The valley floor is underlain by alluvial deposits comprising cobbles and boulders with sand and gravel (alluvium) overlying glacial till and bedrock (Golder, 2021f; Nalunaq Gold Mine, Greenland Preliminary Geotechnical Report - Mine Surface Infrastructure, 1 February 2021. Report ref: 20136781.615.A1).

5.9.3.4 Area 4

Area 4 is located on the southeast side of the valley approximately 1. km – 2 km downstream of the proposed process plant location. The topography of the site is undulating and encompasses several piles of talus near the middle of the valley. The hillsides are steep with exposed rock and there are talus slopes on the southeast side. The ground surface consists of large

boulders up to several metres in size, partially covered with grass, shrubs and moss. Above the site several very large, steep talus slopes are present. Weathered bedrock is exposed at higher elevations. Small ravines are present across the site, feeding drainage into the creek.
Subsurface conditions encountered in Borehole 01-06, advanced to 27.4 m below ground level (mbgl), indicated that subsurface conditions consisted of a layer of talus, overlying a cohesionless fluvial deposit and a sand and gravel glacial till deposit (Golder, 2021f; Nalunaq Gold Mine, Greenland Preliminary Geotechnical Report - Mine Surface Infrastructure, 1 February 2021. Report ref: 20136781.615.A1). Within the cased borehole, the water level was recorded at 0.35 mbgl, 30 minutes after the completion of drilling.

5.9.3.5 Area 5

Area 5 is located between a stream and the mountain on the northeast side of the valley. The topography of the site is relatively flat where it is in the middle of the valley and becomes undulating where it is adjacent to the hillside. The existing road passes through the site. The hillside becomes steep to very steep on the northwest side of the site and is covered with talus. Large ravines drop towards the site on the northwest side. The site is partially covered with grass, shrubs and moss within the valley, becoming sparse approaching the hillside and at higher elevations.
Subsurface conditions were investigated by the installation of 3 boreholes; subsoils were found to consist of talus or a cohesionless fluvial deposit overlying silty sand (Golder, 2021f; Nalunaq Gold Mine, Greenland Preliminary Geotechnical Report - Mine Surface Infrastructure, 1 February 2021. Report ref: 20136781.615.A1). The water level in a monitoring well was measured at 0.9 mbgl in September 2001.

5.9.3.6 Area 6

Area 6 is located at a within the valley of the Arpatsivîp stream. A site investigation has not been carried out; however, it is considered likely that the Quaternary cover is likely to consist predominantly of talus. The area is greenfield and has not been subject to disturbance by historic mining operations.

5.9.3.7 Area 7

Area 7 is situated 2.3 km to the northeast of the fjord on the southeast side of Kirkespirdalen Creek. It is approximately 5 km southwest of the proposed processing plant area and within a kilometer of the existing road bridge. Topography consists of a low-lying flood plain, formed by seasonal flooding of the Kirkespir river. The site varies from relatively flat to gently undulating and with slopes increasing towards the hillside on the southeastern side. A ravine is located immediately to the southwest of the site, and this connects to the creek further to the west. An archaeological site is approximately 2km further downstream of the site.
Soils at the site consist of a thin cover of topsoil overlying sand and gravel, with boulders, cobbles gravel and sand over silty sand (Golder, 2021f; Nalunaq Gold Mine, Greenland Preliminary Geotechnical Report - Mine Surface Infrastructure, 1 February 2021. Report ref: 20136781.615.A1). Water level within the drilled holes was approximately at the level of the water in the Creek.

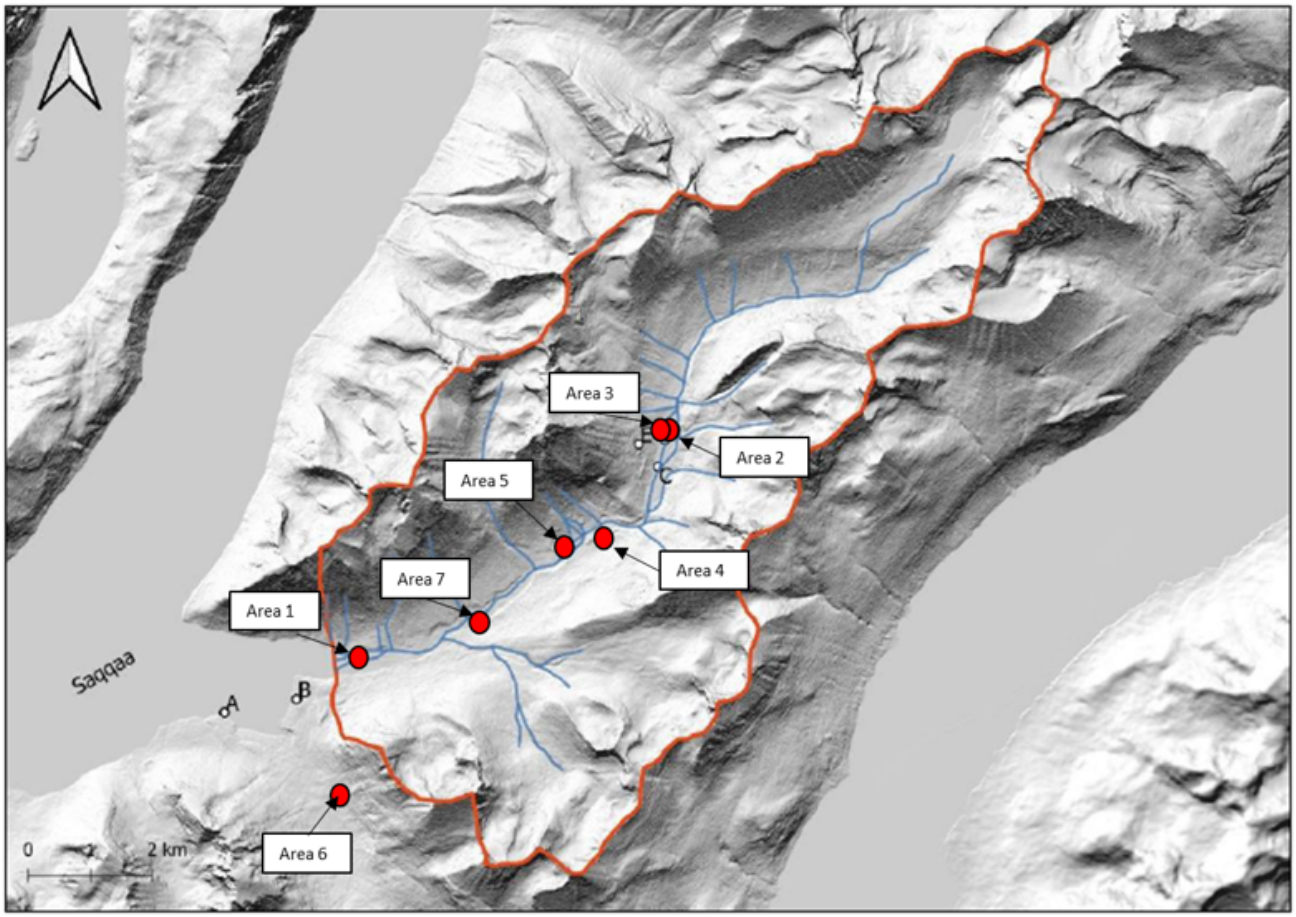

Figure 5-18 Approximate Locations of Potential DTSF Sites

A comparison of the sites was undertaken using a simple scoring system to take into account a number of variables (Golder 2022a; Tailings Storage Facility Options Analysis – Technical Memo, 7 March 2022. Report ref: 21467213.C04.1.B.0) at construction, operation and closure of the Project. On the basis of the scored assessment, Area 3 (presented in Figure 5-19) is the preferred location for the DTSF. Area 2 offers an alternative option, but this scored less favourably due to the location within the braided channel of the Kirkespir river with no buttressing from the hillside.

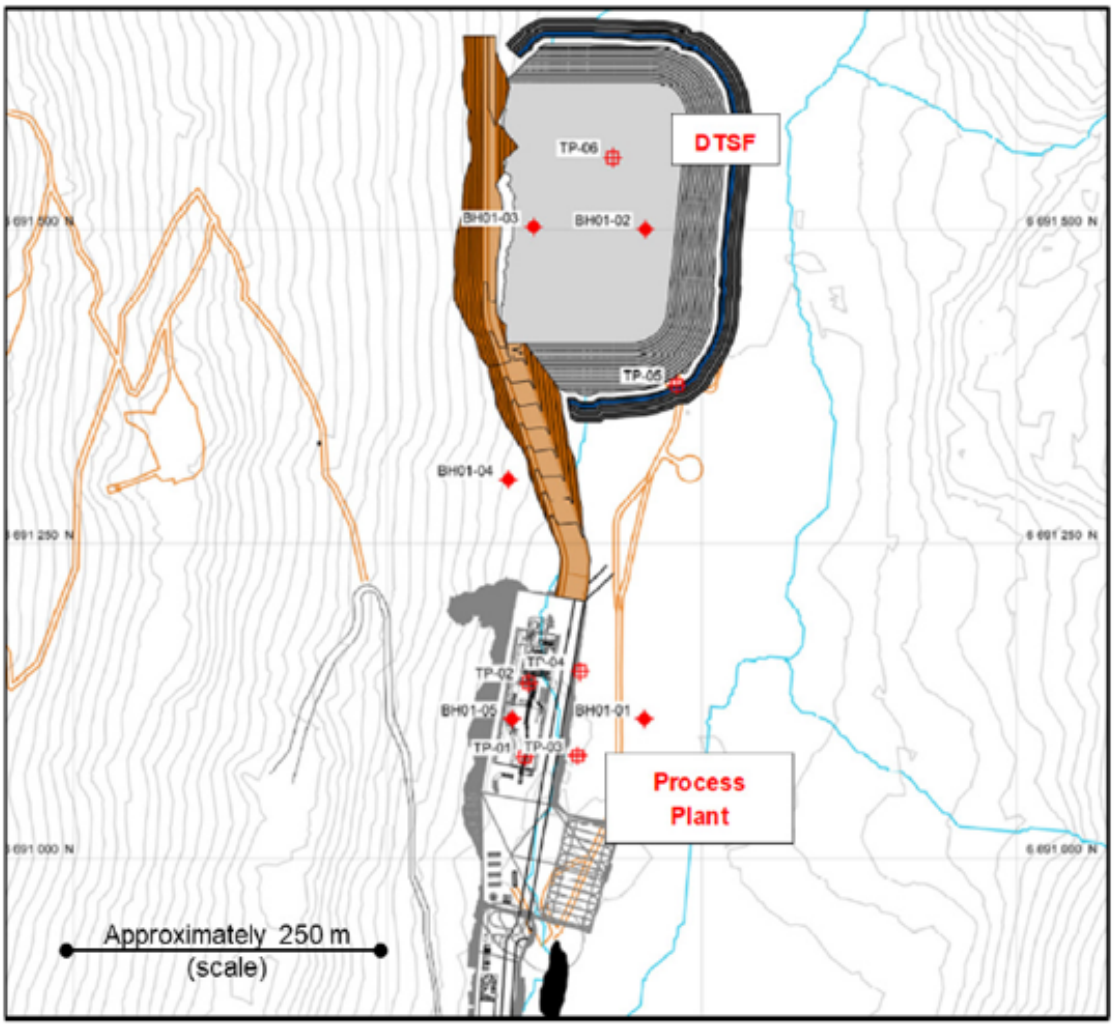

Figure 5-19: Area 3 Proposed TSF and Process Plant Layout and Investigation Locations (Updated based on Golder 2022a)

5.9.4 Processing of Minerals in Greenland

Gold recovery will initially occur via a gravity concentration circuit, producing doré that will be dispatched offsite for further refining. Addition recovery of gold from the remaining slurry will be by the flotations circuit and the resultant concentrate will be shipped offsite for further processing.

In order to produce doré onsite from the flotation concentrate, a cyanide leaching circuit would need to be implemented, which would have potential increased environmental risk implications in terms of importing, storing and usage of the chemical. Furthermore, cyanidation of the flotation concentrate has not been tested sufficiently to support the decision to implement this option. Refining the flotation concentrate by export to large smelting facilities outside Greenland remains environmentally and economically the preferred option.

5.9.5 Considerations Concerning Renewable Power

The project proponent, Nalunaq A/S, has the development objective to apply as much renewable power resources as possible in the mining project. The use of renewable power sources such as wind and solar have been considered by the project and a hydro power option is also being reviewed. A scoping study has been completed which assessed the possible use of wind

and solar power sources (NIRAS, 2020). The assessment illustrated the potential of wind and solar at Nalunaq at a conceptual level.

The initial calculations indicate that a suitable location with adequate mean wind speed of 6.5 m/s is available at the mine site. A 100 kW wind turbine suitable for the harsh condition has been suggested, which will produce around 337 MWh of electricity per year. A number of such turbines can likely be installed at the site, depending on further optimization of wind turbine capacity relative to demand.

Four possible locations for PV solar panels have been investigated and the skyline based on the local topography has been created, showing significant shadows from the mountains. By combining this data with the best available weather data an annual production of a solar installation of 100 kWp is found to be 84MWh (camp) or 91 MWh (mine). A PV location 2 km from the camp site would yield 87 MWh due to less shading but would require a transmission line.

The study concluded that renewable energy could make a contribution and substitute for fuel consumed by the diesel consumed by the generators. The complete power supply system, be it wind, solar or hydro power, would be supplementary to full capacity diesel generators for power generation, and with sufficient redundancy to ensure that critical demands are always serviced.

For the current project design and a LOM of 5 years, renewable power sources are considered not technically or financially viable and also not considered as *available* technologies as defined in the explanatory notes to Section 52 of the Mineral Resources Act. If extending the LOM becomes viable sometime in the future, the proponent will consider re-evaluating the options for use of renewable power sources.

5.10 Failure Mode and Effects Analyses

A Failure Mode and Effects Analyses has been carried out for all stages of the project (Golder, 2022b; Failure Mode and Effects Analysis for Nalunaq Mine, 15 March 2022. Report ref: 21467213.C04.2.A.1). The highest value of Risk Probability Number (RPN) calculated is 45. The RPN provides a tool for prioritising additional actions and or implementing or updating current process controls (e.g., ongoing monitoring). The RPN should be used in the prioritisation of risks, and addressing these, rather than identifying risks as 'high', 'medium' etc. By this methodology, areas that represent an elevated risk to the environment have been identified as follows:

- Avalanche hazard, affecting all areas of the site throughout construction and operation of the mine. The highest value of RPN (45) was avalanche affecting the mine portal / underground workings due to failure on the southern and eastern sides of Nalunaq mountain, with the potential risk to workers and equipment. Avalanche risk was also high at the DTSF and mine camp (RPN of 40 at both sites). Mitigation will be included in an Avalanche Management Plan (AMP), which will outline key observations, data evaluation and protection measures.

- The accidental spillage of hydrocarbons may occur at various positions on the site, at all stages through the LoM, from refuelling, transit and storage. Where spillage occurs in the vicinity of the jetty or beach there is the potential for the hydrocarbons to impact a wider area. Refuelling will be carried out within fully contained areas and that appropriate spill kits are available.

- Upon closure, the highest potential for environmental impact arises from mine drainage and the decommissioning or removal of hydrocarbon storage tanks and related equipment. The potential for contamination from mine drainage will be mitigated by an environmental

monitoring programme for the site as set out in an Environmental Management System. Previous monitoring has demonstrated that no significant detrimental impacts from the historical mining have been identified. Geochemical testing carried out to date has demonstrated that materials can be classed as inert with respect to ARD potential, and there is a low concentration of the only identified PCOC. Closure planning will be undertaken as an integrated process and monitoring during site operations together with the results of scheduled kinetic testing (Golder 2022d; Nalunaq Gold Mine, Greenland: Preliminary Static Testing Results From 2022 Tailings Analysis Programme, 5 April 2022. Report ref: 21457213.C04.4.B.0) will further inform the closure plan. Decommissioning of fuel storage should be undertaken in accordance with a suitable method statement to be protective of the environment.

A separate analysis of the potential failure modes of the DTSF has been completed (WSP 2023a) which identifies the following potential failure modes that could lead to the release of tailings into the river valley:

- A sidewall of the DTSF could become unstable due to weakness of the DTSF foundation, inadequate compaction of the tailings or an elevated phreatic surface reducing its shear strength.
- A large seismic event could lead to liquefaction of the DTSF foundation resulting in an instability of the DTSF sidewall or liquefaction of saturated tailings resulting in an instability of the DTSF.
- Internal erosion of the platform or the perimeter of the DTSF could occur due to construction material incompatibility, an elevated phreatic surface in the tailings resulting in high hydraulic gradients against the platform fill, or construction defect (e.g., poor compaction, use of out-of-specification construction materials, gaps in the core filter).
- Overtopping of the perimeter of the top surface of the DTSF could occur due to significant precipitation and/or snow melt combined with plugging of the hillside drainage system, locally insufficient crest elevation due to delayed raising of the DTSF wall during operations, a flood event exceeding the design IDF that cannot be passed by the drainage system, Blockage of drainage system due to the build-up of snow and ice, blockage by debris from a rock fall or avalanche or incorrect placement of tailings close to the inlet of the drainage system.
- The design of the DTSF has taken into account seismic loading conditions, which may result in failure of the foundation and or slopes, and the calculated factor of safety exceed the values outlined in the design criteria under seismic loading conditions.

The most significant risks to the project arise from natural hazards such as rockfall, avalanche, debris flow and flooding / high rainfall. Much of the risk from these hazards is mitigated by careful site selection, but ongoing monitoring and management of these hazards will be required throughout the LoM to ensure the safe functioning of the site with no detriment to the environment.

5.11 Summary of Geochemical Test Work

The table below provides a summary of completed geochemical test work for the Nalunaq project. There is no ongoing geochemistry testing, the tailings geochemical programme has been concluded.

Table 5-9: Summary of Geochemical Test Work

Testing Category	Testing Type	Ore	Tailings	Waste Rock
Static	Acid Base Accounting	*	~	*
	NAG pH		~	
	Trace Element Analysis	^	* ~	"
	Whole Rock Analysis		~	
	Mineralogy		* ~	
	Short Term Leach Testing		* ~	
	Sequential Extraction		~	
Kinetic	Humidity Cell Testing		<	
	Bottle Roll Testing		<	
Toxicity Testing	Toxicity Testing		* ~	
Source	* Kvaerner, Nalunaq Gold Project Feasibility Study, July 2002			
	^ SRK Exploration. Memorandum: Nalunaq Vein Material Characterisation. 18 May 2021			
	" SRK Exploration. Memorandum: Nalunaq Waste Rock Characterisation. 15 January 2021			
	~ SGS Canada Inc. An Investigation into The Environmental Characterisation of Tailings from the Nalunaq Mine, prepared for Nalunaq A/S Project 17909-04. March 30 2021			
	< SGS Canada Inc. An Investigation into The Environmental Characterisation of Tailings Samples from the Nalunaq Mine, prepared for Nalunaq A/S Project 17909-06. February 6 2023			
	Blank cells indicate no geochemical test work available			

5.11.1 Ore

The Nalunaq project is a low sulphidation quartz vein gold deposit. The 'Main Vein' is a 0.5 – 2 m thick quartz vein which is located along a contact between fine-grained meta-volcanics in the footwall and meta-dolerites in the hanging wall. Gold is mainly present as the native form, occasionally as a gold-bismuth alloy (maldonite, Au_2 Bi) and associated with native bismuth (SGS 2021).

Historic geochemical test work (Kvaerner, 2002) reported neutralisation potential ratios (NPR = neutralisation potential/acid potential) of 2.9 – 3.4 for waste rock and ore materials, indicating significant buffering capacity and therefore acid generation is not expected to occur.

5.11.2 Waste Rock

The host rock materials, which will be extracted as waste during the exploitation of the Nalunaq project, are comprised of meta-basalts, meta-gabbro, and aplite dykes. Historic acid base accounting (Kvaerner 2002) reports that acid generation is not expected to occur due to sufficient buffering capacity in the waste rock.

5.11.3 Gravity and Flotation Tailings

Results of short-term leaching tests on processed gravity and flotation tailings for eight CoPCs were used as a source term for a previous seepage assessment (Golder, 2021c). Zinc and cadmium concentrations were taken as 50% of the method detection limit in these source terms as a conservative assumption. These 2021 source terms are compared here with the minimum, maximum, and average results of the Week 10 and Week 25 HCT tests as humidity cell leachates are considered more representative of longer-term seepage quality.

The maximum Week 10 concentrations in the HCT tests for the CoPCs are generally lower than the Golder (2021c) source term values previously used for all COPCs except arsenic in the flotation tailings and cadmium in the gravity tailings (Table 5-10). Although the maximum concentration for arsenic (0.0835 mg/L) in the Week 10 flotation HCT exceeds the Golder (2021c) source term concentration of 0.0646 mg/L, the average arsenic value across the four samples analysed is less than the concentration used in the Golder (2021c) source term. Similarly, the maximum concentration for cadmium (0.00003 mg/L) in the week 10 gravity HCT exceeds the Golder (2021c) source term concentration of 0.000015 mg/L but the average concentration is less.

All Week 25 concentrations are lower than the Golder (2021c) source terms values previously used. Zinc concentrations in humidity cell leachates are at the limit of detection as a conservative assumption but are lower than the Golder (2021) source term.

Table 5-10: Humidity Cell Testing Source term comparison (from Golder 2022d).

		Units	As	Cd	Co	Cr	Cu	Fe	Ni	Zn
Gravity Tailings Source Term		mg/L	0.154	0.000015	0.00115	0.00908	0.0064	0.909	0.0037	0.01
Gravity Tailings HCT (Week 10)	Maximum	mg/L	0.0188	***0.00003***	0.000312	0.00048	0.0008	0.035	0.0019	0.002
	Average	mg/L	0.0103	0.0000145	0.00018475	0.000355	0.000475	0.02725	0.001175	0.002
	Minimum	mg/L	0.006	0.000006	0.000118	0.00025	0.0003	0.019	0.0007	0.002
Gravity Tailings HCT (Week 25)	Maximum	mg/L	0.0263	0.00001	0.000239	0.00063	0.0006	0.034	0.0011	0.002
	Average	mg/L	0.012	0.000012	0.000144	0.0003875	0.000475	0.02675	0.0007	0.002
	Minimum	mg/L	0.0053	0.000012	0.000071	0.00015	0.0004	0.014	0.0003	0.002
Flotation Tailings Source Term		mg/L	0.0646	0.000015	0.0014	0.00726	0.0053	1.13	0.0035	0.01
Flotation Tailings HCT (Week 10)	Maximum	mg/L	***0.0835***	0.000008	0.000115	0.00067	0.0005	0.095	0.0008	0.002
	Average	mg/L	0.0533	0.0000065	0.000072	0.0004725	0.0004	0.042	0.0006	0.002
	Minimum	mg/L	0.0115	0.000005	0.000049	0.00034	0.0003	0.011	0.0003	0.002

		Units	As	Cd	Co	Cr	Cu	Fe	Ni	Zn
Flotation Tailings HCT (Week 25)	Maxi-mum	mg/L	0.0456	0.000005	0.000072	0.00045	0.0004	0.075	0.0002	0.002
	Aver-age	mg/L	0.028475	0.000005	3.78E-05	0.000345	0.00035	0.03275	0.00015	0.002
	Mini-mum	mg/L	0.0074	0.000005	0.000025	0.00023	0.0003	0.012	0.0001	0.002

*NOTE: Measurements at the limit of detection are at value. Values in **bold & italics** exceed the Golder 2021c source term concentration.*

The metal leaching and acid rock drainage potential of the Nalunaq flotation and gravity tailings have been assessed through static and kinetic testing. Final humidity cell results (up to Week 35) show that the pH values are neutral to alkaline with the metal concentrations stabilising. Some common CoPCs are identified between both the HCT and Intermittent Bottle Roll Tests (WSP-Golder, 2022), including aluminium, arsenic, cobalt, copper, nickel, and phosphorus. Sulphate and manganese also initially exceed limits in the HCT tests before decreasing in concentration. Fewer metals exceed limits over time, with only aluminium, arsenic, cobalt (Gr_5 only), and nickel (Gr_5 only) exceeding limits at Week 35.

Flotation samples are elevated in phosphorus and aluminium in both the HCT and Intermittent Bottle Roll Tests when compared to gravity samples. Arsenic, as with the static testing, is consistently elevated in both the HCT and Intermittent Bottle Roll Tests.

The historic processing during previous operations used cyanidation to extract gold from the tailings. Cyanide is not proposed for the reopening of the Nalunaq mine. In the study, Nalunaq tailings were found to be dominated by SiO_2, with Al_2O_3 as a major component, although CaO and total Fe_2O_3 were more dominant than Al_2O_3. Total cyanide detected within washed and unwashed samples was similar at 26 mg/kg and 18 mg/kg respectively, which is well below the regulatory guideline of 50 mg/l weak acid dissociable cyanide used as a regulatory guideline in the United States and Australia.

5.11.4 Quantity and Quality of Seepage

The anticipated seepage characteristics from the DTSF including rates of flow and chemistry are summarised in (Golder 2021c, Appendix IV).

An assessment has not been undertaken of quality or quantity for the sedimentation pond.

6. Baseline condition summary

This chapter contains a summary of the baseline conditions on which the assessment of potential impacts is based. A comprehensive baseline is presented in Appendix 3.

The baseline summary focus on the local communities, Nanortalik and Qaqortoq, as these are the largest communities that are primarily impacted by the project.

6.1 Population

The Kommune Kujalleq held a population of 6,442 people on the January 1,2019. The population of the area has seen a decrease of more than 5% between 2015 and 2019.
Most inhabitants in Kommune Kujalleq live in the towns, although more than 20% of the inhabitants live in the settlements.

Kommune Kujalleq has a negative migration trend. In 2019, the net migration in the municipality was -36. Nanortalik has seen a net migration pattern fluctuating around 0.

In 2018, the average household income for all of Greenland was approximately 480,000 DKK. The yearly income for households in Kommune Kujalleq is significantly lower than the average for Greenland amounting to 380,000 DKK, whereas the average household income is 360,000 DKK per year in Nanortalik.

6.2 Employment

Greenland has a workforce of about 27,000 people, making up roughly half of the population. The workforce distribution by age in Nanortalik follows the trends in Greenland with the largest age group being 50-59 years old. This means that Nanortalik will soon be facing the challenge of an ageing population who are leaving the workforce.

At the national level the unemployment rate was 5.8% in 2018. The unemployment rate in 2018 was higher in Kommune Kujalleq where it was 16.6% in Nanortalik, 8.5% in Qaqortoq and 11.1% in Narsaq. In April 2020, 144 people in Nanortalik were registered as unemployed. While 99 were considered available for job opportunities, the remainder were considered to be in need of additional training or other support addressing underlying social challenges before being able to enter the labour market. The largest group of unemployment is found among people who have education at primary or secondary level as their highest attainment. The local jobcentre (Majoriaq) has knowledge of the jobseekers in their area at any given time as well as the qualification of people seeking employment. Around 10 people were registered as unemployed in Alluitsup Paa in March 2020[2].

Furthermore, the Kommune Kujalleq has mapped the competences in the local labour force and have a list of persons, who have attended mining relevant short courses as part of the governmental financed “Project Skills Development for the Unskilled” (In Danish: PKU-kurser).

6.3 Business environment

The business development in South Greenland is facing significant challenges. The business development strategy in Kommune Kujalleq is focusing on the development of the fishing in-

[2] Source: Local branch of SIK in Alluitsup Paa

dustry and related export, agriculture and food processing industries, tourism and mining industry. There are few Greenlandic companies that are specialized in providing logistical support to mining activities.

Greenland Business Association (GE) are representing Greenlandic businesses and have a national coverage with local organizations in 19 towns. In Southern Greenland GE has local organizations in Nanortalik and Qaqortoq with 12 and 27 members respectively. The national database includes 78 businesses in the construction sector, most of which are small enterprises.

Furthermore, the Kommune Kujalleq has in 2019 incorporated a municipal business development entity, “Innovation South Greenland” (ISG), for the purpose of advising the municipality with regard to business and industry development in South Greenland. ISG has in the first half of 2020 published a proposal for business development, “Kujalleq Nutaaq”. In addition, ISG has a register of companies in South Greenland (ISG Business Index) which they are considering updating in general and in particular with regard to companies relevant for the exploration and mining companies. The proposal includes 4 areas of options for business development, where the mineral resources sector is one of them. According to the proposal ISG has the following tasks in relation to the mineral resource sector:

1. Securing local involvement
2. Mapping relevant exploratory and mining expertise in the local labour force
3. Assisting in recruiting and retaining of employees in exploratory and mining projects
4. Promoting local enterprises in relation to exploratory or mining projects

6.4 Education

The formal educational attainment for inhabitants in Kommune Kujalleq is lower than the average in Greenland. 63% of the people in the municipality have finalized lower secondary education and 25% have completed vocational education and training. Inhabitants in Kommune Kujalleq are underrepresented when it comes to upper secondary education (4%), short-cycle higher education (2%), professional bachelors programme (4%) and masters programs (1%). The educational attainments are highly gender-biased with more men than women discontinuing their education.

The Greenland School of Minerals and Petroleum in Sisimiut offers mining relevant short courses for the exploration and mining sector as part of the governmental financed “Project Skills Development for the Unskilled” or as part of the courses financed through the labour market fee (In Danish: “Arbejdsmarkedsafgiften”). The list below shows the mining relevant short courses, which the mining school has offered or will offer in 2021:

Title	Duration
Operators of earth-moving machinery	5 weeks
Rigging and lifting	3 weeks
Diamond Core Drilling	6 weeks
Blasting (Shot Firer)	2 weeks
Arctic first aid	1 weeks
Stone Crushing & Screening	2 weeks
English terminology in the mining industry	2 weeks

It is possible to establish new relevant short courses which can target the specific mining project. Such new courses need to obtain approval from the GoG.

Proposal for an international mining school in South Greenland
Innovation South Greenland has suggested to establish an International Mining School in Kommune Kujalleq cf. the proposal for business development, “Kujalleq Nutaaq”. The plan is still at a preliminary stage and is therefore not described in further detail in this social impact assessment report.

6.5 Health and social issues

Greenland has a universal healthcare system with free access, including dental treatment and birth control. There is one central hospital in Greenland located in Nuuk, Queen Ingrid’s Hospital.

Since 2011 the health system has been organized into five health regions in the five municipalities. Beside the Central Hospital in Nuuk regional hospitals are located in Ilulissat, Aasiaat, Sisimiut and Qaqortoq. The regional hospitals are the centre of the health care system, with a number of additional health centres, nursing stations and settlement consultations. In Nanortalik there is a larger health centre providing emergency services as well as general health promotion, prevention and treatment services. Smaller health centres are located in settlements with 500-1200 inhabitants, while health stations are available in settlements with 200-500 inhabitants. In the smallest settlements with less than 200 inhabitants, Pipaluk tele-medical equipment is available. In case of severe illness patients are transferred to Queen Ingrid’s Hospital in Nuuk or a hospital in Denmark.

7. Impact and Mitigation in the Construction, Operation and Closure Phase

The expected social impacts related to the construction, operation and closing of the project are described in this chapter. In the scoping phase the topics relevant to the assessment were identified as listed in table 7.1.

Table 7.2: Issues identified to be addressed in the SIA

Employment	Direct employment Indirect and induced employment effects Labour conditions and occupational health and safety (OHS)
Education and Training	Development of competences
Sourcing from Greenlandic businesses	Business opportunities
Public sector pressure and public revenues	Pressure on the public sector, infrastructure and services Public revenue
Public health	Public health including prevalence of diseases, treatment and services
Social aspects	Social coherence / social conflicts Vulnerable groups
Land use and cultural heritage	Local use of the project area Cultural heritage Resettlement and economic displacement
Cumulative impacts	Competition over labour, public sector pressure, social coherence etc.

The impact assessment is based on an evaluation of the identified positive and negative impact of the project. For each identified impact, the risk or chance of the impact occurring have been qualified taking into consideration the likelihood of the impact to happen (*likely, possible or unlikely*) and the severity of the impact if it occurs (*significant, moderate, minor or insignificant*). The result of the evaluation of each impact is presented using the colour codes presented in Table 7.2.

Table 7.2: Impact assessment codes

		Severity of impact							
		Negative				**Positive**			
Likelihood of impact		**Significant** *High impact with large influence*	**Moderate** *Effects are felt and influence some stakeholders*	**Minor** *Effects are observed*	**Insignificant** *Little to no effect if impact occur*	**Insignificant** *Little to no effect if impact occur*	**Minor** *Effects are observed*	**Moderate** *Effects are felt and influence some stakeholders*	**Significant** *High impact with large influence*
	Unlikely *Impact is unlikely to occur*								
	Possible *Impact will likely occur*	High impact	Medium impact	Low impact	Insignificant impact	Insignificant impact	Low impact	Medium impact	High impact
	Likely *Impact is expected to occur*								

7.1 Result of the impact assessment

All potential issues are assessed for the construction phase (2024-2025), the operation phase (5 years) and the closure phase (after 5 years). The assessment is based on the project design as described in chapter 5. The evaluation of impacts is made considering the effects of the proposed mitigation and enhancement measures presented under each impact aspect.

Table 7.3: Result of the impact assessment

Chapter	Aspect	Source of potential impacts	Construction phase	Operation phase	Closure phase
7.2	**Employment**				
7.2.1	Direct employment	• The project will generate 80-100 jobs during the construction and 150-175 jobs in the operation phase. • Construction and operation personnel will consist of a combination of local and expatriates. The aim is to employ as many Greenlandic workers as possible targeting at least 50/50 share between Greenlandic workers and international workers.	Positive medium impact	Positive high impact	Positive low impact
7.2.2	Indirect employment effects	• The project will generate indirect jobs in Greenland through sourcing of goods and services from Greenlandic businesses. • Induced job effects are expected through the increase in income generated from direct and indirect employment related to the Project, that will be spent in Greenland. • A multiplier of 1.2 has been used to calculate the indirect and induced effects leading to additional 30-35 jobs created in other sectors in Greenland.	Positive medium impact	Positive medium impact	Positive low impact
7.2.3	Labour conditions and occupational health and safety	• Nalunaq A/S 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. • Nalunaq A/S will establish a comprehensive health and safety program, including developing Standard Operating Procedures and an Emergency Response Plan in line with Greenlandic regulations.	Negative low impact	Negative low impact	Negative low impact
7.3	**Education and Training**				

7.3.1	Development of competences	• The project will contribute to training and skills development among the Greenlandic workforce, through corporation with vocational training institutions, primarily the mining school, in relation to pre-employment and on-the-job training, technical training programs and apprenticeships.	Positive low impact	Positive medium impact	Insignificant impact
7.4	**Sourcing from Greenlandic businesses**				
7.4.1	Business opportunities	• The project will contribute to the development of Greenlandic enterprises through sourcing of services, goods and equipment for construction and during operation of the mine. Local businesses are expected to contribute as suppliers of equipment and goods, transportation and logistical support, provision of camp services including supply of local food.	Positive medium impact	Positive medium impact	Positive low impact
7.5	**Public sector pressure and revenues**				
7.5.1	Pressure on the public sector, infrastructure and services	• The project will increase the pressure on certain public services including tasks for the Greenlandic police and health sector in case of emergency.	Negative low impact	Negative low impact	Negative low impact
7.5.2	Public revenue	• The project will generate public revenues through royalties (2.5%) and corporate tax (25%). • Indirect contribution will be generated through the income taxes of project employees (35% for international workers and 42-44% for Greenlandic workers).	Positive medium impact	Positive high impact	Insignificant impact
7.6	**Public Health**				
7.6.1	Public health including prevalence of diseases, treatment and services	• Due to the location of the project site and the limited interaction between the local communities and the influx of workers, and the active management of potential health risks such as COVID-19, the negative impacts on public health are expected to be insignificant.	Insignificant impact	Insignificant impact	Insignificant impact
7.7.	**Social aspects**				
7.7.1	Social coherence / social conflict	• The project is not expected to impact social coherence or cause social conflict.	Insignificant impact	Insignificant impact	Insignificant impact
7.7.2	Vulnerable groups	• The project is not expected to directly affect vulnerable groups. At the same time vulnerable groups are not likely to benefit directly from the project. If the project succeeds in hiring employees that have not been	Insignificant impact	Insignificant impact	Insignificant impact

		employed for a long time this will have a positive effect on workers, their families and communities.			
7.8	**Land use and cultural heritage**				
7.8.1	Local use of the project area	• There are only few major fishing and hunting interests in or near the project site. While fishing is done in the Sermilik and Amitsup Saqqaa fjord these activities are only to a very limited extent expected to be affected by the project.	Negative low impact	Negative low impact	Insignificant impact
7.8.2	Cultural heritage	• Although there are identified archaeological sites at the project site, these have not been disturbed during the previous Nalunaq project and impacts are expected to be insignificant.	Insignificant impact	Insignificant impact	Insignificant impact
7.9	**Cumulative impacts**				
7.9.1	Competition over labour, public sector pressure, social coherence etc.	• Cumulative impacts arise from the potential parallel or overlapping construction activities of the three mining projects in Southern Greenland and their subsequent operation. The cumulative impacts primarily relate to the competition over labour and the pressure on the public sector including health services.	Negative low impact	Negative medium impact	Negative low impact

7.2 Employment

The project will employ 80-100 workers during the peak of construction and 150-175 during operations. Construction and operations personnel will consist of a combination of locals and expatriates. Overall, the challenge will be the availability of local skilled labour with the background of in-country infrastructure investment and other exploration and mining activities.

During project execution, a construction management team will lead the work force. It is the company's desire to keep the ratio of locals to expats as high as possible, which will be dictated by the availability of skilled labour in a competitive labour environment. Most employees will be hired directly by Nalunaq A/S, with the objective of converting as many construction employees as possible to the operation.

Construction

Construction activities at Nalunaq have been estimated for approximately 191,000 manhours for a period of 12 months. Preproduction activities at Nalunaq, including underground development, account for approximately 213,000 manhours. Those activities are mostly supported by miners, geologists, operators, maintenance crew as well as camp and surface support staff. During construction and pre-production, approximately 1,000 rotations are expected. It is estimated that the Project will create 80-100 jobs during the construction.

Foreign workforce will be flown into Greenland on a rotation basis. They will be transported directly to site from Narsarsuaq. The company may subcontract a local party or operate its own vessel to bring its employees from the consolidation point in Nanortalik.

The construction activities are likely to require the following positions:

- Construction manager
- Construction supervisors
- H&S superintendent and supervisors
- Land surveyors
- Site planners
- Surface mobile equipment operators (heavy duty and light duty)
- Underground mobile equipment operators (heavy duty and light duty)
- Miners
- Crane operators
- HVAC technicians
- Mechanics / Millwirghts / Welders / Pipefitters
- Steel workers
- Instrument technicians
- Surface support workers (cook, cleaners, drivers)
- Tugboat operators
- Electricians
- Carpenters
- Concrete workers
- General labourers

Operations

During operations, it is estimated that around 150-175 people will be employed as direct employees at the Nalunaq Operations, including the staff being offsite in rotation. Additionally, 9 people will be employed off-site in specific support areas.

Table 7.4 gives the detailed breakdown of positions at the project during the operation phase and provide the total number of workers.

Table 7.4: Operation phase positions

Position	Required education/training	Number of positions
Mining		
Mine Manager	High level professional / academic	1
Mine Superintendent	Skilled supervisor	1
Jumbo Operator	Skilled operator	8
Production Drill Operator	Skilled operator	4
Production Drill Helper	Unskilled labour	4
Scoop / Truck Operator	Skilled operator	8
Miner	Skilled labour	18
Mine Technician	High level professional / academic	2
Mine Geologist	High level professional / academic	2
Mine Geology Sampler	Unskilled labour	4
Assay Lab Supervisor	High level professional / academic	2
Assay Lab Technician	Skilled labour	2
Assay Lab Helper	Unskilled labour	8
Total		**66**
Processing		
Operations/Maintenance Manager	Skilled supervisor	1
Maintenance Planner	High level professional / academic	1
Metallurgist	High level professional / academic	1
Met laboratory technician	Skilled supervisor	1
Met laboratory Assistant	Skilled artisans	4
Crushing / Grinding / Gravity Supervisor	Skilled artisans	2
Gold Room Supervisor	Skilled artisans	2
Flotation /Dewatering Supervisor	Skilled artisans	2
Process Operators	Unskilled	8
Mobile Equipment Operators	Skilled artisans	8
Millwright Supervisor	Skilled supervisor	2
Millwright	Skilled artisans	4
Electrical /Instrumentation Supervisor	Skilled supervisor	2
Electrician	Skilled artisans	4
Total		**42**
Surface Support Services		

Camp Manager	Skilled supervisors	2
Chef	Skilled supervisor	2
Assistant Chef	Skilled artisans	2
Kitchen Assistant	Unskilled labour	10
Camp Cleaning Assistants	Unskilled labour	12
Warehouse / Tool crib Clerk	Unskilled labour	2
Maintenance Supervisor	Skilled supervisor	2
Maintenance Mechanic / Electrician	Skilled artisans	8
Surface Equipment Operator	Skilled artisans	6
Total		**46**
Administration		
Nalunaq General Manager	High level professional / academic	1
Personal Assistant	Skilled artisans	1
IT / Communication Technician	Skilled artisans	1
Total		**3**
Safety, security, health. environment and quality		
Health and Safety Officer	High level professional / academic	1
Health and Safety Supervisor	Skilled artisans	1
Medical Nurse	High level professional / academic	2
Trainer	Skilled artisans	1
Environmental Officer	Skilled artisans	1
Security Manager	High level professional / academic	1
Security Supervisor	Skilled supervisor	2
Total		**9**
Off-site Services		
Officer – Government and Community Affairs	High level professional / academic	1
Supply Chain Manager	High level professional / academic	1
Director – Mine Technical Services	High level professional / academic	1
Buyer	Skilled	1
Human Resource Supervisor	High level professional / academic	1
Payroll Supervisor	Skilled supervisor	1
Accounts received / Payable	Skilled supervisor	1
Cost Controller	Skilled supervisor	1
IT Supervisor	High level professional / academic	1
Total		**9**

Work on the project is scheduled around rotations of 30 days on site and 26 days offsite for expatriates, and 14 days on site and 14 days offsite for locals. Operations will take place all year round.

7.2.1 Direct employment

Nalunaq A/S is committed to employ and use Greenlandic workers to perform activities to the greatest extent possible, subject to the availability of qualified workers and the labour needs.

Greenlandic legislation states that a company can only employ foreign workers if labour with similar qualifications does not exist or is not available in Greenland. Foreign unskilled or semi-skilled workers can only be employed upon approval from the municipality (Regulation no 27 of 30 October 1992 and later amendments)[3].

The Greenland Economic Council[4] describes the Greenlandic labour market in their annual 2020 annual report: *"For some years, the employment rate has shown an encouraging trend, and although the COVID-19 crises have caused an increase in unemployment, the rate remains low. There is still a shortage of skilled labour in a number of sectors."* The expectation for 2021 is described as follows: *"Given the prospects of bounce-back in 2021, pressure on the labour market could soon re-arise, and thereby also the need to increase the workforce or recruit more foreign labour".*

Regarding the challenges facing the labour market the following is indicated in the report:
"The principal challenges facing Greenland's labour market are still primarily structural in nature. Unemployment is particular high among individuals with no tertiary education. It is also more difficult to reduce unemployment among those with no tertiary education".

At national level the unemployment rate in was 5.8% in 2018. The unemployment rate is higher in Kommune Kujalleq where the unemployment rate in 2018 was 16.6% in Nanortalik, 8.5% in Qaqortoq and 11.1% in Narsaq. In April 2020, 144 people in Nanortalik were registered as unemployed. While 99 were considered available for job opportunities, the remainder were considered to be in need of additional training or other support addressing underlying social challenges before being able to enter the labour market.

The previous mine hired workers from Nanortalik, Qaqortoq, Narsaq, Aasiaat, Uummanaq, and Nuuk. In total 48 out of 87 staff (55%) were from Greenland, including 30 from Nanortalik (34%). It is expected that a similar approach to local hire will be successful again, although competition for labour in Kommune Kujalleq has increased and is expected to pose some restraints on the project ability for hire locally. See also section 7.8 on cumulative impacts.

While the construction phase will make available unskilled and skilled positions for people working in the construction sector, the main opportunity for Greenlandic workers is related to the operation phase. It is expected that Nalunaq can attract and employ a number of unskilled workers and skilled artisans from Nanortalik, mainly during operation. Graduates from the mining school and people with vocational training would be hired during the operations and are expected to be from other towns in Greenland. However, a large number of positions are specialized requiring experience from similar mining project. These positions will for the majority

[3] Section 18 (1) of the Mineral Resource Act: "However, to the extent necessary for the activities, the licensee may use foreign labour if labour with similar qualifications does not exist or is not available in Greenland". Government of Greenland (2009)
[4] Greenland Economic Council (2019). Greenland's Economy.

part be occupied by international workers although the Company will be implementing a comprehensive training programme to upskill local workers so that they can undertake more complex roles.

Mitigation and enhancement measures to attract and retain Greenlandic workers

- Develop a local recruitment strategy with focus on hiring priority given to Greenlandic workers first, active promotion of job opportunities, and cooperation with local job centres and labour market parties.
- Establish transparent employment policies and hiring procedures.
- Launch a campaign to inform potential employees of the employment opportunities at the mine, including videos of the project set up, including mine site, camp area and specific information on the different job categories.
- Prepare and disclose detailed job descriptions and requirements for each position for mine operation during the construction phase, specifying skills and language requirements. Such information will be made available for key stakeholders including communities, Kommune Kujalleq, unions and vocational training institutions.
- Publish job advertisements in relevant Greenlandic media and relevant national job portals, including www.suli.gl, job advertisements will be published in Greenlandic and Danish languages.
- Cooperate with the public job centre (Majoriaq) in Nanortalik, as well as vocational training institutions and labour market entities in Kommune Kujalleq and Greenland to target the search for local applicants and ensure competency and skills development through pre-employment training.
- Develop an active on-the-job training scheme that will help increase the number of local workers during the operations phase.
- Create an attractive working environment with focus on diversity, supporting and encouraging the employment of women on an equal basis, through promoting women's awareness of job opportunities and encouraging their applications.
- Provide on-site measures allowing Greenlandic workers to remain connected with their culture including provision of traditional Greenlandic food, as well as access to recreational areas and telecommunication in the accommodation camp.
- Provide cross-cultural training to Greenlandic and International employees, to foster mutual respect and cultural consideration.
- Exploring the possibility for increasing the transportation services between Nalunaq and towns and settlements in South Greenland such as Nanortalik, Qaqortoq and Alluitsup Paa through continuously dialogue with Department of Infrastructure in the GoG.

Impact evaluation after implementation of mitigation and enhancement measures

The impacts of the direct employment during the construction and operation phase are assessed to be positive with medium to high impact respectively. The project can impact employment at local, regional and national level. As the number of employment opportunities are relatively limited, the largest impact is expected to be seen at local and regional level, where opportunities for both unskilled and skilled positions will increase. People employed on the project will experience an increased income which will have a positive impact on their household income.

During **construction** it is assessed that Greenland will not be able to fulfil the project's need of relevant and qualified labour, hence the project will require foreign labour for parts of the construction workforce.

During **operation** a number of specialized positions will be filled with foreign workers, whereas unskilled workers and skilled artisanal positions, as well as some high-level professional positions can be filled by Greenlandic workers.

During **mine closure** the number of positions will decrease, and employees will have to search for alternative employment opportunities. The Company will support employees to ensure they maximise their opportunity to secure other employment.

Construction phase	Operation phase	Closure phase
Positive – medium	Positive – high	Positive – low
Likelihood: possible *Severity: moderate*	*Likelihood: likely* *Severity: moderate*	*Likelihood: possible* *Severity: minor*

7.2.2 Indirect employment effects

The Project can generate both indirect and induced employment effect in Greenland.

- **Indirect employment effects** will be created through suppliers hiring additional workers to meet the increased demand of their products and services from the mine.
- **Induced employment effects** occur due to the increased overall activity, as the increased income of workers (direct and indirect) are used to purchase products and services in other sectors.

Indirect jobs can be created across Greenland, depending on which companies are contracted to provide goods and services to the Project. The potential to contract local businesses is assessed in section 7.4.

Induced jobs can occur in all sectors. As the overall income increase through direct and indirect employment related to the project, such increase oncome can be used on both domestic and imported goods and services, depending on the purchasing behaviour and preferences of the wage-earner.

In order to assess the combined effects of indirect and induced job creation that the project will generate the multiplier factor of the Project is estimated. The multiplier factor describes the number of additional jobs expected to be created

A recent study analysing the job multipliers of mining projects in Northern Sweden finds that the job multiplier is 1.85 when addressing only nearby mining municipalities[5]. This means that if 10 direct jobs are created in the mining sector an additional 8.5 jobs are created in other sectors. Experiences from Canada and Alaska has found multiplier effects for employment of 1.6 to 2.2 for the mining sector.

[5] Moritz el al. (2017). The local employment impacts of mining: an econometric analysis of job multipliers in northern Sweden.

Various studies have been conducted in Greenland to determine an appropriate employment multiplier for Greenland's mining sector. This work has been complicated by the absence of recent large-scale mining projects against which such estimates could be tested.

- In the previous SIA for the Nalunaq project in 2009, the multipliers for indirect and induced effects used by Watkinson were 1.276 and 1.358 respectively, based on numbers from Greenland Development (2009).
- Copenhagen Economics (2012)[6] determined an indirect employment multiplier of 1.39 for the mining industry in 2012 which was expected to reduce to 1.33 in 2030; and an induced employment multiplier of 1.13 in 2012 expected to increase to 1.16 in 2030.
- Statistics Greenland has developed an input-output model base on the Greenlandic economy in 2013[7]. The analysis finds that when the supply of minerals from the mining sector increases by DKK 1 million, it will lead to an indirect increase in overall employment of 1.6 person.
- Other mining projects in South Greenland, including Tanbreez (2013) and Kvanefjeld (2019) have used multipliers of 1.3.

For the purpose of this assessment a conservative multiplier of 1.2 has been used indicating the indirect and induced job creation of an additional 30-35 jobs from employing 150-175 people during operations.

Mitigation and enhancement measures to increase the indirect and induced job effects

Mitigation or enhancement measures that addressing indirect and induced employment effects are described in section 7.4 on sourcing from Greenlandic enterprises.

Impact evaluation after implementation of mitigation and enhancement measures

The impacts of the indirect and induced employment effects during the construction and operation phase are assessed to be positive with medium impact. The project will have a positive impact on indirect and induced employment through the use of suppliers locally and regionally and increased economic activity in the society in general. Impacts related to sourcing from Greenlandic business is further described in section 7.4. The geographical scope of the impacts depends on home municipality of people employed by suppliers and the people employed directly at Nalunaq, as the induced impacts will most likely be seen as they increase their spending in the communities where they live.

During **construction** it is expected that most of the constriction materials will be sourced from outside of Greenland. It is, however, expected that some Greenlandic services and potentially contractors will be used to assemble the processing facility and provide services at the camp during construction.

During **operation** there are opportunities for Greenlandic small or medium sized companies as well as Greenlandic transport companies, to provide services to the project. The project is expected to increase personal income for direct and indirect employment which will contribute to an increase in demand of goods and services.

[6] Copenhagen Economics (2012). Råstoffer og bæredygtig økonomisk vækst.
[7] Statistics Greenland (2017). Input-output table for 2013.

During **mine closure** the need for goods and services will decline and impact on indirect and induced jobs will also decrease.

Construction phase	Operation phase	Closure phase
Positive – medium	Positive – medium	Positive – low
Likelihood: possible *Severity: moderate*	*Likelihood: possible* *Severity: moderate*	*Likelihood: possible* *Severity: minor*

7.2.3 Labour conditions and occupational health and safety

The Greenlandic labour market is characterized by two-party negotiations between employers and labour organizations. Main parties include the Greenland workers union (SIK) that largely represents the Greenlandic work force, and employers' organizations GE and NUSUKA. SIK have collective bargaining agreements with most Greenlandic enterprises with agreed minimum wages for non-skilled workers covering 2019-2023.

Greenland has ratified seven out of eight ILO fundamental conventions and has established national OHS legislation that sets out special regulation related to the extractives industry.

Labour conditions

The Company 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. Three government authorities administer labour and working conditions:

- Greenland Working Environment Authority responsible for occupational health and safety considerations in the workplace.
- Greenland Ministry of Mineral Resources
- Danish Agency for International Recruitment and Integration responsible for processing applications for residence and work permits in Greenland.
- Nalunaq A/S intends to commence negotiations with SIK with regard to concluding a collective agreement.

Labour conditions will adhere to Greenlandic legislation on all conditions such as working hours, overtime, remuneration, benefits.

The Greenlandic law clearly states that working conditions for international workers must not be less beneficial than for Greenlandic workers, and contract and employment packages offered for international and Greenlandic workers will be entered with due considerations of these requirements.

Project employees will be accommodated in the camp on the Project site. The Camp Facilities, capable of hosting 100 persons through its Camp Complex, will be established near the fjord. The Camp Complex is designed in accordance with best international standards. It is expected to consist of dormitories, a kitchen and lunchroom, a laundry unit, a mud room and a change room, as well as a recreation building and an administration office. The kitchen is protected by a dry type of fire protection sprinkler system. The other facilities of the complex are protected

with localized fire hose cabinets and localized fire extinguishers. The Camp Complex as described in the project description chapter 5 was designed with health and safety professionals to operate under pandemic conditions such as for the COVID-19.

Mitigation and enhancement measures to reduce labour risks

- Early and continuous engagement with SIK and other Greenland labour unions to establish working conditions which meet Greenlandic requirements, and which will avoid distorting the labour market.
- Worker's rotation will be developed to support family-friendly employment and take into consideration the frequency of home visits necessary to maintain semi-traditional lifestyles.
- Establish a workplace diversity and anti-harassment policy (see section 7.2.1 on diversity and culture).
- Setting workers accommodation standards that comply with international good practice.
- Establish a worker's grievance mechanism available in English, Danish and Greenlandic.

Occupational health and safety

This section discusses the Project's potential health and safety impacts on the workforce. The potential health impact of the Project on the community is discussed in section 7.6.

The impacts in this section consider acute (safety) hazards linked to the nature of Project activity. Other health issues (such as dust exposure and noise and vibration) are addressed in the Public Health section. The Project will develop specific controls for workers to minimize exposure to these hazards in the Health and Safety Management Plan which will be prepared subsequent to the submission of this SIA.

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

Common to all industries where heavy machinery, heights and kinetic energy are involved, the nature of mining activities has the potential to generate unsafe circumstances in which an accident can occur. The risk of accidents on a mine site is tied to the presence of potential hazards. The Project will likely have a standard suite of acute safety hazards including explosions, rock falls, manual handling, vehicle accidents, fire, hazardous chemicals, slips, trips and falls. Each of these hazards has the potential to result in short or long-term injuries, and in the worst case, can result in fatalities.

The Company will establish a comprehensive health and safety program, specifically developed around the various activities to be undertaken during construction, and during operations to cover surface support, process, and mining. The program will be developed to focus on collaboration and a dynamic exchange between the various proponents, where workers have a direct say in how their work is to be executed by the development of Job Hazards Assessments. Additionally, specific Standard Operating Procedures will be developed for recurrent tasks and will be updated regularly. Daily toolbox meeting will also be integrated in the health

and safety culture, allowing workers from various disciplines to discuss risks of hazards with each other.

Training will be a cornerstone at Nalunaq. First and foremost, the Company will in cooperation with the Greenlandic authorities implement a comprehensive mine rescue training programme on the basis of the requirements of the mining industry in Canada. Mine rescue equipment will be available on site under the supervision of the Greenland Working Environment Authority and every three months a compulsory class will be organized for the mine rescue teams. The other training programs will be developed around the specific tasks to be undertaken during construction and operations, such as but not limited to confined space, lock-out tag-out, work at heights, etc. The health and safety and training leader on site will be managing the training of all employees and will maintain a log of all training provided to every employee.

An Emergency Response Plan (ERP) will be developed, covering all potential health, safety and environmental emergency situations and the management of such situations. The development of the ERP and related procedures will be developed in line with industry best practice and will include necessary contingency and required resources to adequately manage emergencies. See also section 7.5.1.

The Project will include a medical facility accessible by all employees, contractors or visitors in the event of an accident or work-related medical emergency. The clinic will be staffed by a full-time nurse with video link access to an emergency doctor as required. The clinic will provide all required health care (occupational and personal) for workers and contractors.

Mitigation and enhancement measures to reduce health and safety risks

- Prepare a workplace OHS risk assessment prior to the commencement of construction consistent with the requirements in Executive Order No. 1168[8].
- Close cooperation with authorities for emergency response and evacuation.
- Prepare safe work procedures for key activities which will remain living documents throughout the duration of Project activity.
- Maintain plant and equipment in safe working condition.
- Provide 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.
- Collect and monitor all relevant safety statistics including near misses and identified risks.
- Establish a safety committee responsible for managing, providing advice on, informing and supervising activities concerning health and safety within the Company.
- Allocate responsibility for occupational health and safety to senior management within the Project team.
- Undertake regular emergency drills at the mine site.
- Pre-notification of operations and traffic of vessels to relevant authorities.
- Ensure that at least two people at site at any given time have taken the compulsory occupational and health and safety course.
- Having a zero-tolerance policy when it comes to possessing or consuming alcohol and drugs among employees.

[8] Arbejdstilsynets bekendtgørelse nr. 1168 af 8. oktober 2007.
https://at.gl/da/regler/bekendtgoerelser/1168-arbejdspladsvurdering/

- Ensure that foreign workers are familiar with Greenlandic legislation and guidelines.

Impact evaluation after implementation of mitigation and enhancement measures
The impacts on labour conditions and occupational health and safety is assessed to be negative with low impact in all project phases. The project will be implemented in compliance with national labour law. Given the size of the project it is not expected to involve significant influx of workers and will not impact negatively on labour conditions and OHS practices.

Construction phase	Operation phase	Closure phase
Negative – low	Negative – low	Negative – low
Likelihood: possible *Severity: minor*	*Likelihood: possible* *Severity: minor*	*Likelihood: possible* *Severity: minor*

7.3 Education and training

As described in section 7.2.1 the Greenland Economic Council annual report 2020 describes the shortage of skilled labour as one of the key challenges of the Greenlandic labour market. The educational level in Greenland is generally low and the labour market is characterized by a high level of unskilled workers. The educational level in Kommune Kujalleq is generally low with 55% of the working-age population holds secondary education as the highest educational level. 32% have vocational training, while 5% have a bachelor and less than 2% a master's degree.

On a positive note, the number of students completing vocational education has increased over the past decade. Furthermore, the exploration for potential mines, and the construction of the Greenland Ruby and Hudson Mining projects have led to an increase in available national competences that can benefit the project.

Vocational education and training are provided by Tech College Greenland (KTI), which offers education in Sisimiut and Nuuk. The School for Minerals and Petroleum is part of KTI and based in Sisimiut. The Maritime Centre Greenland provides education within the maritime sector in Paamiut, Nuuk and Uummannaq. The number of students completing vocational education has increased over the past decade. Furthermore, the exploration for potential mines, and the construction of the Greenland Ruby and Hudson Mining projects have led to an increase in available national competences, though opportunities in the sector remains limited.

While 30-35 positions during operation will be for unskilled workers, the need for skilled labour and skilled artisans constitutes a large employment opportunity for Greenlandic workers. In order to achieve the goal of a high percentage of local workforce on the project, extensive training will be required to close the gaps between existing competences and required skills. A full list of positions expected is presented in table 7.4

Nalunaq A/S will cooperate with existing education institutions to address these gaps. Vocational education providers such as Tech College Greenland (KTI), including Greenland School for Minerals and Petroleum will be the main actors in this cooperation for competence development.

Training programmes will be devised for each role with specific training delivered by in-house trainer supplemented with on-the-job training which will be overseen by trained skilled supervisors. The Company training will be complemented with programmes devised in conjunction with the KTI.

Additionally, the operating framework at Nalunaq will be to leverage the experience of skilled foreign workers in the training of unskilled and semi-skilled workers, thereby ensuring that the workers will benefit from working experience of experienced labour as on-the-job training. Through its own training programme, Nalunaq A/S will commit itself to provide its local staff a tailored program, using the industry's best practice.

Mitigation and enhancement measures

- Cooperate with Greenland School of Minerals and Petroleum and other vocational training institutions, on establishing and operation of mining related vocational and technical training programmes (such as courses under e.g., Project Skills Development for the Unskilled" (PSDU) and apprenticeships.
- Pre-employment and on-the-job training programs developed in cooperation with local authorities, educational and training institutions, and labour organizations.
- Develop a strategy on the skills development of Greenlandic workers including retaining and career training.

Impact evaluation after implementation of mitigation and enhancement measures

The impact from education and training of employees is positive and include both on-the-job training, formal training and education provided in conjunction with KTI, and the provision of internships offered by the company. The impact during the construction and operation phase are assessed to be positive with low and medium impact respectively. Depending on the resident municipality of employees the impact will be local, regional and national level. The impact relates to employees at the mine, students at the mining school and other relevant studies.

During **construction** the training opportunities is expected to be low, although positive impacts on training is expected.

During **operation** there are more education and training opportunities related to the project, and employees will have the opportunity to continuously develop their competences.
The **mine closure** is not expected to contribute significantly to education and training.

Construction phase	Operation phase	Closure phase
Positive – low	Positive – medium	Positive – insignificant
Likelihood: possible *Severity: minor*	*Likelihood: possible* *Severity: moderate*	*Likelihood: unlikely* *Severity: minor*

7.4 Sourcing from Greenlandic businesses

The business development in South Greenland is facing significant challenges. The business development strategy in Kommune Kujalleq is focusing on the development of the fishing industry and related export, agriculture and food processing industries, tourism and mining industry. Greenland Business Association (GE) are organizing Greenlandic businesses and has a national coverage with local organizations in 19 towns. In Southern Greenland GE has local organizations in Nanortalik and Qaqortoq with 12 and 27 members respectively. The national

database includes 78 businesses in the construction sector, most of which are small enterprises.

A portal has been established by the GoG to facilitate local trade and commerce between the Greenlandic companies and organizations. The platform www.comdia.gl includes a mineral sector platform gathering Greenlandic companies and businesses that provides services and supplies to the mineral sector in Greenland. The intention is to have businesses providing services (e.g., logistics, accommodation, construction, telecommunication, financial, consultancy) and/or supplies (e.g., camp, food, energy, labour, vehicle, healthcare) that exploration and mining companies need for their projects in Greenland, to register on the platform. Registration is free and provides the businesses with a marketing platform allowing exploration and mining companies to search for local companies for sourcing of services and supplies. As per January 2021, 11 companies have registered, some of which are relevant to service delivery to the mining sector.

In compliance with Section 18 (2) of the Mineral Resource Act procurement and contract package for infrastructure components, equipment, goods and services will be issued to Greenlandic bidders. Pre-qualified international bidders may be used if Greenland enterprises are not technically or commercially competitive. Contracts shall be awarded to Greenlandic enterprises if they are regarded as technically and commercially competitive.

Several technical Greenlandic regulations concerning safety and infrastructure exist which apply during construction and operation. These will be considered when identifying Greenlandic companies that could potentially provide assistance for the Nalunaq Gold Project.

During the construction phase infrastructure facilities will be established including camp complex, storage facilities, processing plant, portable water treatment plant, sewerage treatment facility, and power plant.

The providers of mining equipment are only to a less extent present in Greenland. Therefore, the use of such equipment as crushers, magnetic separators, dump trucks, excavators, and drilling machines will generally require the use of international enterprises.

There are few large construction companies established in Greenland specialized in civil engineering and experience in infrastructure construction, including Inuplan A/S, LNS Greenland A/S, Mannvit Aps, Masanti A/S, MT Højgaard Greenland Aps, Niras Greenland, Nørskov Gruppen Aps, Permagreen Greenland A/S, Qaqortoq Entreprenørforretning Aps, Rambøll Greenland A/S, and WSP Arctic A/S. Additionally, a few Greenlandic companies are specialized in logistical support to mining activities, two of these are Xploration Services Greenland Aps and 60° North Aps.

While the project will be appointing a main contractor for the construction phase, several subcontractors are expected for Greenlandic enterprises working during construction and operation. All sub-contractors must demonstrate capacity to meet the technical Greenlandic regulations including requirement concerning safety.

Greenland has a number of companies and operators who can provide services to the operation of the mine. These include service providers within transportation, shipping, construction

work, supply of arctic diesel, site and maintenance work, supply of traditional food and goods, catering, cleaning and administrative support.

The following services and equipment are expected to be sourced from Greenland:

- Camp consumables
- Security Services
- Barging and sea / Helicopter transportation services
- Camp and offices furniture
- Surface Drilling equipment
- Fuel, oil, maintenance parts
- Earth working equipment

See also section 7.2.2

A procurement policy for Greenlandic suppliers has been prepared for the project and has been shared with stakeholder during the stakeholder meetings undertaken in March 2021. The procurement policy is included as Appendix 4 in this SIA Report. The policy describes Nalunaq A/S commitment to make a significant contribution to Greenland in form of awarding contracts to Greenlandic enterprises providing that they are considered technically and commercially competitive pursuant to section 18 (2) of the Mineral Resources Act as mentioned above. Greenlandic enterprises that are interested in supplying goods and services to the project are encouraged to register in Nalunaq A/S supplier database.

Mitigation and enhancement measures

- Implement the established procurement policy that supports local procurement and disclose the criteria for Greenland enterprises to assess their commercial and technical competitiveness.
- Develop a local content strategy with focus on supplier development including strategy for strengthening local enterprises capacity to compete.
- Unbundling of contracts with work packages split into smaller units to be in line with local capacity and to encourage greater local competition.
- Identify packages that are within the capabilities of local enterprises and reserve such packages for local bid.
- Close dialogue with to Greenlandic transportation providers Air Greenland and Royal Artic Line.
- Close dialogue with Tusass to establish the necessary communication services.

Impact evaluation after implementation of mitigation and enhancement measures

Potential positive impact on local businesses as suppliers for services and logistical support are assessed to be positive medium for both construction and operation.

During **construction** it is expected that most of the constriction materials will be sourced from outside of Greenland. It is, however, expected that some Greenlandic services and potentially contractors will be used to assemble the processing facility and provide services at the camp during construction.

During **operation** there are opportunities for Greenlandic small or medium sized companies as well as Greenlandic transport companies, to provide services to the project. The project is expected to increase personal income for direct and indirect employment which will contribute to an increase in demand of goods and services.

During **mine closure** the need for sourcing will decrease and hence the positive impacts will be low.

Construction phase	Operation phase	Closure phase
Positive – medium	Positive – medium	Positive – low
Likelihood: possible *Severity: moderate*	*Likelihood: possible* *Severity: moderate*	*Likelihood: possible* *Severity: minor*

7.5 Public sector pressure and revenues

7.5.1 Pressure on the public sector, infrastructure and services

The public sector services include health services, public administration, public institutions (schools, childcare and eldercare etc.), public housing and provision of social benefits.

The public sector is under pressure due to the demographic development in Greenland with a declining working-age population, decrease in public revenues and increased demand for services, a development that are expected to further increase in the coming years.

The following infrastructure and public services can potentially be impacted by the project, each of which are described in the following:

- Flight services
- Freight services
- Telecommunication
- Supervision authorities (OHS inspections, environmental inspections etc.)
- Police
- Greenland custom services and Danish Immigration Services
- Health services

Flight and transportation services

The infrastructure in Kommune Kujalleq is under development. The international airport is located in Narsarsuaq, while heliports are located in Qaqortoq and Nanortalik. Development plans suggest relocation of the international airport of Narsarsuaq and upgrading of the heliport in Nanortalik. Air Greenland is the sole provider of domestic flights in Greenland, while Sermeq Helicopters a charter company based in Qaqortoq, provides helicopter services

The project will rely on Narsarsuaq airport (or Qaqortoq as plans for the new airport develop). Heliports in Qaqortoq and Nanortalik may also be used.

Expatriates will be flown into Greenland on a rotation basis. They will be transported directly to site from Narsarsuaq. Local employees will be travelling to site, mainly from Nanortalik and Qaqortoq, by sea. The Company may subcontract a local party or operate its own vessel to bring its employees from the consolidation point in Nanortalik.

In case the project cause unexpected negative impacts on the transportation services in South Greenland provided by Air Greenland A/S and Diskoline A/S, the company will contact the Division for transportation and Infrastructure in the GoG in advance. The project might have a

positive impact on the transport services if, the project generates additional need for passenger transportation to Nanortalik.

Freight services
Both Nanortalik and settlements in the area is serviced by cargo vessels from Royal Arctic Line. During the exploration phase, RAL has also assisted the project with transportation of machinery and materials.

Most of the cargo during construction will be delivered in bulk and in containers. Given the size of the cargo to be received, the beach landing area which was used in the past operations will be re-furbished and re-used. During construction, approximately 4,200m^3 of bulk cargo and 4,500m^3 of containerized cargo will be delivered to site. It is estimated that approximately 40-50 trips of barges from Nanortalik or Qaqortoq will be carried out to bring the cargo to site during construction.

During operations, a much smaller amount of cargo is expected. Most of the cargo will consist of consumables for the mining and processing operations. It is expected that the cargo will be consolidated in South Greenland and barged to site on a regular basis. Additionally, gold flotation concentrate originating from the processing operations at Nalunaq will be dispatched offsite to Nanortalik for consolidation, and transportation outside of Greenland for additional refining. Based on the market demand, it is estimated that between 2,000-3,000 tons of gold flotation concentrate will be shipped out of Nalunaq annually.

It is roughly estimated at this stage that approximately 1 barge a week will service the project during operations. According to the marine traffic information, the Amitsup Saqqaa Fjord is currently rarely visited by vessels. It is expected that the increase in number of vessels and operations resulting from the project will be very limited. In addition to the freight services using RAL the project will require supplier with proven capability of batch landing operations.

Telecommunication
Tusass is the sole provider of telecommunications, IT and postal services in Greenland.

The need for telecommunication services including data-traffic is not expected exceed the capacity of Tusass or cause any negative impacts on telecommunication services in Southern Greenland.

Supervisor authorities
The work environment in Greenland is regulated by law issued by Danish authorities. The Working Environment Authority is responsible for inspections and has the authority to penalize companies that does not comply with the work environment regulations. Nalunaq A/S will report work environment matters including accidents to the Working Environment Authority. The authority is expected to carry out regular inspections at the project site.

Police
The Greenland police is responsible for the coordination of Search and Rescue (SAR) operations in Greenland. The police act as the rescue authority in Greenland both on land and at sea. In addition, the police will have the role as coordination in case accidents/incidents occurring at the project site.

Greenland custom services and Danish immigration services

The introduction of foreign workers during construction and operation will place some demand on visa, residency and work permitting processes. Applications for residency and employment permits will be made through the Danish Agency for International Recruitment and Integration (SIRI). SIRI will process applications and Naalakkersuisut will participate as a hearing partner in this process. Visas will be applied for through Ministry of Foreign Affairs of Denmark. Kommune Kujalleq will process the applications for obtaining permits for unskilled and certified workers submitted by Nalunaq A/S pursuant to the Greenland Parliament Act No. 27 of 30 December 1992 on the regulation of the influx of labour. This is assessed to generate an insignificant impact on the municipality services.

Increased custom services from e.g., Greenland Tax Agency is expected due to the international workforce travelling to and from Greenland and the import of goods and materials, especially during construction where most construction materials are expected to be imported.

Health services

The hospital in Nuuk, Queen Ingrid's Hospital, is the Central Hospital in Greenland. In Kommune Kujalleq the regional hospital is located in Qaqortoq. In Nanortalik there is a larger health centre providing emergency services as well as general health promotion, prevention, treatment services and COVID-19 tests

The project will establish its own medical clinic which will treat Project workers. The clinic will be staffed with a full-time nurse and equipped with all necessary emergency equipment and video link. Efforts will be made to employ Greenlandic certified nurses for the two positions who have the required training and experience with emergency medical cases.

The medical clinic will be supported by Nanortalik health centre providing emergency services as well as general health promotion, prevention and treatment services. For health cases needing more expertise referral will be made to the regional hospital in Qaqortoq, Dronning Ingrid's Hospital in Nuuk, and for severe cases the National Hospital in Copenhagen or Reykjavik.

A detailed emergency response plan (ERP) will be agreed with the MLSA as part of an application for field activities. The ERP will be updated as the project moves from the construction to operations phase. Regular training will take place to ensure readiness for emergency responses. Planning will include winter and summer response procedures and training.

Mitigation and enhancement measures

- Close dialogue with Kommune Kujalleq on project related pressure on municipal infrastructure and services.
- Close dialogue with Greenland health authorities on emergency response plan and access to health services for international employees.
- Close dialogue with to Greenlandic transportation providers Air Greenland and Royal Artic Line.
- Close dialogue with Tusass to establish the necessary communication services.

Impact evaluation after implementation of mitigation and enhancement measures

The impacts on public infrastructure and services, including health services in case of emergency are assessed to be negative with low impact for both construction, operation and mine closure phase, due to the size of the project. The projects impact on the public sector is expected to be limited due to the size of the project. Expatriates will be flown into Greenland on a rotation basis. They will be transported directly to site from Narsarsuaq. Locals will be travelling to site, mainly from Nanortalik and Qaqortoq, by sea. The company may subcontract a local party or operate its own vessel to bring its employees from the consolidation point in Nanortalik.

Construction phase	Operation phase	Closure phase
Negative – low	Negative – low	Negative – low
Likelihood: possible *Severity: minor*	*Likelihood: possible* *Severity: minor*	*Likelihood: possible* *Severity: minor*

7.5.2 Public revenues

Royalties and corporate taxes

The project is expected to create a positive public gross revenue through royalties, corporate tax and income taxes.

The share of royalties is part of the negotiation of the license. Nalunaq A/S will pay 2.5% in royalties. This means that 2.5% of the sales prices of the gold will be paid to Greenland at the time of export.

The corporate tax rate is 25%. Corporate tax is paid from the company profits. Royalties are subtracted from the corporate tax payments. Royalties and corporate taxes have been calculated for a 5-year operation phase.

In general, dividends are uncommon for junior mining companies due to the capital intensity of the industry. Amaroq Minerals assumption and policy is aligned with mining companies at this stage of development and no dividends will be paid.

Table 7.5: Calculated public revenues[9]

Income stream	Calculated amount, 5 years of operation
Royalties (2.5%)	DKK 62.15 M
Corporate taxes (25%)	DKK 212.95 M (net of royalty)
Total	**DKK 275.10 M**

The expected payment of royalties and corporate taxes are calculated in the company's pre-feasibility study and based on the best estimates for costs and sales prices available at this stage.

[9] The quantification of Corporate Tax and Royalties to be paid to the Greenlandic Government over the operating period was assessed with the average Gold spot price of January 2021, at 1850 USD/oz).

Income taxes

Income tax percentage for national employees depend on the home municipality ranging from 42-44% and an annual tax deduction of DKK 58,000. In Kommune Kujalleq the income tax rate is 44%. Internationals working in Greenland in relation to oil, gas, and mineral activities pay a flat rate of 35% with no deductions allowed.

In Table 7.6 income taxes are calculated for three different scenarios, depending on the combinations of Greenlandic and International employees. As mentioned in section 7.2.1 it is the intention of Nalunaq A/S to employ as many Greenlandic workers as possible. However, the scenario of 50% Greenlandic and 50% international employees is used for the calculation of the expected income tax generated by the project. Salary levels are based on the SIK agreement for hourly-paid construction workers and craftsmen in Greenland[10]. For international employees, salaries are based on an international survey for skilled labour in Canada and Scandinavia[11]. The salary levels used for the income tax generation for operation is based on the list of positions described in table 7.4.

Table 7.6: Income tax generations

Scenario	Income tax during construction (1 year) and operation (5 year)
Greenlandic employees: DKK 106 M salary taxed at 44% International employees: DKK 275 M salary taxed at 35%	DKK 143.13 M

Mitigation and enhancement measures

Taxes and royalties will be generated according to the applicable legislation and hence no mitigation measures are proposed.

The company will disclose an annual report with the total income to the Greenlandic treasury generated from paid income taxes.

Impact evaluation after implementation of mitigation and enhancement measures

The impacts on the public revenues are assessed to be positive with medium to high impact during construction and operation. The Project will contribute to the public revenues through corporate tax and royalties, and indirectly through the taxation of personal income of employees.

Construction phase	Operation phase	Closure phase
Positive – medium	Positive – high	Positive – insignificant
Likelihood: possible *Severity: moderate*	*Likelihood: likely* *Severity: high*	*Likelihood: likely* *Severity: insignificant*

[10] SIK (2019): Agreement between the Employer's Association of Greenland (GA) and Sulinermik Inuutissarsiuteqartut Kattuffiat (SIK) on Hourly-paid construction workers, plumbing and heating installers, electrical installers and building contractors employees 2019-2023.
[11] Studies include the Canadian Association of Mining and Provincial surveys, as well as surveys in Sweden publishing by PwC.

7.6 Public Health

Compared to the other Nordic countries, tuberculosis has a significant higher prevalence in Greenland. Sexual transmitted diseases are distinctly more frequent, while cancer is at same level. Suicide rates are 6-7 times higher, while consumption of alcohol has dropped and is not a par with the other Nordic countries.

Regarding the transmission of COVID-19, Greenland has avoided wide community spreading due to precautious measures such as restricting travelling to Greenland. In mid-spring Greenland has only had a little bit more than 30 confirmed COVID-19 cases.

Due to the size of the project and the limited influx of workers no negative impacts on public health are expected. The potential impact on local health services is addressed under Pressure on public sector, infrastructure and services in section 7.5.1.

Non-communicable diseases

Impacts of nuisance such as noise, dust and air emissions are assessed in the EIA of the project. Impacts will be generated during both construction and operation and are assessed to be low and limited to the Kirkespir Valley and the inner part of the Amitsup Saqqaa Fjord. As the project area is located 32 km northeast of Nanortalik with the nearest settlement Tasiusaq 18 km south of the project site, these will not impact on public health.

Communicable diseases

Although there will be an influx of workers to the project, these will be accommodated on site and transportation of international workers will directly from the international airport in Narsarsuaq to the site by boat, hence, there will be limited interaction between international workers and the local communities. Workers from other regions of Greenland will use the same lines of transportation. Since the interaction between influx workers and local communities will be limited increase in communicable diseases such as STDs and tuberculosis are not expected.

The COVID-19 pandemic has emphasized the need for disease control measures to be in place in workers accommodation camps and related to the transportation of worker to and from site. Nalunaq A/S has in 2020 put in place a COVID-19 Standard Operating Procedures (SOP) [12] that has been implemented for all exploration activities in 2020. The SOP outlines hygiene, personal protective equipment (PPE) requirements and key control measures taken to prevent COVID-19, including adherence to guidelines and travel restrictions of the World Health Organization the International Civil Aviation Organization, and Greenlandic authorities. Additional measures will be put in place to prevent incidents COVID-19 among workers on-site during construction and operation and prevent any transmission of COVID-19 virus between workers and communities. See section 7.2.3 for measures to be implemented at the mine site targeting the workers.

Mitigation and enhancement measures

- Arrange transport directly from Narsarsuaq to and from site for international workers and workers from other regions of Greenland.
- Additional measure to be included in the COVID-19 SOP for onsite implementation – including testing, quarantining and vaccination requirements related to the rotation.

[12] Nalunaq A/S (2020): COVID-19 Pandemic Environment Standard Operating Procedures.

Impact evaluation after implementation of mitigation and enhancement measures
The impacts on public health are assessed to be negative however with insignificant impact. The project will have potential positive impact on the local workers and their families' health due to higher income. Due to the size of the project and the limited influx of workers no negative impacts on public health are expected.

Construction phase	Operation phase	Closure phase
Negative – insignificant	Negative – insignificant	Negative – insignificant
Likelihood: unlikely *Severity: minor*	*Likelihood: unlikely* *Severity: minor*	*Likelihood: unlikely* *Severity: minor*

7.7 Social aspects

7.7.1 Social coherence / social conflict

Greenlandic historic experience of social conflicts related to mining projects include lack of communication between locals and international workers. Hence, during meetings with local stakeholders, it was mentioned that the communication between Angel Mining and the local communities was considered to be insufficient by local stakeholders.

Due to the limited influx of workers, the remote location of the camp site and the minimum interaction of workers with local communities, impacts on social coherence and conflict is expected to be limited.

Mitigation and enhancement measures

- Arrange transport directly from Narsarsuaq to and from site for international workers and workers from other areas of Greenland.
- Establish a workplace diversity and anti-harassment policy (see section 7.2.1 on diversity and culture).
- Regular meetings with the local council in Nanortalik and the settlement councils in Alluitsup Paa and Tasiusaq.

Impact evaluation after implementation of mitigation and enhancement measures
The impacts on social aspects of the local communities are assessed to be negative with low impact for all project phases. Due to the limited influx of workers, the remote location of the camp site and the minimum interaction of workers with local communities, impacts on social coherence and conflict is expected to be limited.

Construction phase	Operation phase	Closure phase
Negative – insignificant	Negative – insignificant	Negative – insignificant
Likelihood: unlikely *Severity: minor*	*Likelihood: unlikely* *Severity: minor*	*Likelihood: unlikely* *Severity: minor*

7.7.2 Vulnerable groups

Vulnerability is often related to socio-economic conditions such as employment, education and health, as well as access to services.

Three vulnerable groups were defined in the scoping phase:

- People experiencing mental disabilities or affected by drug and alcohol abuse.
- Households with no recent history of anyone having secured employment.
- Unemployed young men.

Activities undertaken by the Project which have the potential to particularly impact these groups include:

- Local employment opportunities across all three phases of the Project.
- Training opportunities for Greenlandic citizens.
- Increased income in Nanortalik.

It is not expected that vulnerable groups will be directly affected by the Project. At the same time vulnerable groups are not likely to benefit directly from the project through e.g., employment. Although support for training opportunities in Nanortalik, and the employment opportunities at the end of the training, may encourage more young people to complete the Majoriaq courses as a way out of unemployment.

Mitigation and enhancement measures

- Arrange transport directly from Narsarsuaq to and from site for international workers and workers from other areas of Greenland.
- Cooperate with public job centres (Majoriaq), education and training institutions in the Nanortalik and Qaqortoq to target the search for local applicants and ensure competency and skills development for vulnerable groups.

Impact evaluation after implementation of mitigation and enhancement measures

The impacts on vulnerable groups are assessed to be positive with insignificant impact.

Construction phase	Operation phase	Closure phase
Positive – insignificant	Positive – insignificant	Positive – insignificant
Likelihood: unlikely *Severity: minor*	*Likelihood: unlikely* *Severity: minor*	*Likelihood: unlikely* *Severity: minor*

7.8 Land use and cultural heritage

7.8.1 Local use of the project area

There are 26 professional fisher and hunters in Nanortalik of which some are located in Tasiusaq.

The fishing is mainly for cod, salmon, trout, lumpfish with fish eggs and beetle roe. The main fishing areas for cod is in the area between *Kitsissus tunua, Taatseraakasik* and *Narsarmijitaa*. Lumpfish with fish eggs are caught around Nalunaq during spring. During the summer trout are fished near Nalunaq. Beetle roe is found in *Tasermiut* fjord and the areas of *Qoornoq, Qaqqarsarsik* and *Amitsoq*. Salmon is fished during the autumn and the main fishing areas for salmon is in *Tasermiut* fjord, *Sermilik* fjord and the area of *Itillersuaq* near Nalunaq. Crabs are trapped in the fjord systems around Nalunaq, while mussels are gathered in Amitsup Saqqaa fjord.

The main bird catch is *Uria lomvia* and Eider which main catch area is at *Kitsissut tunua*. Seal catch is undertaken in Sermilik fjord during winter and spring.

The seal hunting is mainly found in Tasermiut fjord and the fjord around Nalunaq.

The hunting on land is mainly of hares and grouse and are primarily taking place between October and April Musk oxen are found in the area of *Kangikitsoq* and *Tasermiut*, these are protected. There are no reindeer in the area.

There are only few major hunting or fishing interests in or near the Project area. However, the Kirkespir Valley is to some extent used by local people from Nanortalik and surrounding settlements for gathering of berries and fungi for private households. It has been reported that seals and other marine mammals have been hunted in the Amitsup Saqqaa Fjord, and a few local fishermen also put up their nets in the fjord. It is expected that the reopening of the mine will influence local peoples' possibilities for fishing, hunting, berry and fungi collecting in the study area only to a very limited extent.

For safety reasons access to the mine area will be restricted during the construction phase. The effects of these restrictions will be low, as there is only limited traditional use of natural resource on the land in Kirkespir Valley. Except for the Project port area, the marine areas off the Project area will remain open for subsistence fishing harvest and recreational use.

There are three sheep farmers near Tasiusaq and five around Nanortalik. These will not experience any impacts by the project.

The expected increase in number of vessels through the Amitsup Saqqaa fjord during construction is estimated to 40-50 barges. During operation the shipping will be limited to one barge a week. The shipping is not expected to affect the fishing in the fjord.

Mitigation and enhancement measures

- Shipping schedules to be shared with local authorities.
- Sourcing of local food is addressed in section 7.4

Impact evaluation after implementation of mitigation and enhancement measures

The impacts on local use of the project area are assessed to be negative with low impact for all project phases.

Construction phase	Operation phase	Closure phase
Negative – low	Negative – low	Insignificant impact
Likelihood: possible *Severity: minor*	*Likelihood: possible* *Severity: minor*	*Likelihood: unlikely* *Severity: minor*

7.8.2 Cultural heritage

A walk-over survey of the project area was undertaken by the Qaqortup Katersugaasivia (Qaqortoq Museum), under the auspices of the Kalaallit Nunaata Katersugaasivia, the Greenlandic National Museum, in 1988 (Berglund & Elling 1988).

A total of 24 ruins were identified and described. All the ruins are located on the flat plain within about 0.6 km of the shore of the fjord and are found in a southern (3-22) and a northern (1-17) grouping. The ruins are of Norse origin and there was no evidence of Inuit or Greenlandic remains. A smaller group of Inuit ruins were located on the North side of the bay, some 500 m from the delta (high tide level). Since these were outside the concession area they have not been considered further. They will not be disturbed by the mine's operations.

The ruins are all very decayed and difficult to identify by the casual observer. However, they still represent a complex of residential and commercial sites with all the 'functions' characteristic of a self-sufficient Norse settlement. Whilst it is not possible to date the settlement without further investigations, it is likely the area was active in the period 1000-1500 CE.

In the Kvaerner Feasibility Study of 2002, the archaeological sites were identified and have been taken into account in the preliminary design of the infrastructures.

No further investigation of the ruins has been carried out since then and no disturbance of the ruins has occurred due to the previous Nalunaq operations (Angel Mining 2009).

Mitigation and enhancement measures

- Where possible and relevant archaeological sites will be fenced off to avoid machinery from accidental damaging the ruins. In case of findings during project activities dialogue with the museum will be initiated to determine whether excavation to recover objects before project activities commence should be undertaken.

Impact evaluation after implementation of mitigation and enhancement measures
The impacts on cultural heritage are assessed to be negative with low impact.

Construction phase	Operation phase	Closure phase
Negative – low	Negative – low	Negative – low
Likelihood: possible *Severity: minor*	*Likelihood: possible* *Severity: minor*	*Likelihood: possible* *Severity: minor*

7.9 Cumulative impacts

Cumulative impacts are those that results from successive, incremental, and/or combined effects of a project or activity when adding to other existing, planned and/or reasonable anticipated ones[13].

Several mining and exploration projects are under development in Greenland, including two mining projects in Southern Greenland – Tanbreez and Kvanefjeldet close to Narsaq. Others include the Ruby project (Qeqertarsuatsiaat), Anorthosite (Naajat), Ironbark (Citronen Fjord) and Pituffik Titanium project.

Based on the experience from other countries with a rapidly with a rapidly expanding mineral sector, potential cumulative impacts could include:

[13] IFC (2013): Good Practise Handbook: Cumulative Impact Assessment and Management – Guidance for the Private Sector in Emerging Markets

- Price inflation
- Shortage of skills and competition to recruit local workforce
- Increased pressure on public infrastructure and services
- Perceived and real loss of community identity due to demographic change
- Perceived and real impacts to fishing and hunting stocks

Cumulative impacts of the project are related to the competition to recruit local workforce and the increased pressure on public infrastructure and services.

The Nalunaq project will compete with other mineral projects and other sectors over local employees. The competition may be particular high in South Greenland due to the presence of Kvanefjeldet and Tanbreez mining projects and the construction of Qaqortoq airport.

The risk of cumulative impacts related to pressure on the public sector is a particular concern related to the health sector in Southern Greenland. Potential parallel or overlapping construction activities on the three mining projects and the regional airport all depend on the regional hospital in Qaqortoq in case of crises or emergency.

Mitigation and enhancement measures

- Target people who are currently outside the labour market by cooperating with local authorities and education and training institutions for skills development of relevance to the Project.
- Close dialogue with regional and national authorities in the preparation of robust emergency response plans.

Impact evaluation after implementation of mitigation and enhancement measures

The cumulative impacts primarily relate to the competition over labour and the pressure on public sector including health services. The impacts are assessed to be negative with low to medium impact for construction and operation respectively.

Construction phase	Operation phase	Closure phase
Negative – low	Negative – medium	Negative – insignificant
Likelihood: possible *Severity: minor*	*Likelihood: possible* *Severity: moderate*	*Likelihood: possible* *Severity: insignificant*

9. Impact and Benefit Plan

The draft Benefit and Impact plan have been prepared based on the impact assessment findings. The purpose of the Benefit and Impact plan is to consult the finding of the SIA with authorities and stakeholders. The final Impact and Benefit Agreement (IBA) will incorporate the Benefit and Impact plan in appendices including the feedback received during the public consultation. The IBA will follow the standards and procedures formulated by the MMR.

The Impact and Benefit plan addresses main impacts identified in the SIA with the following descriptions:

- **Main goal**: describes the goal of each impact category
- **Mitigation and enhancement measures** describes proposed measures that can be implemented to achieve the goal. Such measures may be initiated by the mining company, authorities or civil society
- **Risk and assumption**: list the main assumptions for achieving the goal or risk that may hinder such achievements
- **Verifiable indicators**: list indicators that can be used to measure the project's success in achieving the goals set.

Table 8.1: Benefit and Impact Plan

Impact category	Main goals	Mitigation and enhancement measures	Risk and assumptions	Verifiable indicators
Direct employment	The average target for employment and use of Greenlandic workers during construction and operation is 50% of the total workforce employed by Nalunaq A/S. The number of Greenlandic workers will be as high as possible, subject to availability, qualification, experience and the possible mobilization.	• Develop a local recruitment strategy with focus on hiring priority to Greenlandic workers, active promotion of job opportunities, and co-operation with local job centres and labour market parties. • Establish transparent employment policies and hiring procedures. • Launch campaign to inform potential employees on the employment opportunities at the mine, including visuals from the mine site, camp area and specific information on the different job categories. • Prepare and disclose detailed job descriptions and requirements for each position for mine operation during the construction phase, specifying skills and language requirements. Such information will be made available for key stakeholders including communities, Kommune Kujalleq, unions and vocational training institutions. • Publish job advertisements in relevant Greenlandic media and relevant national job portals, including www.suli.gl, job advertisements will be published in Greenlandic and Danish languages. • Cooperate with the public job centre (Majoriaq) in Nanortalik, as well as vocational training institutions and labour market entities in Kommune Kujalleq and Greenland to target the search for local applicants and ensure competency and skills development through pre-employment training. • Develop an active on-the-job training scheme that will help increase the number of local workers during the operations phase. • Create an attractive working environment with focus on diversity, supporting and encouraging the employment of women on equal basis, through promoting women's awareness of job opportunities and encouraging their applications.	Local workforce is available and interested in working in the construction and operation of the mine. • The gap between required skills and available local skills remains a barrier for local employment. • Difficulties in attacking local employees because of the rotation periods on site. • Difficulties in attacking local employees because of the lack of flexibility of the mining operation compared to the traditional lifestyle.	• Number of employees from local area, from Kommune Kujalleq and from Greenland. • Percentage of Greenlandic workforce per job categories. • Number of local job applicants per job advertisement.

		• Provide on-site measures allowing Greenlandic workers to remain connected with their culture including provision of traditional Greenlandic food, as well as access to recreational areas and telecommunication in the accommodation camp. • Provide cross-cultural training to Greenlandic and International employees, to foster mutual respect and cultural consideration. • Exploring the possibility for increasing the transportation services between Nalunaq and towns and settlements in South Greenland such as Nanortalik, Qaqortoq and Alluitsup Paa through continuously dialogue with Department of Infrastructure in the GoG.		
Labour conditions and occupational health and safety (OHS)	Working conditions and OHS are in compliance with national legislation and good international standards. Accidents avoided at the mine site.	• Early and continuous engagement with SIK and other Greenland labour unions to establish working conditions which meet Greenlandic requirements, and which will avoid distorting the labour market. • Worker's rotation will be developed to support family-friendly employment and take into consideration the frequency of home visits necessary to maintain semi-traditional lifestyles. • Establish a workplace diversity and anti-harassment policy (see section 7.2.1 on diversity and culture). • Setting workers accommodation standards that comply with international good practice. • Establish a worker's grievance mechanism available in English, Danish and Greenlandic. • Prepare a workplace OHS risk assessment prior to the commencement of construction consistent with the requirements in Order No. 1168. • Close cooperation with authorities for emergency response and evacuation.	Public authorities have the necessary capacity and resources allocated for response.	• Number of labour disputes and grievances • Number of staff trained • Number of accidents compared to working hours • Lost time injuries

		• Prepare safe work procedures for key activities which will remain living documents throughout the duration of Project activity. • Maintain plant and equipment in safe working condition. • Provide 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. • Collect and monitor all relevant safety statistics including near misses and identified risks. • Establish a safety committee responsible for managing, providing advice on, informing and supervising activities concerning health and safety within the Company. • Allocate responsibility for occupational health and safety to senior management within the Project team. • Undertake regular emergency drills at the mine site. • Pre-notification of operations and traffic of vessels to relevant authorities. • Ensure that at least two people at site at any given time have taken the compulsory occupational and health and safety course. • Having a zero-tolerance policy when it comes to possessing or consuming alcohol and drugs among employees. • Ensure that foreign workers are familiar with Greenlandic legislation and guidelines.		
Education, training and competence development for the Greenlandic workforce	Skills development and proficiency of Greenlandic workforce created from practical work experience in the mining sector.	• Cooperate with Greenland School of Minerals and Petroleum and other vocational training institutions, on establishing and operation of mining related vocational and technical training programmes (such as courses under e.g., Project Skills Development for the Unskilled" (PSDU) and apprenticeships.)	Local workforce is interested in mining related training and competence development.	• Percentage of Greenlandic job applicants with relevant competences and qualifications.

	Apprenticeships are offered to Greenlandic students from vocational training institutions.	• Pre-employment and on-the-job training programs developed in co-operation with local authorities, educational and training institutions, and labour organizations. • Develop a strategy on the skills development of Greenlandic workers including retaining and career training.		• Number of Greenlandic students completing apprenticeships at Nalunaq
Sourcing from Greenlandic enterprises	Contracts granted to Greenlandic enterprises, subject to availability, qualification, experience and competitiveness. Contracts include both services, goods and equipment during construction and operation.	• Implement the established procurement policy that supports local procurement and disclose the criteria for Greenland enterprises to assess their commercial and technical competitiveness. • Develop a local content strategy with focus on supplier development including strategy for strengthening local enterprises capacity to compete. • Unbundling of contracts with work packages split into smaller units to be in line with local capacity and to encourage greater local competition. • Identify packages that are within the capabilities of local enterprises and reserve such packages for local bid. • Close dialogue with to Greenlandic transportation providers Air Greenland and Royal Artic Line. • Close dialogue with Tusass to establish the necessary communication services.	Local enterprises have the necessary capacity to invest in service delivery. Risks: Greenlandic enterprises are not competitive compared to international enterprises.	• Number of contracts awarded to Greenlandic enterprises. • Value of contract awarded to Greenlandic enterprises (in DKK and % of total contracted amount). • Number of local enterprises involved in the tender process
Pressure public infrastructure and services	Public infrastructure and services are not overburdened by increased demand from the project.	• Close dialogue with Kommune Kujalleq on project related pressure on municipal infrastructure and services. • Close dialogue with Greenland health authorities on emergency response plan and access to health services for international employees. • Close dialogue with to Greenlandic transportation providers Air Greenland and Royal Artic Line. • Close dialogue with Tusass to establish the necessary communication services.	Public authorities have the necessary capacity and resources allocated for response.	

Public health	Prevalence of communicable diseases remain at existing levels.	• Arrange transport directly from Narsarsuaq to and from site for international workers and workers from other regions of Greenland. • Additional measure to be included in the COVID-19 SOP for onsite implementation – including testing, quarantining and vaccination requirements related to the rotation.		
Social aspects	Social conflict at site avoided.	• Arrange transport directly from Narsarsuaq to and from site for international workers and workers from other areas of Greenland. • Establish a workplace diversity and anti-harassment policy • Cooperate with public job centres (Majoriaq), education and training institutions in the Nanortalik and Qaqortoq to target the search for local applicants and ensure competency and skills development for vulnerable groups. • Regular meetings with the local council in Nanortalik and the settlement councils in Alluitsup Paa and Tasiusaq.		
Land use and cultural heritage	The local population using the area and fjords surrounding Nalunaq experience as few restrictions as possible without compromising security.	• Shipping schedules to be shared with local authorities. • Sourcing of local food • Where possible and relevant archaeological sites will be fenced off to avoid machinery from accidental damaging the ruins. In some cases, the museum will be asked to excavate and, if necessary, recover objects before project activities commence.		

10. Public Participation

10.1 Public participation prior to construction and production

Due to the COVID-19 pandemic the opportunity for stakeholder engagement have been limited to online teleconference meetings and written responses from stakeholders, in the period December 2020 – March 2021.

The objective of the stakeholder engagement activities has been to inform and update stakeholders on the status of the project. Additionally, the stakeholders have been invited to ask questions, to propose initiatives which could increase local involvement in the project, as well as raise their concerns related to the project.

In March 2021 Nalunaq A/S held a number of meetings with local stakeholders in Qaqortoq, Nanortalik and Alluitsup Paa. During these meetings the preliminary project description was presented, and draft procurement policy and draft example job advertisement was shared with stakeholders. Furthermore, different stakeholders have been in engaged through meetings or correspondence in January-April 2021.

10.2 Public participation during construction and production

During construction and production Nalunaq A/S will ensure involvement of citizens in Greenland and in particular South Greenland through recruiting initiatives and involvement of local enterprises. Furthermore, Nalunaq A/S will initiate regular meetings with the local council in Nanortalik and the settlement councils in Alluitsup Paa and Tasiusaq. Nalunaq A/S expects this to be regulated in the upcoming Impact Benefit Agreement.

Table 9-1: Project stakeholder participation

Stakeholder	Date	Aspects discussed and key concerns raised
Ministry of Health	29 December 2020	• Emergency response at Nalunaq • Cooperation with health authorities in Greenland.
Tasiusaq (Bygdebestyrelse)	13 January 2021	• Livelihood of people living in Tasiusaq • Local concerns regarding Nalunaq.
Health Region Kujalleq	19 January 2021	• Capacity of the health services in Nalunaq and Qaqortoq • Emergency response • Concerns related to COVID-19 and other communicable diseases
Meeting with Kommune Kujalleq, Innovation South Greenland (GE) in Qaqortoq and SIK in Qaqortoq	23 March 2021	• Local jobs, recruitment and tax payment to Kommune Kujalleq • Competences of local labour force and need for courses and continued training • Measures for local subcontractors and the use of ISG Business Index • Increased local anchoring of the Nalunaq A/S management, main quarters and tax revenue • Ownership of Nalunaq A/S including Greenlandic shareholders • Greenlandic legislation and regulations • Cooperation with the municipality and affected communities • Regular meetings with ISG, Kommune Kujalleq, GE and SIK • Compliance with IBA agreement and terms
Hunters and fishermen in Nanortalik	27 March 2021	• Land use of project area • Main locations used by fishers and hunters in the fjords and the area near to Nalunaq • Beach landing area and existing barge landing spot • Previous pollution with cyanide in the fjord around Nalunaq • Use of chemicals in the coming production • Communication between Nalunaq A/S and local hunters • Shipment • Trade between fishermen and hunters with the kitchen in Nalunaq • Transportation of personnel • Local employment • COVID-19 quarantine in Qaqortoq

		• Ownership of Nalunaq A/S • Sale of gold locally • Opportunity to buy shares in the mine • Opportunity to visit the site
Majoriaq in Nanortalik (continuing adult training institution)	29 March 2021	• Recruitment of local labour • Majoriaq to be primary contact point for local recruitment • Education and training opportunities
Local branch of Greenland Business Association (GE) in Nanortalik	29 March 2021	• Opportunities for local business
Local department of SIK and Local Council in Nanortalik	29 March 2021	• Recruitment of local labour • Ownership of Nalunaq A/S • Responsibilities of the local council in Nanortalik • Responsibilities of SIK in Nanortalik including their engagement with the settlements Tasiusaq, Aappilattoq, Alluitsup Paa and Ammassivik • Relationship between Nanortalik and Nalunaq A/S including communication • COVID-19 quarantine in Qaqortoq or Narsarsuaq • Local infrastructure and transportation • Accidents and substance abuse during previous mining activities
Local department of SIK and Fishermen and Hunters Association from Alluitsup Paa	25 March 2021	• Land use of project area • Main locations used by fishers and hunters in the fjords and the area near to Nalunaq • Recruitment of local labour • Safety and language • Shipment and transportation • Engagement of local stakeholders
Local Council in Nanortalik	29 March 2021	• Discussing of upcoming dialogue between Nalunaq A/S and the local council in Nanortalik
WWF in Nuuk	April 2021	• Has had opportunity for commenting on a Draft for the project description (see chapter 5 above)
The Working Environment Authority in Greenland	April2021	• Meeting and correspondence between Nalunaq AS and the Working Environment Authority
The Danish Agency International Recruiting (SIRI)	April 2021	• E-mail correspondence between Nalunaq A/S and SIRI

The Department for Infrastructure	April 2021	• E-mail correspondence between Nalunaq A/S and the Department
School for Minerals and Petroleum	April 2021	• Conference call between Nalunaq A/S and the School for Minerals and Petroleum
ICC	April 2021	• E-mail correspondence between Nalunaq A/S and ICC

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Appendix 1 Methodology

1. Overall approach and methodology for the SIA

The purpose of this Social Impact Assessment (SIA) is to identify potential positive and negative socio-economic impacts from the Nalunaq Gold Project. The analysis of potential impacts is based on the socio-economic baseline and the project description.

The Social Impact Assessment and related engagement process for the Nalunaq Gold Project has been prepared in accordance with the GoG '*Guideline on the process and preparation of the SIA report for mineral projects 2016*'

The SIA process consists of five steps, for which the approach and methodology is described in the following:

1. Scoping phase and terms of reference
2. Collection of secondary data and preparation of socio-economic baseline
3. Stakeholder consultation and collection of primary data
4. Analysis of social impacts and identification of mitigation measures
5. Development of benefit and impact plan (input to IBA agreement)

The SIA is based on international best practices drawing from the guidance document prepared by the International Association for Impact Assessment in 2015, *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects*, the *Socio-Economic Impact Assessment Guidelines* from Mackenzie Valley Environmental Impact Review Board, 2007, and guidance documents from the International Council on Mining and Metals (ICMM).

1.1 Scoping phase and Terms of Reference

The purpose of the scoping phase was to identify key potential impacts and relevant aspects to be assessed in the SIA. The scoping formed the basis for the Terms of Reference (ToR).

The ToR of the project was submitted for public consultation in December 2020 - January 2021. A White Paper was prepared based on the incoming consultation responses from stakeholders, and subsequently the ToR was updated for final approval by the authorities.

The approved ToR and White Paper for the SIA are available in English, Danish and Greenlandic on the official public consultation page of the Greenland Government.

1.2 Scope of the assessment

The scope of the SIA is determined as the social area of influence and covers the area directly impacted by the Project's operation and ancillary facilities and the towns and settlements where the benefits of employment, business opportunities and developments directly and indirectly created by the Project are expected to be more noticeable.

Spatial boundaries

The spatial boundaries are set to include towns and settlement, which are assessed to be particularly affected by activities, cf. section 87c in the Mineral Resource Act. The license area is located in Kommune Kujalleq. The nearest town and settlements include Nanortalik (32 km southwest of the license area), and Tasiusaq (south of the license area).

The social impacts of the project are described and analysed at three levels:

- Local: Nanortalik, Alluitsuup Paa and Tasiusaq
- Regional: Kommune Kujalleq
- National: Greenland

Temporal boundaries

Temporal boundaries describe the stages in the project cycle, as different stages can cause different potential impacts.

The SIA will cover three different stages of the project:

- Construction phase
- Operation phase
- Closure

1.3 Scope of aspects

The reopening of a gold mining operation in the Nalunaq area can potentially impact the socio-economic conditions in the study area. Potential impacts can be both positive (e.g., employment and business opportunities), and negative (e.g. the pressure on public infrastructure, social risks related to influx of workers or impacts on communities' access to fishing and hunting areas near the mine site).

In the scoping phase potential impacts from the project were identified based on the project description, baseline information and the guideline. The aspects identified are summarized in Table 1.

Table 1: Aspects identified to be addressed in the SIA

Employment	Direct employment Indirect and induced employment effects Labour conditions and occupational health and safety (OHS)
Education and Training	Development of competences
Sourcing from Greenlandic businesses	Business opportunities
Public sector pressure and revenues	Pressure on the public sector, infrastructure and services Public revenue
Public health	Public health including prevalence of diseases, treatment and services
Social aspects	Social coherence / social conflict Vulnerable groups
Land use and cultural heritage	Local use of the project area Cultural heritage Resettlement and economic displacement
Cumulative impacts	Competition over labour, public sector pressure, social coherence etc.

2. Data collection and preparation of baseline

Most of the baseline information presented in this SIA is based on information available from secondary sources. The sources include research reports, relevant studies, official strategies and development plans, and statistical data from Statistics Greenland. Efforts have been put into presenting the most updated information available at the time of the SIA preparation.

The scope of the baseline is based on identification of a number of aspects which are considered necessary and relevant for the project specific impact assessment as set out by international standards cf. the *IFC Good Practice Note: addressing the social dimensions of private sector projects, 2003*.

A list of references is included in the main report.

3. Impact analysis methodology

The impact assessment is based on an evaluation of the identified positive and negative impact of the project. For each identified impact, the risk or chance of the impact occurring have been qualified taking into consideration the likelihood of the impact to happen (*likely, possible or unlikely*) and the severity of the impact if it occurs (*significant, moderate, minor or insignificant*).

The result of the evaluation of each impact is presented using the colour codes presented in Table 2. The colour indicates whether the impact is *very high, high, medium or low* (positive or negative) or *insignificant*. The result is found by combining the likelihood and the severity of the impact.

Table 2: Impact assessment codes

		Severity of impact							
		Negative				**Positive**			
Likelihood of impact		**Significant** *High impact with large influence*	**Moderate** *Effects are felt and influence some stakeholders*	**Minor** *Effects are observed*	**Insignificant** *Little to no effect if impact occur*	**Insignificant** *Little to no effect if impact occur*	**Minor** *Effects are observed*	**Moderate** *Effects are felt and influence some stakeholders*	**Significant** *High impact with large influence*
	Unlikely *Impact is unlikely to occur*								
	Possible *Impact will likely occur*	High impact	Medium impact	Low impact	Insignificant impact	Insignificant impact	Low impact	Medium impact	High impact
	Likely *Impact is expected to occur*								

Different methodologies have been used to characterize, assess severity and evaluate the impacts for different impact categories. All the tools and methodologies for impact characterization and evaluation are based on best international practices drawing from the guidance document prepared by the International Association for Impact Assessment in 2015, *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects*, the *Socio-*

Economic Impact Assessment Guidelines from Mackenzie Valley Environmental Impact Review Board, 2007, and guidance documents from the International Council on Mining and Metals (ICMM). Public concern (perceived impacts) has been considered when assessing the severity of the impacts.

Criteria used for determination of likelihood is:

Likely:	Consequence very likely to occur, already planned
Possible:	Expected but not planned; has occurred on numerous similar projects; is a common consequence of similar projects
Unlikely:	Not expected, uncommon consequence of similar projects

The severity of an impact is described as:

Significant:	Large impact and large influence
Moderate:	Effects are felt and influence several groups of stakeholders
Minor:	Effects are observed
Insignificant:	Little to no effect on stakeholders if impact occurs

To determine the severity of an impact, the following factors are taken into consideration:

Extent of the impacts:	Geographical range of the impacts, number and situation (vulnerability, resilience to change etc.) of the receptors
Duration and frequency of impacts:	Duration of occurrence of the impacts (temporary or permanent), wide fluctuations that could disrupt the community over time (boom and bust period)
Period of manifestation:	Impacts noticed immediately or over time by communities, authorities or other stakeholders
Public concern:	Potentially affected groups in the community, authorities or other stakeholders

3.1 Mitigation and enhancement measures

For each identified negative or positive impact, a number of mitigation or enhancement measures are presented.

Mitigation measures for impacts that are assessed to be negative are intended to minimize the negative impact, whereas enhancement measures for impacts that are assessed to be positive are intended to maximize the positive impact.

Proposed measures are based on international experience from similar project and best international practices as presented in guidance notes and toolkits from recognized IFIs and industry organizations such as ICMM.

4. Benefit and Impact Plan

A Benefit and Impact Plan (BIP) is presented in the SIA, describing the goals of each impact category, and related proposed mitigation and enhancement measures. Furthermore, the BIP include indicators that can help monitor and evaluate the project's impacts.

Appendix 2 Legal and administrative framework

1. Authorities responsible for mining projects

The Ministry of Mineral Resources (MMR) and the Environmental Agency for Mineral Resources Activities (EAMRA) are responsible for the mineral resources area in Greenland.

The MMR and the underlying Mineral License and Safety Authority (MLSA) is the administrative authority for license issues and is the authority for safety matters including supervision and inspections. Furthermore, the Ministry is responsible for the SIA and Impact Benefit Agreement (IBA) for mineral resource companies including mining projects' use of Greenlandic enterprises and Greenlandic labour.

The EAMRA is the administrative authority responsible for environmental matters relating to mineral resources activities, including the EIA. EAMRA is an agency under the Ministry of Agriculture, Self-Sufficiency, Energy and Environment.

2. Relationship to Danish legislation

Greenland is a constituent country in the Kingdom of Denmark, with established self-government under the *Act of Greenland Self-Government* that came into force in 2009. With the establishing of the Greenlandic self-government most legal areas have been assumed by the Greenlandic self-government including mineral resources, taxes and duties, environmental matters and infrastructure. However, some juridical areas are still under Danish jurisdiction including:

- Justice affairs, including police, criminal procedures and the courts of law
- Defence and national security
- Foreign affairs
- Financial sectors monetary system
- Civil right law e.g., family and citizenship
- Immigration policy, including work and residence permits for foreigners in Greenland
- Safety at sea (primarily the IMO Polar Code and Order for Greenland on the safe navigation of ships)

Both Greenlandic and Danish acts is therefor included in the following sections describing the relevant legislation for the Nalunaq Project.

3. Legislation relevant for mining projects

The main legislation under which this project will be developed and operated is the Greenland Parliament Act no. 7 of 7 December 2009 on Minerals and Resources (the Mineral Resource Act) which came into force on January 1, 2010 (including amendments no. 26 of December 18, 2012, no. 6 of June 8, 2014, no. 16 of June 3, 2015, no. 34 of November 28, 2016, and no. 16 of November 27, 2018). The most relevant provisions for the SIA process in the Mineral Resources Act are:

- Section 77 (2) – identification and assessment of direct and indirect project impacts

- Section 78 (a) – the legal basis for the IBA
- Part 18a – pre-consultation and consultation
- Section 18 (1) – use of Greenland workers
- Section 18 (2) – use of Greenland enterprises
- Section 18 (3) – processing of minerals in Greenland

Other relevant legislation is described in the table below.

Table 1: Relevant legislation to the Nalunaq Project

Legislation	Summary and relevance	Year
Greenland Parliament Act No. 7 of 7 December 2009 on mineral resources and mineral activities (the Mineral Resources Act) and subsequent amendments	The Greenland Parliamentary Act aims to ensure appropriate exploitation of mineral resources and use of subsoils relating to mineral resources activities, as well as regulation of matters of importance to mineral resource activities and subsoil activities. Furthermore, it aims at ensuring that activities falling within the scope of the Act are carried out in a sound manner as regards to safety, health, the environment, resource exploitation and social sustainability as well as appropriately and accordance with acknowledged best international practices under similar conditions. Act No. 7 was created on December 7, 2009 and came into force on January 1, 2010.	2009 and onwards
Greenland Parliament Act No. 27 of 30 October 1992 on the regulation of influx of labour to Greenland (incl. later amendments)	Ensures that Greenlandic labour are given priority for unskilled and certain skilled jobs in Greenland.	1992
Danish regulation no. 150 of 23 February 2001 '§9 (2) (3) of Decree no. 150 of 23 February 2001 on request relating to the entry into force of the law on non-nationals into Greenland'	Regulation of foreign workers in Greenland. The Danish immigration authorities are responsible for issuing work and resident permits to work in Greenland required for non-Nordic citizens. Specific guidance on exceptions to these general rules should be obtained from the Danish immigration authorities.	2001
Act No. 1048 of 26 October 2005 on Occupational Health and Safety and subsequent amendments, covering Act No. 295 of 4 June 1986, Act No. 321 of 18 May 2005, and Act No. 193 of 26 March 1991	The Act aims to ensure a safe and health working environment which shall at any time be in accordance with the technical and social development of the Greenland society, and the basis on which the enterprises themselves will be able to solve questions relating to safety and health under the guidance of the employers' and workers' organizations, and under the guidance and supervision of the Working Environment Authority. See also the Orders listed below in section 3.1 of this Annex.	2005
Act No. 12 of 2 November 2006 on income tax and later amendments, covering Act No. 3 of 30 November 2009, Act No. 20 of 18 November 2010, and Act No. 37 of 9 December 2015.	The Act regulates taxes in Greenland	2006 and onwards

Greenland Parliament Act No. 29 of 18 December 2003 on nature protection	The Act serves to protect the nature in Greenland	2003
Greenland Parliament Act No. 11 of 19 May 2010 on conservation and heritage protection (The Heritage Protection Act)	The Act serves to protect the ancient relicts, finds, monuments and buildings	2010
Greenland Parliament Act No. 14 of 26 May 2010 on emergency services in Greenland and fire and explosion prevention (Emergency Management Act)	The Act regulates emergency management, requiring that emergency response be coordinated by the Chief of Police in Greenland	2010
Greenland Parliament Act No. 4 of 4 June 0212 on Greenland Oil Spill Response A/S	Naalakkersuisut has founded the independent company Greenland Oil Spill Response A/S which purpose is to operate on a commercial basis on oil pollution preparedness, environmental clean-up after oil spills and other related activities within the mining area of Greenland. This company shall help the establishment on the operation and expansion of an oil spill preparedness of raw materials.	2012
Executive order No. 16 of 16 July 2017 on explosives	The Order lays down rules for the use of explosives related to construction work, import, export, storage, sale, purchase transfer, transport, use and manufacturing of explosives and detonators.	2017
Criminal law, Danish Act No. 306 of 30 April 2008, with Amendments of Act No. 735 of 25 June 2014, Act No. 103 of 3 February 2016 and Act No. 149 of 7 February 2017	The Act constitute the criminal code for Greenland. The Greenlandic judiciary system is regulated by Danish legislation and is administered by the Danish authorities	2008
Decree No. 1674 of 16 December 2015 and Decree No. 882 of 25 August 2008 on request relating to the entry into force of the law on Maritime Safety (Safety at Sea)	The Decree regulates safety at sea in Greenland waters and ensuring implementation of the International Convention on Safety at Sea (SOLAS, 1974), the International Convention for the Prevention of Pollution from Ships. 1973 and the modified protocol (MARPOL), 1978	2008, 2015
BL 5-24 of 26 June 2008, on operational regulations for domestic flights in Greenland and for transit flights in Nuuk Flight Information Region (FIR)	The BL lays down the operational regulations for all domestic flights in Greenland and all transit flights within Sondrestrom FIR, of Danish or foreign registered aircrafts.	2008
Order No. 10 of 10 October 2013 on the use of motorized means of transportation	The Order lays down rules for the use of motorized means of transportation based on nature and environmental protection considerations.	2013
Executive order No. 995 of 26 October 2009 on road traffic	The Order lays down rules for the traffic on roads, squares and other areas that are used for ordinary traffic by motorized means of transportation.	2009
Executive Order No. 7 of 17 March 2008 on portable water	The Order lays down the rules for quality requirements of portable water, frequency of sampling and analysis, quality	2008

quality and supervision with water treatment plants	monitoring, requirements for analysis of additional parameters, and control of quantities of water recovered.	
The Greenlandic Building Code (Bygningsreglement 2006, Br06)	The Code apply to residential buildings and all types of commercial and institutional buildings.	2006

3.1 Orders on Occupational Health and Safety

Table 2: Orders on occupational health and safety

Order	Year
Order no. 798 of 12 June 2017, Reimbursement of expenses in connection to inspection of mines etc. in Greenland	2017
Order no. 655 of 12 May 2015, Installation and use of mechanically operated cranes, hoists and similar	2015
Order no. 302 of 26 March 2015, Work activities in relation to exploring and exploiting minerals in Greenland	2015
Order no. 914 of 26 June, Education on occupational health and safety	2013
Order no. 133 of 5 February 2010, Asbestos	2010
Order no. 1168 of October 2007, Workplace assessment in Greenland	2007
Order no. 32 of 23 January 2006, Rest periods and time off in Greenland	2006
Order no. 1344 of 15 December 2005, Construction owner's obligations and responsibility	2005
Order no. 1346 of 15 December 2005, Occupational health and safety work in Greenland and amendment in Order no. 364 of 6 April 2010	2005 2010
Order no. 1347 of 15 December 2005, Work for young people	2005
Order no. 1348 of 15 December 2005, Arrangement of construction sites and similar workplaces in Greenland	2005
Order no. 395 of 24 June 1986, Performance of work	1986
Order no. 396 of 24 June 1986, Work with substances and materials (chemicals)	1986
Order no. 399 of 24 June 1986, Arrangement of workplaces	1986
Order no. 401 of 24 June 1986, Reporting of work-related injuries	1986
Order no. 155 of 18 April 1972, Pressure contained on land	1972

4. National guidelines

Table 3 lists national guidelines of relevance to the project.

Table 3: Orders on occupational health and safety

Title	Summary and relevance	Year
Social Impact Assessment (SIA). Guidelines for the process and preparation of the SIA for mineral projects	Guidelines prepared to assist mining companies and their consultants in preparing the Social Impact Assessment (SIA), describe the role of the Greenland Home Rule Government's Bureau of Minerals and Petroleum (BMP), the SIA process and content of the SIA document.	2016

Guideline for preparing and Environmental Impact Assessment (EIA) report for mineral exploitation in Greenland	Guideline for EUA that apply to mining companies. The EIA must cover the entire exploitation period from mine development to closure and subsequent monitoring. The guideline includes requirements of baseline and project specific environmental studies 2.3 years in advance of the EIA preparation.	2015
The Danish Maritime Authority's guidelines of 10 January 2011 on investigation of navigational safety issues	The guidelines ensure that the concession holder, prior to starting the exploitation activities, must have carried out a navigational safety investigation of the conditions in the operational phase in connectional phase in connection with calls at ports, facilities, anchorages, etc. in the concession area. The purpose of the investigation is to illustrate that navigation can be carried out in a safe manner.	2011
Standard Terms for Exploration Licenses for Minerals (excluding hydrocarbons) in Greenland and addendum no. 3 of 1 July 2014 to standard terms for exploration licenses for minerals (excluding hydrocarbons) in Greenland	Serves under the Mineral Resources Law. Guidelines from BMP describing application for exploration licenses, rights and rules for exploration of minerals in Greenland.	2010, 2014
Standard Terms for prospecting Licenses for Minerals (excluding hydrocarbons) in Greenland	Serves under the Mineral Resources Law. Guidelines from BMP describing application for prospecting licenses, rights and rules for prospecting of minerals in Greenland.	2010
Rules for field work and reporting regarding mineral resources (excluding hydrocarbons) in Greenland	The rules apply to licensees' field activities regarding mineral resources (excluding hydrocarbons) in Greenland and to reporting to the BMP on the activities and their results.	2000

5. International conventions and obligations

Table 4 presents relevant international unions, declarations and conventions that are relevant to operating a mining project in Greenland.

Where relevant it is mentioned if the conventions have been ratified by Greenland and Denmark.

Table 4: Orders on occupational health and safety

Title	Summary and relevance	Year
UN Declaration on Indigenous Peoples Rights	The UN Declaration on the Rights of Indigenous Peoples sets out the individual and collective rights of indigenous peoples, as well as their rights to culture, identity, language, employment, health, education and other issues. The declaration also "emphasizes the rights of indigenous peoples to maintain and strengthen their own institutions, cultures and traditions, and to pursue their development in keeping with their own needs and aspirations". The declaration is not legally binding but supported by Denmark.	2007
UN Convention against Corruption	The United Nations Convention against Corruption (UNCAC) is a multilateral convention and the first global legally binding international anti-corruption instrument. UNCAC requires that States Parties implement several anti-corruption measures which may affect their laws, institutions and practices. These measures aim at preventing corruption, including domestic	2005

	and foreign bribery, embezzlement, trading in influence and money laundering. The convention has been ratified by Denmark on behalf of the Kingdom of Denmark.	
Extractive Industries Transparency Initiative (EITI)	The Extractive Industries Transparency Initiative (EITI) is a global Standard to promote open and accountable management of natural resources. Countries implementing the EITI disclose information on tax payments, licenses, contracts, production and other key elements around resource extraction. Greenland has officially stated that it supports the EITI principles, but Greenland / Denmark is not yet candidate countries to EITI.	2002
ILO Declaration on Fundamental Principles and Rights at Work	The Declaration commits Member States to respect and promote principles and rights in four categories, whether or not they have ratified the relevant Conventions. These categories are: Freedom of association and the effective recognition of the right to collective bargaining, the elimination of forced or compulsory labour, the abolition of child labour and the elimination of discrimination in respect of employment and occupation.	1998
United Nations Framework Convention on Climate Change	The convention aims at protecting, preventing and reducing global warming by reducing the emissions of greenhouse gases. The convention enforces the Kyoto Protocol which came into force in 2005 and the subsequent Paris Agreement from 2015. The Paris Agreement has been approved by Denmark, but with territorial exclusion in respect of Greenland. This means that Greenland does not have international reduction commitment.	1992
Convention on Biological Diversity	The Convention on Biological Diversity has 3 main objectives: The conservation of biological diversity; the sustainable use of the components of biological diversity; and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources. The convention was ratified by Denmark in 1993.	1993
OSPAR convention (The Convention for the Protection of the Marine Environment of the North-East Atlantic)	OSPAR is the mechanism by which 15 Governments and the EU cooperate to protect the marine environment of the North-East Atlantic. Overall, the work of the OSPAR Commission is guided by the ecosystem approach to an integrated management of human activities in the marine environment. The Convention has been signed and ratified by Denmark.	1992
ILO Convention 169 - Indigenous and Tribal Peoples Convention	The ILO Convention 169 is a binding international convention concerning indigenous peoples. It recognizes and respects the cultures and ways of life of indigenous peoples, right to land and natural resources, and rights to determine priorities for development. It does not simply state rights but goes beyond by providing technical guidance on how to implement those rights, and which measures, precautions, or safeguards to take in order to ensure full enjoyment of those rights. The convention was ratified by Denmark (including Greenland and Faroe Islands) on 22 February 1996.	1991
OECD Guidelines for Multinational Enterprises and subsequent updates (the latest in 2011)	The OECD Guide for Multinational Enterprises are the most comprehensive set of government-backed recommendations on responsible business conduct. The governments adhering to the Guidelines aim to encourage and maximize the positive impact MNEs can make to sustainable development and enduring social progress.	1976, 2011

	The guidelines have been adopted by Denmark.	
International Covenant on Civil and Political Rights (ICCPR)	The International Covenant on Civil and Political Rights (ICCPR) is a multilateral treaty that commits its parties to respect the civil and political rights of individuals, including the right to life, freedom of religion, freedom of speech, freedom of assembly, electoral rights and rights to due process and a fair trial. The convention was ratified by Denmark in 1972.	1966
International Covenant on Economic, Social and Cultural Rights (ICESC)	The International Covenant on Economic, Social and Cultural Rights (ICESC) commits its parties to work towards the granting of economic, social and cultural rights to the Non-Self-Governing and Trust Territories and individuals, including labour rights and the right to health, the right to education, and the right to an adequate standard of living. The covenant was ratified by Denmark in 1972.	1966
Convention for the Protection of the World Cultural and National Heritage (UNESCO/ World Heritage Convention)	The Convention aims to conserve and protect cultural heritage from destruction by traditional decay and by changing social and economic conditions. Because deterioration or disappearance of any item of cultural or natural heritage constitutes a harmful impoverishment of the heritage of all the nations of the world. The convention was ratified by Denmark in 1979, and of ten properties inscribed on the Danish world heritage list, three sites are in Greenland.	1972
Ramsar Convention	The Ramsar is an intergovernmental treaty that provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources. Denmark signed the treaty in 1978, and Greenland has eleven Ramsar sites of which two are in Southern Greenland; Ikkattoq and Kitsissut Avalliit.	1971
International Convention on the Elimination of All Forms of Racial Discrimination	The Convention on the Elimination of All Forms of Racial Discrimination 1966 (CERD) was one of the first human rights treaties to be adopted by the UN. The convention has been ratified by Greenland and Denmark.	1965
European Convention on Human Rights	The Convention for the Protection of Human Rights and Fundamental Freedoms, better known as the European Convention on Human Rights, was the first instrument to give effect to certain of the rights stated in the Universal Declaration of Human Rights and make them binding. Implemented in Danish legislation in Act no 285 of 29 April 1992.	1953
International Union for the Conservation of Nature (IUCN)	IUCN helps the world find pragmatic solutions to the most pressing environment and development challenges. ICUN is a membership organization. Amongst the 13,000 state and non-state members is the Danish Ministry of Environment and Food.	1948
ILO Convention 87 and 98	The ILO Convention 87 ensures the Freedom of Association and Protection of the Right to Organize and the ILO convention 98 concerns the Right to Organize and to Bargain Collectively	1948 1951

Appendix 3 Baseline

The following chapter describes the social baseline situation prior to the Nalunaq Gold project. The aim of the baseline is to provide an overview of the current situation in the geographical region surrounding Nalunaq. The baseline will provide information on the demographics, economy, political structure, social conditions and cultural traits that can influence the way in which affected communities will respond to anticipated changes brought by the project. The baseline is created to highlight aspects that could potentially be relevant.

The baseline is based on secondary data and presents the current situation only, whereas the potential impacts is presented in the Impact Analysis chapter.

1. Demographic Profile

1.1 Population

On the 1st of January 2020, the population of Greenland consisted of 56,081 people. Following a declining population trend, the population has been stable since 2017. Greenland´s population lives exclusively at the coast, in towns and settlements. About 60 per cent live in the five largest towns Nuuk, Sisimiut, Ilulissat, Aasiaat and Qaqortoq. The variation in population is closely related to the migration patterns, further illustrated in section 2.3.

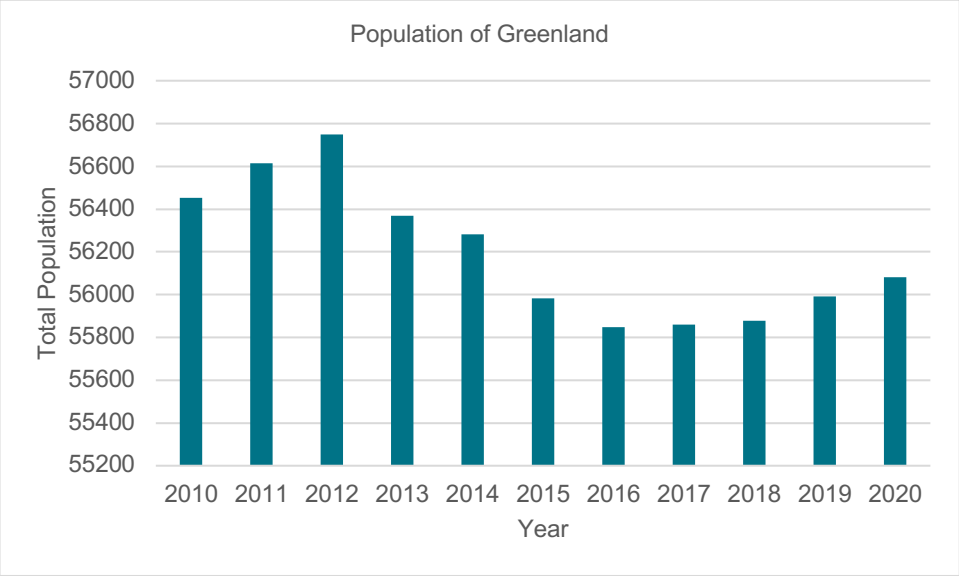

Figure 1: Population of Greenland (Statistics Greenland, BEXSAT1)

Greenland is divided in five municipalities and the National Park in the northeast of Greenland. In 2018 the municipality of Qaasuitsup was divided into two municipalities (Avannaata and Qeqqata), increasing the number of municipalities from four to the current five. Figure 2 shows the boundaries of the current municipalities.

The Nalunaq goldmine is located in the Kommune Kujalleq, in the south of Greenland. The closest town, Nanortalik, is located 32 kilometres from the mine. Nanortalik is Greenland's 10th largest town with a population of approximately 1,350.

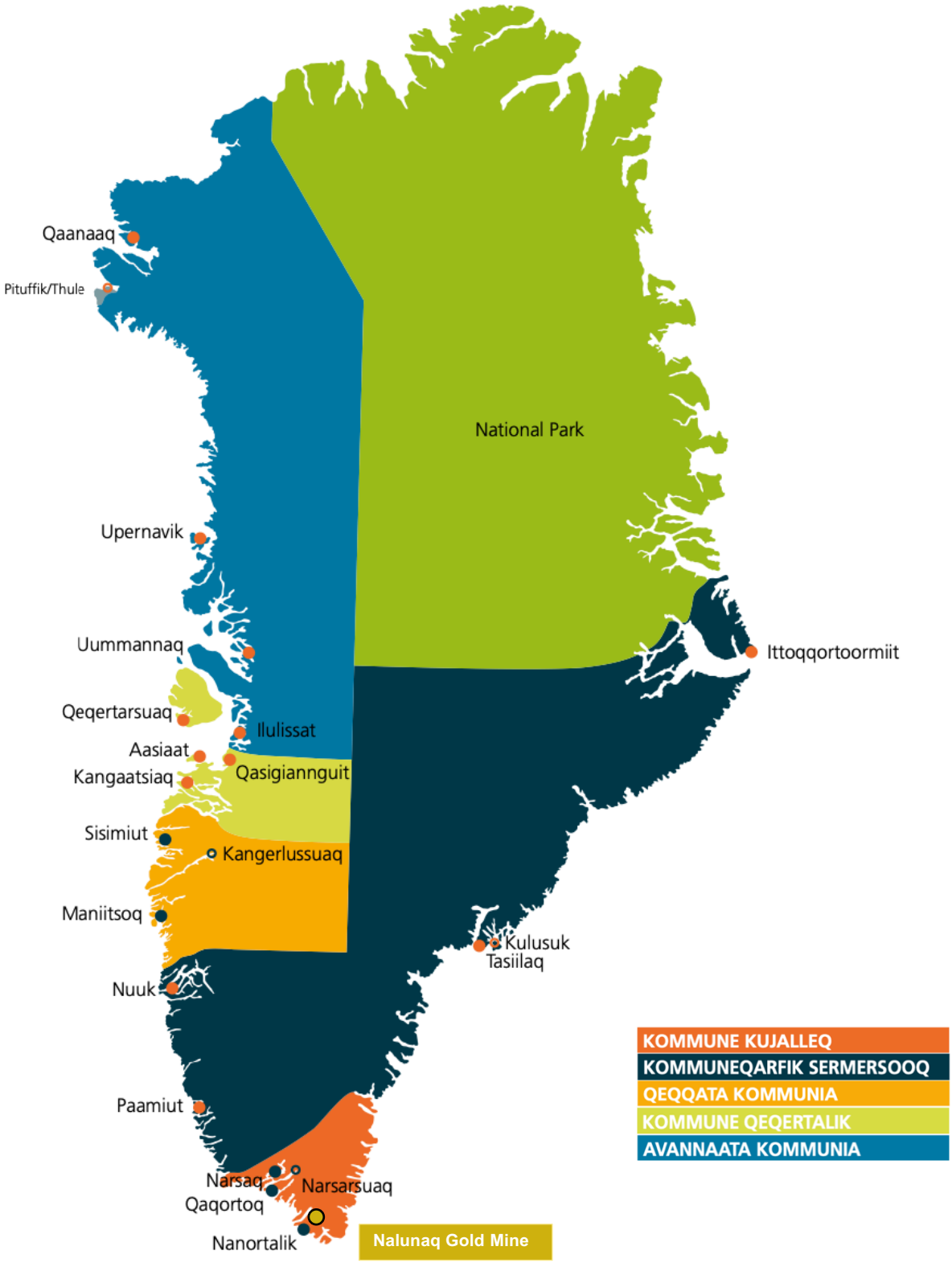

Figure 2: Map of Greenland (Statistics Greenland, 2020a)

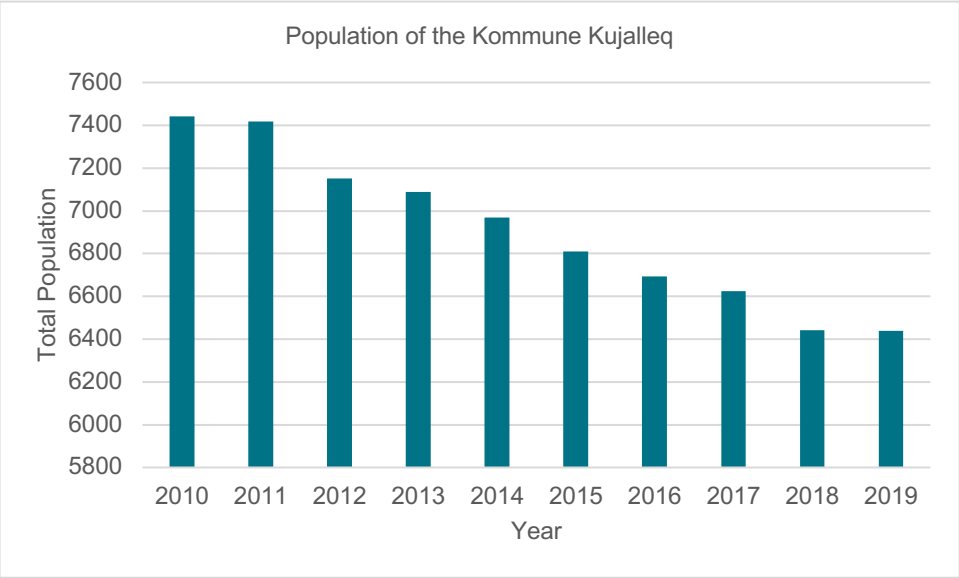

Figure 3: Population of the Kommune Kujalleq (Statistics Greenland, BEXCALCR)

The population of Greenland is unequally divided between the five municipalities. As seen in table 1, Kommune Sermersooq has the largest population, with 41% of the population is residing here. Nuuk, the capital of Greenland, is home to more than 18,000 inhabitants.

Table 1: Population distribution between municipalities (Statistics Greenland, BEXCALCR)

	Population	% of total population
Greenland	56,081	100%
Kommune Kujalleq	6,439	12%
Kommune Sermersooq	23,123	41%
Qeqqata Kommune	9,378	17%
Kommune Qeqertalik	6,340	12%
Avannaata Kommune	10,726	19%
Outside the municipalities	75	0%

Kommune Kujalleq is one of the smaller municipalities in Greenland with a population of 6,439 as of the 1st of January 2019. The population of the area has seen a decrease of more than 5% between 2015 and 2019. Table 2 shows the distribution of the population in the municipality, divided between the three towns. In table 2, the number for Nanortalik also contain people living in the close proximity of the town.

Table 2: Population distribution in the Kommune Kujalleq, 2019 (Statistics Greenland, BEXCALCR)

	Population	% of total population
Kommune Kujalleq	6,439	100%
Nanortalik	1,661	26%
Qaqortoq	3,198	50%
Narsaq	1,589	24%

Most inhabitants in Kommune Kujalleq live in the towns, while the settlements exist in the area are home to around 20% of the population. Most settlements have less than a hundred inhabitants.

Table 3: Population in settlements nearest to the project site, 2020 (Statistics Greenland, BEXST4)

Localities	Number of inhabitants
Nanortalik (town)	1185
Alluitsup Paa	202
Aappilattoq	100
Narsarmijit	66
Tasiusaq	53
Ammassivik	32

1.2 Ethnicity, age and gender distribution

The majority of the people living in Greenland are born in Greenland. As table 3 shows, 90% of the population was born in Greenland, while 10% was born outside of Greenland.

Table 4: Ethnic composition in Greenland (Statistics Greenland, BEXSTK3)

	Born in Greenland (% of total population)	Born outside of Greenland (% of total population)
Greenland	*90%*	*10%*
Kommune Kujalleq	11%	1%
Kommune Sermersooq	34%	7%
Qeqqata Kommune	16%	1%
Kommune Qeqertalik	11%	0%
Avannaata Kommune	18%	1%

In the Kommune Kujalleq, percentage of people born in Greenland is higher than the national average, with 93.5% of the population born in Greenland.

Table 5: Ethnic composition in the Kommune Kujalleq (Statistics Greenland, BEXSTK3)

	Born in Greenland	Born outside of Greenland
Kommune Kujalleq	6,047	395
Nanortalik	1,608	51
Qaqortoq	2,888	266
Narsaq	1,551	78

There were 29,551 men and 26,530 women living in Greenland in 2019. There is thus a slight over representation of men in Greenland, constituting 52.7% of the population. Figure 4 shows the age and gender distribution in Greenland.

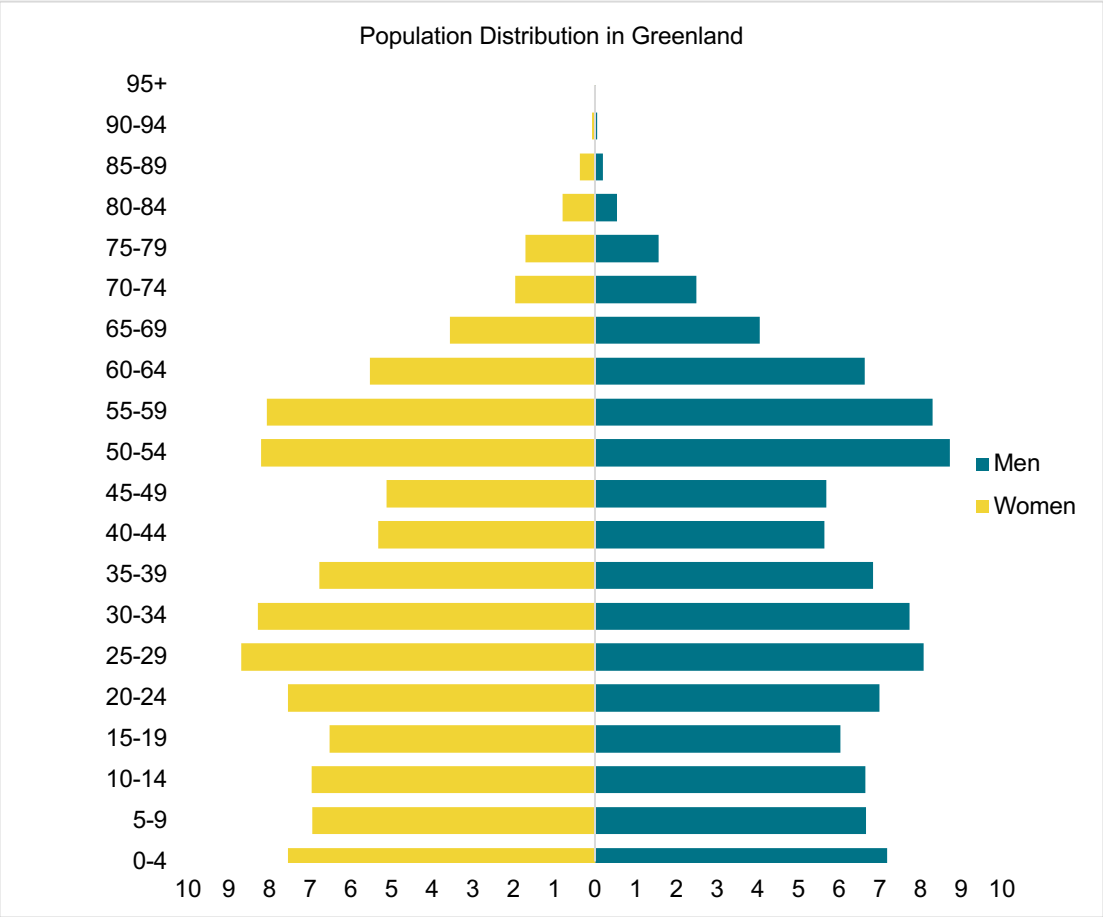

Figure 4: Population distribution in Greenland, 2019 (Statistics Greenland, BEXCALCR) N = 56,081

The same trend is prevalent in Kommune Kujalleq where males make up for 52.7% of the population. The municipality is seeing an aging population. with the population taking the shape of a constrictive pyramid.

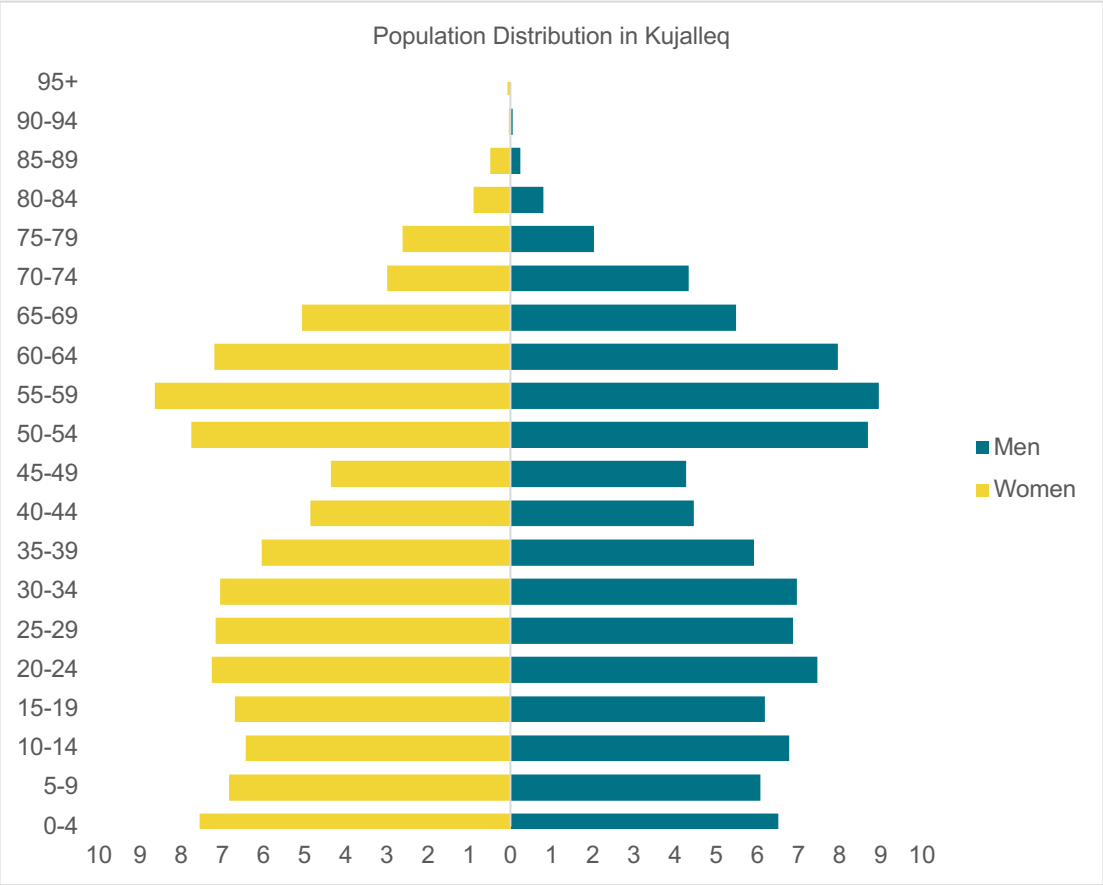

Figure 5: Population distribution in Kujalleq, 2019 (Statistics Greenland, BEXCALCR) N = 6,439

1.3 Migration patterns

In the period between 2010 and 2019 the net migration in Greenland has been negative, as shown in figure 6. In 2019, 2,307 people immigrated to Greenland, of which 2,069 came from Denmark, making up for almost 90% of the total immigration.[14]

The number of people emigrating from Greenland is larger than the number of people immigrating to Greenland. This trend is contributing to the decline in population that Greenland is experiencing. In 2019, the net migration was -300.

The figure also shows the development in the net migration for people born in Greenland and people born outside of Greenland. The net migration for people born in Greenland is negative, indicating that more people that are born in Greenland emigrate to other countries, compared to persons returning to Greenland. The net migration of persons born outside of Greenland fluctuates around 0, with 130 people in the year 2019.

[14] Statistics Greenland, 2020

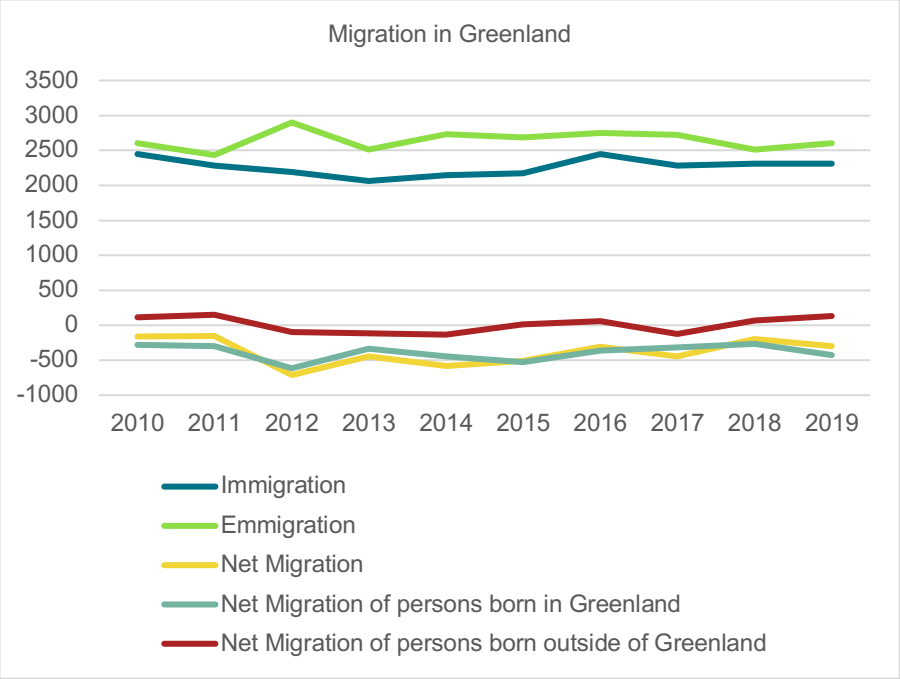

Figure 6: Migration in Greenland (Statistics Greenland, BEXBBIU2)

Figure 7 illustrates the migration movements in and out of Kommune Kujalleq. Overall, over the last ten years, more people have moved out of the municipality than to the municipality, created a negative migration trend. In 2019, the net migration in the municipality was -36. Nanortalik, has seen a net migration pattern fluctuating around 0.

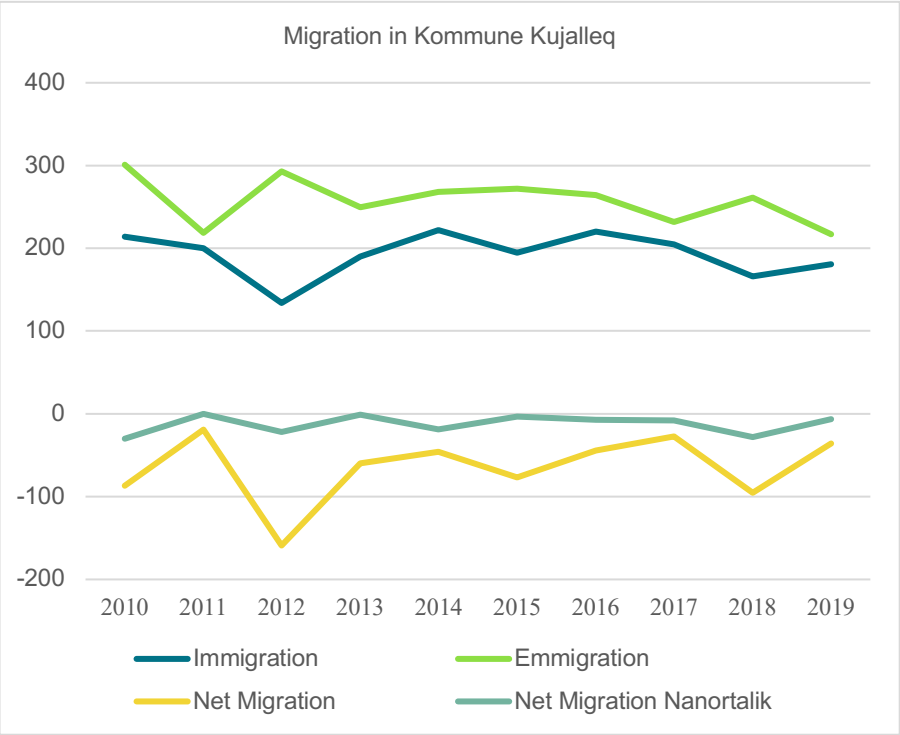

Figure 7: Migration in the Kommune Kujalleq (Statistics Greenland, BEXBBIU2)

2. Language and culture

The official language in Greenland is Greenlandic *(kalaallisut = the language of the Greenlanders)* a language in the Inuit branch of the Eskimo-Aleut language family spoken throughout the Arctic. There are three main dialects of Greenlandic: West Greenlandic, East Greenlandic and the Thule dialect. West Greenlandic is spoken in Southern Greenland. Danish is widely spoken and used in education above the level of primary school, and both Greenlandic and Danish is used in the public administration.

3. Economy

3.1 National Economy

Greenland has seen an overall growth in GDP over the past ten years. In 2018 the total real GDP was about 15.3 billion DKK which is the equivalent of approximately 280,000 DKK GDP per capita. In comparison, the total GDP in Denmark in 2018 was 2,250 billion DKK and the GDP per capita was 387,000 DKK (https://www.statista.com/statistics/587205/gross-domestic-product-gdp-in-denmark/)

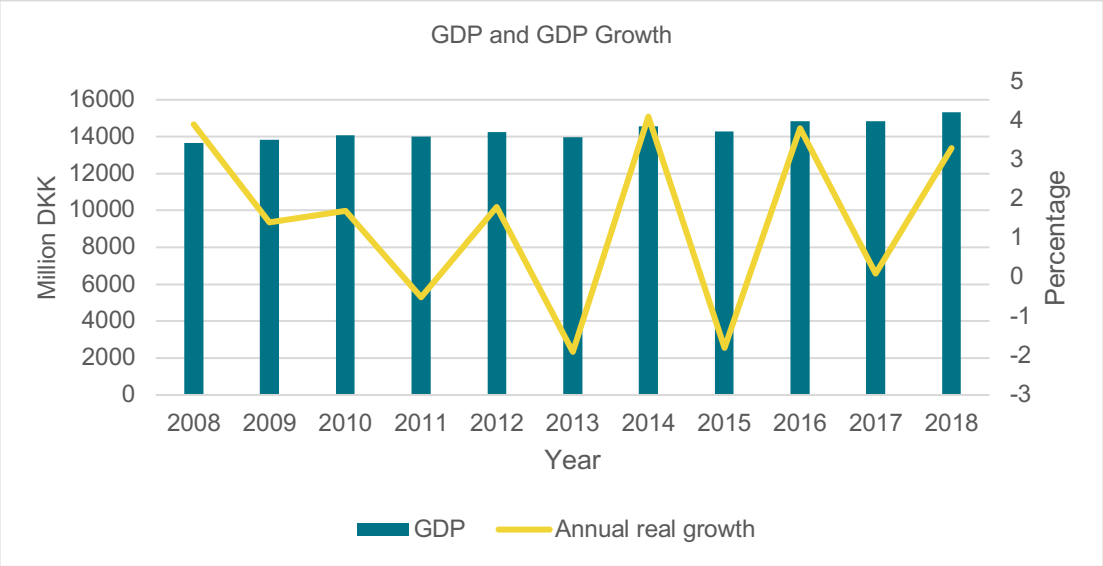

Figure 8: GDP and annual GDP growth Greenland (Statistics Greenland, NRX10)

3.2 Taxes and Public Expenses

In Greenland, the general government consists of three levels: the municipal, the self-government and the central government. The general government finances are negotiated through the appropriation law every year. The central government includes activities still manages and financed directly by the State of Denmark.

Most public services are tax paid and available free of charge for citizens and enterprises. In 2018, Greenland's public expenses amounted to almost 12 billion DKK. As figure 9 shows, almost a third of the expenses are attributed to social protection, which amongst other cover transfers related to the elderly, unemployment and housing. The second largest expense in Greenland is education. In 2018, approximately 18% of the total expenditures were directed towards educations. The GoG's Sustainability and Growth Plan has increased the focus on education, as it is one of four themes included in the plan.

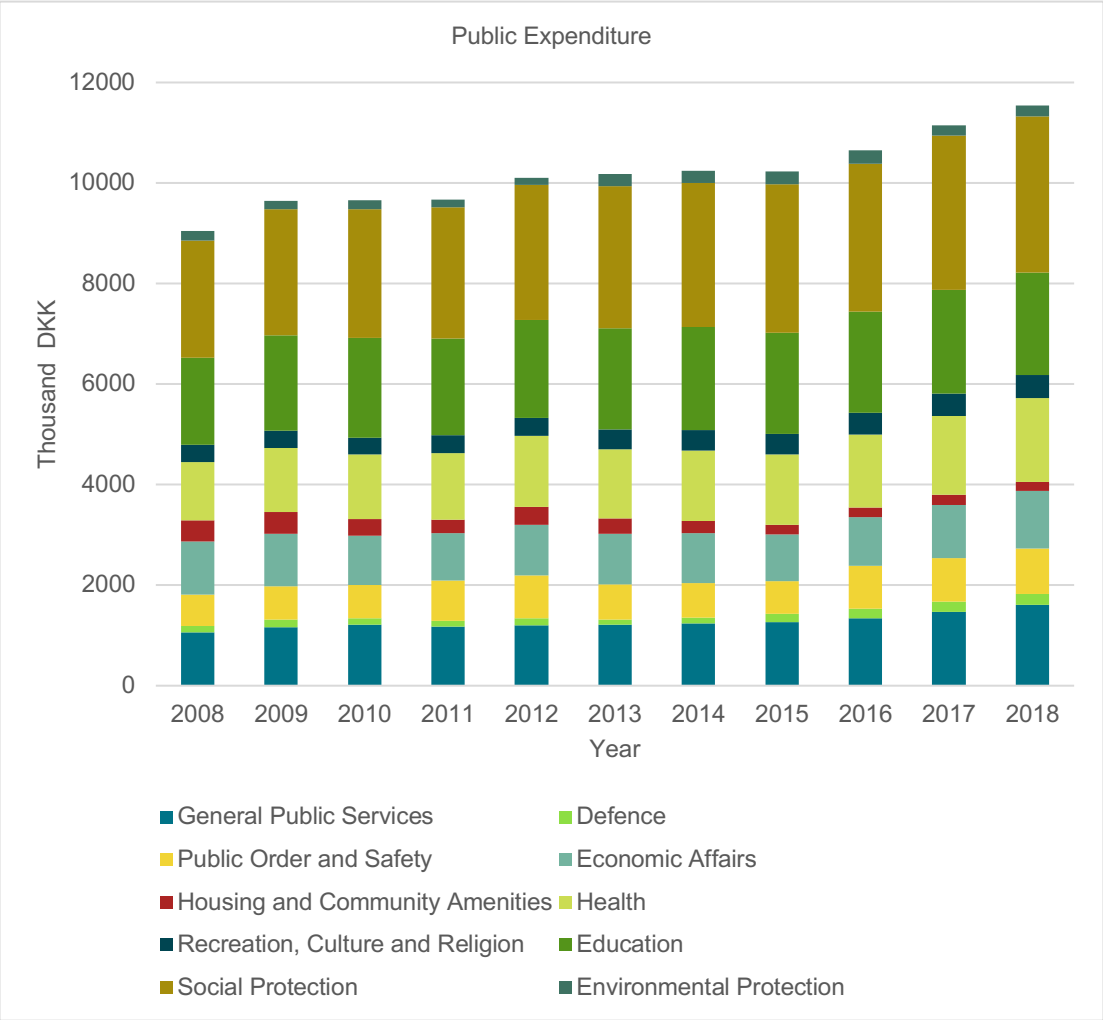

Figure 9: Public expenditure by sector in Greenland (Statistics Greenland, OFXFUNK)

3.3 Trade

Greenland is a net importer, importing in 2019 6.6 billion DKK worth of goods. In the same year, Greenland exported for about 5.5 billion DKK. The trade balance gives a difference of approximately 1 billion DKK. The largest import industries are products from the food industry, especially products from cereal, mineral products, especially mineral fuels, and different types of machinery. The largest import came from vehicles, worth more than 2 billion DKK in 2019.

The table shows that Greenland's largest export industry is fisheries. Greenland exported in 2019 3.8 billion DKK worth of products from the fishing industry. The products include fish, crustaceans, molluscs and other aquatic invertebrates. Greenland is also a net exporter of works of art, collective pieces and antiques where the export amounts to approximately 5 billion DKK. Greenland also exported 108 million DKK worth of unspecified goods, making it the product group the third largest export value.

Table 6: Greenland import and export in 1000DKK, 2019 (Statistics Greenland, IEXDET)

	Import	Export	Difference
Animal products	257,666	279	-257,387
Fishing industry	20,990	3,869,686	3,848,695
Vegetable products	149,563	4	-149,560
Other products from the food industry	685,116	1,198,259	513,143
Mineral products	890,196	33	-890,163
Produce from chemical industries and related industries	249,098	67	-249,030
Plastic, rubber and articles thereof	143,993	151	-143,842
Raw hides, skins, leather and articles thereof	14,172	4,112	-10,059
Wood and articles of thereof	90,738	16	-90,723
Pulp of wood or other fibrous cellulosic material	83,396	350	-83,045
Textiles	206,464	250	-206,213
Other articles of apparel and clothing accessories	25,038	13	-25,026
Articles of stone, plaster, cement, asbestos, mica, glass, ceramics or similar materials	119,132	75	-119,057
Natural or cultured pearls, precious or semi-precious stones, precious metals, metals clad with precious metal and articles thereof	3,689	2,524	-1,166
Base metals and articles thereof	347,205	7,023	-340,182
Machinery and mechanical appliances and electrical machinery and equipment	823,791	3,137	-820,654
Vehicles	2,029,398	311,579	-1,717,820
Optical, photographic, cinematographic instruments and apparatus	87,633	5,664	-81,969
Arms and ammunition and parts and accessories thereof	8,137	35	-8,102
Other articles	215,920	89	-215,831
Works of art, collectors' pieces and antiques	2,883	5,412	2,529
Unspecified goods	131,092	108,924	-22,168
Total	**6,585,310**	**5,517,681**	**-1,067,629**

3.4 Mineral Resources Exploitation in Greenland

The oil and mineral sector have been under pressure in terms of global market prices, which has caused limited investments in the industry during the past years. In 2013 Greenland ranked 7 out of 112 countries on the Fraser Institutes list of most attractive countries for investments in the mining sector. Since then, the ranking has dropped to number 41 out of 76 countries in 2019. Frasor Institute includes factors such as legal system, taxation regime, political stability and quality of infrastructure in their assessment.[15]

[15] Fraser Institute, 2019

It is the goal of the GoG to develop a sustainable mineral resource sector that contribute more to the Greenlandic economic independency[16]. Greenland currently has two mines that are operating. Aappaluttoq, which is a ruby and pink sapphire mine and Naajat which produces anorthosite. Aappaluttoq started production in 2017 while Naajat commenced production in 2019. A number of mining projects are in the exploration or the production phase. Table 7 presents a list of examples of mining projects.

Table 7: Advanced exploration project in Greenland (Naalakkersuisut)

Project	Product
Citronen Fjord	Zink and lead
Isukasia	Iron
Maniitsoq norite belt	Nickel, copper, cobalt and PGM
Nalunaq	Gold
Kringlerne/Killavaat Alannguat	REE, niobium, zirconium and tantalum
Kvanefjeld/Kuannersuit	REE and uranium
Pituffik (Dundas)	Ilmenite (Titanium sand)

4. Cost of living and housing situation

4.1 Personal Income

Figure 10 shows the average household income for Greenland, Kommune Kujalleq and Nanortalik. In 2018, the average household income for Greenland was approximately 480,000 DKK, for Kommune Kujalleq 380,000 DKK and for Nanortalik it was 360,000 DKK per year. This means that in Kommune Kujalleq, on average, households earn 100,000 DKK less a year than the average Greenlandic citizen. In Nanortalik the annual household income was 120,000 DKK lower than the average Greenlandic household. After a long period of stability, the household incomes have seen a slight increase since 2014.

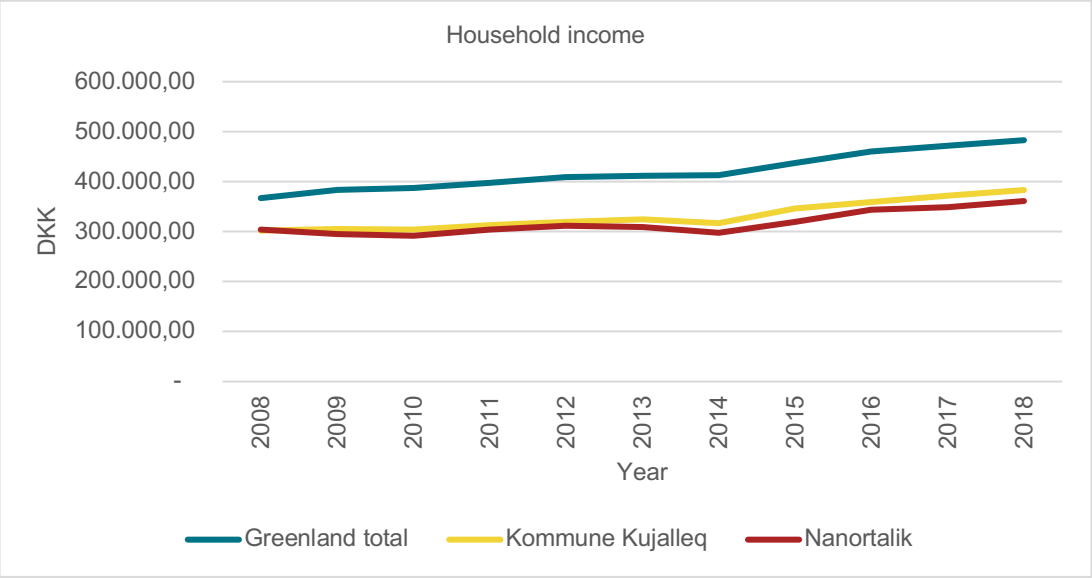

Figure 10: Average household income (Statistics Greenland, INXH1)

[16] Greenland mineral strategi 2020 - 2024

As illustrated in figure 11, the average household income in Greenland is higher in every quintile compared to the Kommune Kujalleq. The figure also shows a disproportionate distribution of household income. In 2018, the richest 20% of Greenland had an average household income of approximately 2,3 million DKK while households in the first quintile earned about 168,000 DKK a year.

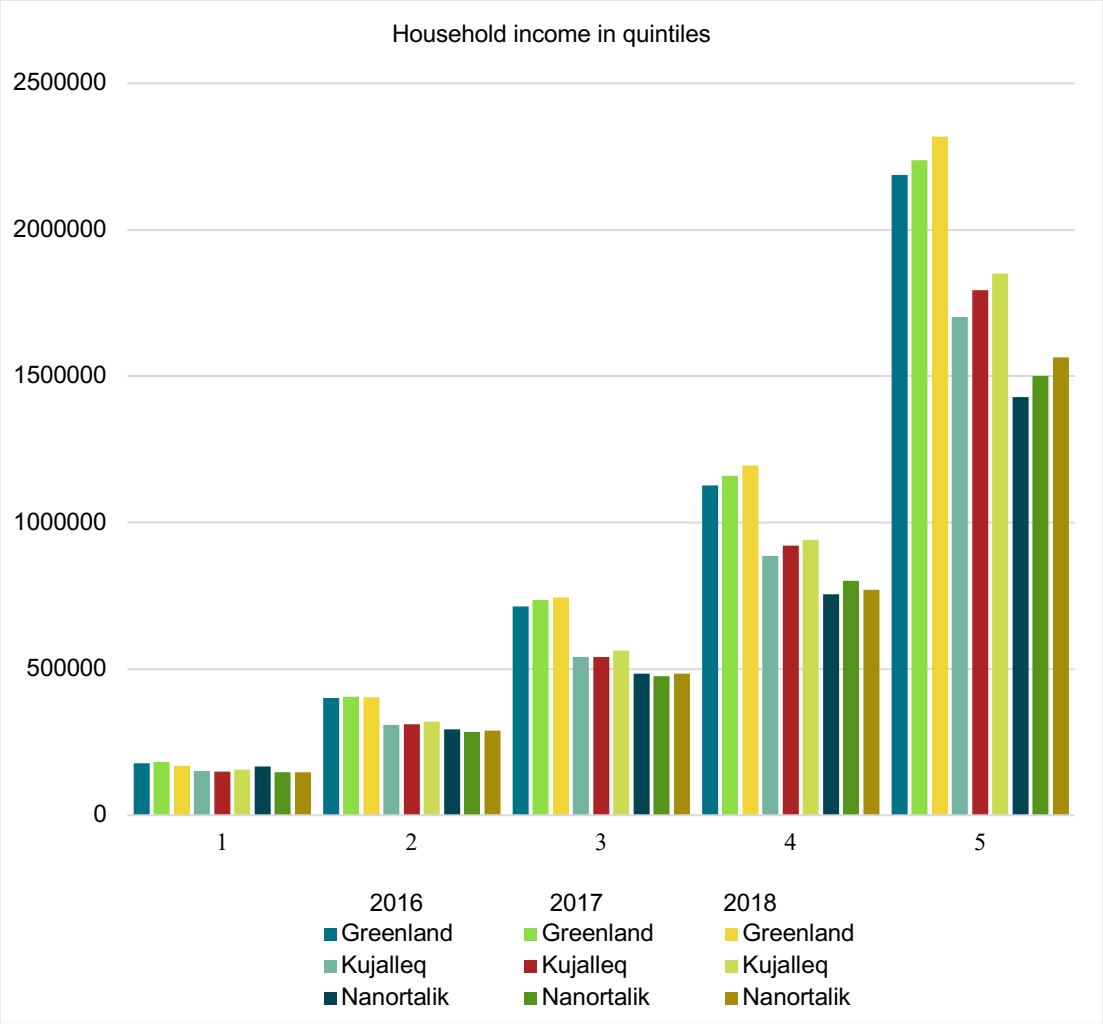

Figure 11: Average household income in quintiles for Greenland, Kommune Kujalleq and Nanortalik (Statistics Greenland, INXH4)

Figure 12 shows the average household income within the localities in Kommune Kujalleq. The figure shows the incomes for Nanortalik and the settlements Tasiusaq, Aappilattoq, Ammassivik and Narsaq Kujalleq. The average income in Tasiusaq, Aappilattoq and Narsaq Kujalleq have been rising over the last years, with few exceptions. The average income in Ammassivik has been very volatile because of only 32 inhabitants, which makes it very sensitive to fluctuation.

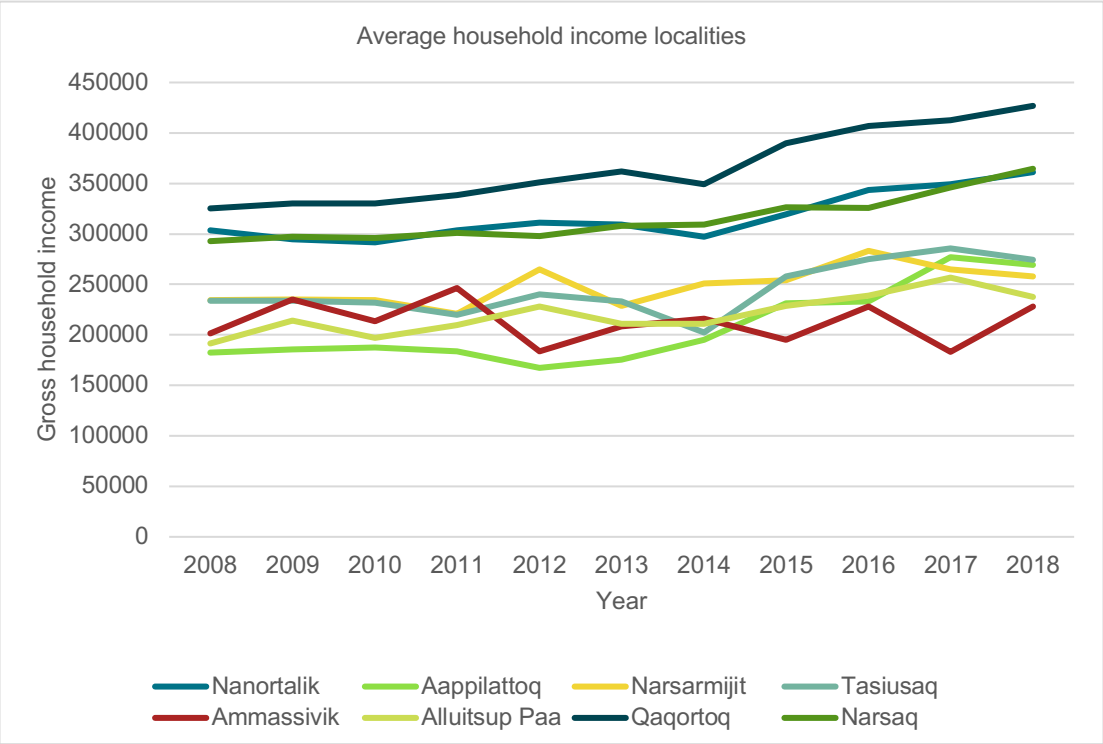

Figure 12: Average household income localities (Statistics Greenland, INXH3)

4.2 Cost of Living

Table 7 shows the consumer price index for Greenland. There has been an increase in consumer prices for almost all consumer goods and services, and hence the general cost of living. The food sector has seen the largest increase in price. The index in January 2020 was 139, compared to 100 in 2008. Medicine, pharmaceutical articles, alcohol and tobacco have increased from 100 in 2008 to 128 in 2020. Only clothing and footwear, telephone and postage have seen a decrease in price.

Table 8: Consumer price index (2008 = 100) (Statistics Greenland, PRXPRISV)

	2016 Jan	2017 Jan	2018 Jan	2019 Jan	2020 Jan
All goods and services	118	119	119	120	123
Food etc.	131	134	135	137	139
Alcohol and tobacco	115	116	117	119	128
Clothing and footwear	95	94	94	94	94
Housing	133	130	126	127	127
Furnishing and household services	124	122	120	116	121
Medicine, pharmaceutical articles	125	126	128	128	128
Transportation	121	124	123	120	124
Telephone and postage	88	87	88	88	88
Leisure and culture	97	98	103	104	105
Restaurants and hotels	117	119	122	123	131
Other goods and services	107	109	111	112	114

The population´s actual spending power is called purchasing power or real income. Spending power is closely related to the balance between income level and price level. Real income increases if income growth is higher than price growth (Greenland in figures, 2020). Greenland has seen the real incomes rise steadily over the last few years.

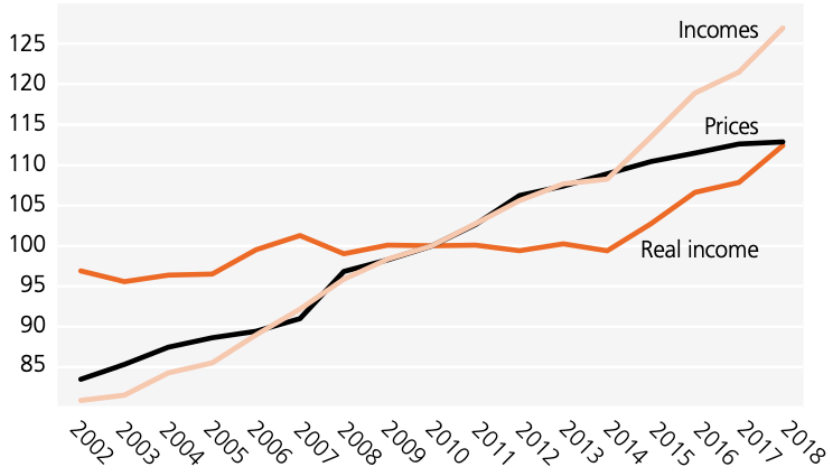

Figure 13: Real income trends in Greenland, 2010 = 100 (Greenland in figures, 2020)

4.3 Barter Economy

The barter economy is an important supplement for many households' livelihood in Greenland and has a positive effect on the living conditions in general. The barter economy mainly consists of household fishery and hunting. It is difficult to estimate the size of the barter economy as transactions are unregistered and its effect on living conditions can only be estimated, however, the contribution to household livelihoods especially in the settlements is significant. A survey from 2014[17] concluded that 12.5% of the population in towns and 45.8% of the population in settlement supplemented their diary on a weekly basis with their own catch.

5. Economic sectors

Greenland has a large primary economic sector, due to the predominantly fishing-based economy, some agriculture and the exploration for and the production from mining projects. The secondary sector is small, consisting almost exclusively of seafood procession and construction business. Greenland's tertiary economic sector is large, consisting primarily of a large public administration, infrastructure businesses and a growing tourism industry.

About 41% of Greenland's population works in public administration and services. For the Kommune Kujalleq this is 47%. The fishing, hunting and agriculture sector is the largest employer after the public sector. About 16% of the Greenlandic population and 12% of people of the Kommune Kujalleq are employed in this sector. The two largest sectors after public administration and fishing, hunting and agriculture are the construction and wholesale sectors. Both employ between 8% and 12% of the population, both in Greenland and Kommune Kujalleq.

Mining and quarrying only represents a small sector in Greenland in terms of employment. In 2018, 95 people in Greenland were employed in the mining and quarrying sector and in Kujalleq the number of people employed was 9.

[17] Dahl-Petersen, Larsen, Nielsen, Jørgensen & Bjerregaard, 2016

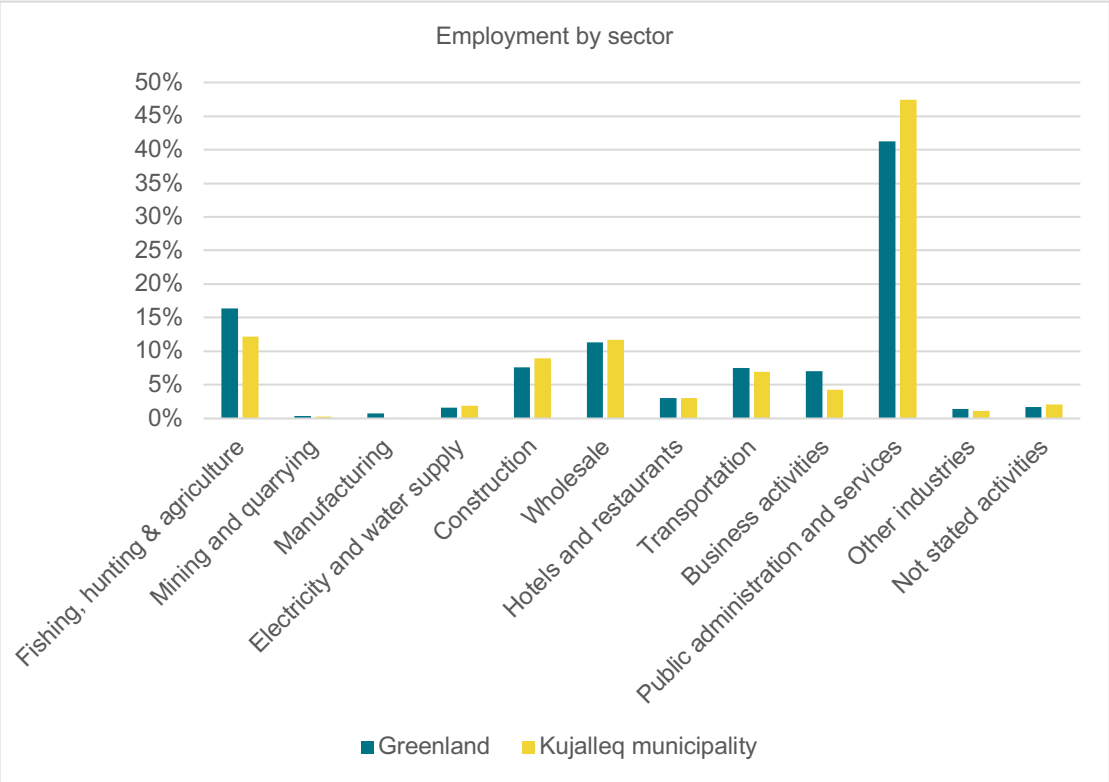

Figure 14: Employment by sector in average per month, in percent of total employment, 2018 (Statistics Greenland, ARXBFB4)

There are few businesses in Nanortalik, while Qaqortoq is home to several small and medium sized businesses. According to Greenland's Business Association (GE) membership list, there are 11 business members in Nanortalik, mainly small entrepreneurs and craftsmen, while Qaqortoq has 25 business members.

The Municipality has in 2019 incorporated a municipal business development entity, "Innovation South Greenland" (ISG), for the purpose of advising the municipality with regard to business and industry development in South Greenland. ISG has in the first half of 2020 published a proposal for business development, "Kujalleq Nutaaq". The proposal includes 4 areas of options for business development, where the mineral resources sector is one of them. According to the proposal ISG has the following tasks in relation to the mineral resource sector:

1. Securing local involvement
2. Mapping relevant exploratory and mining expertise in the local labour force
3. Assisting in recruiting and retaining of employees in exploratory and mining projects
4. Promoting local enterprises in relation to exploratory or mining projects

5.1 Construction

The construction sector has developed since 2015 reflecting the increased demand due to a construction boom in Greenland.

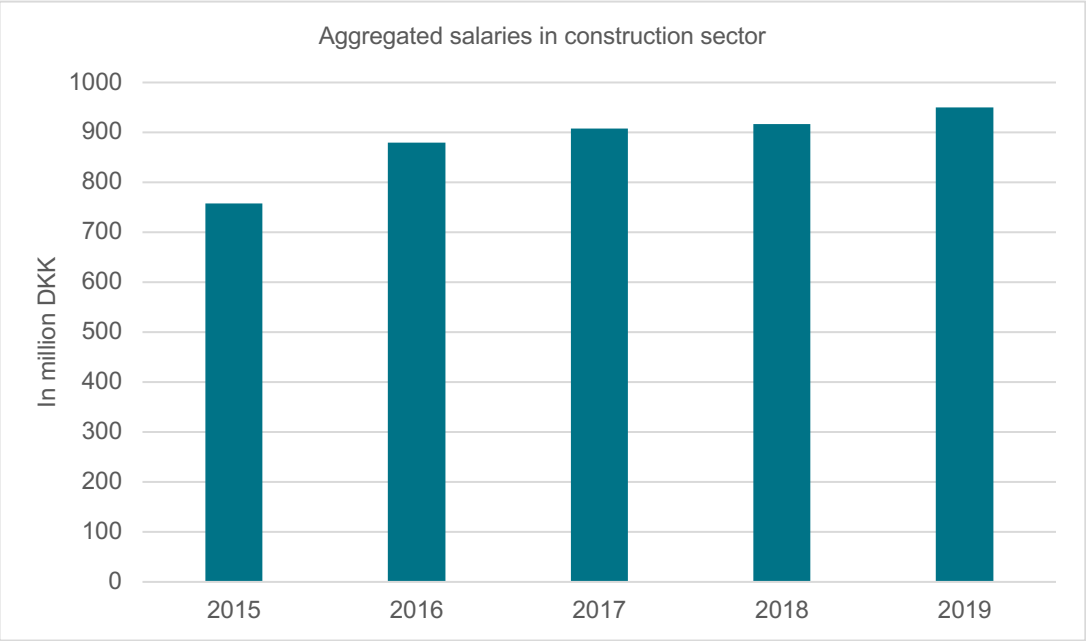

Figure 15: Aggregated salaries in construction sector in Greenland (Statistics Greenland, ESX1A)

There are few large construction companies established in Greenland specialized in civil engineering and experience in infrastructure construction, including Inuplan A/S, LNS Greenland A/S, Mannvit Aps, Masanti A/S, MT Højgaard Greenland Aps, Niras Greenland, Nørskov Gruppen Aps, Permagreen Greenland A/S, Qaqortoq Entreprenørforretning Aps, Rambøll Greenland A/S, and WSP Arctic A/S. Additionally, a few Greenlandic companies are specialized in logistical support to mining activities, two of these are Xploration Services Greenland Aps and 60° North Aps.

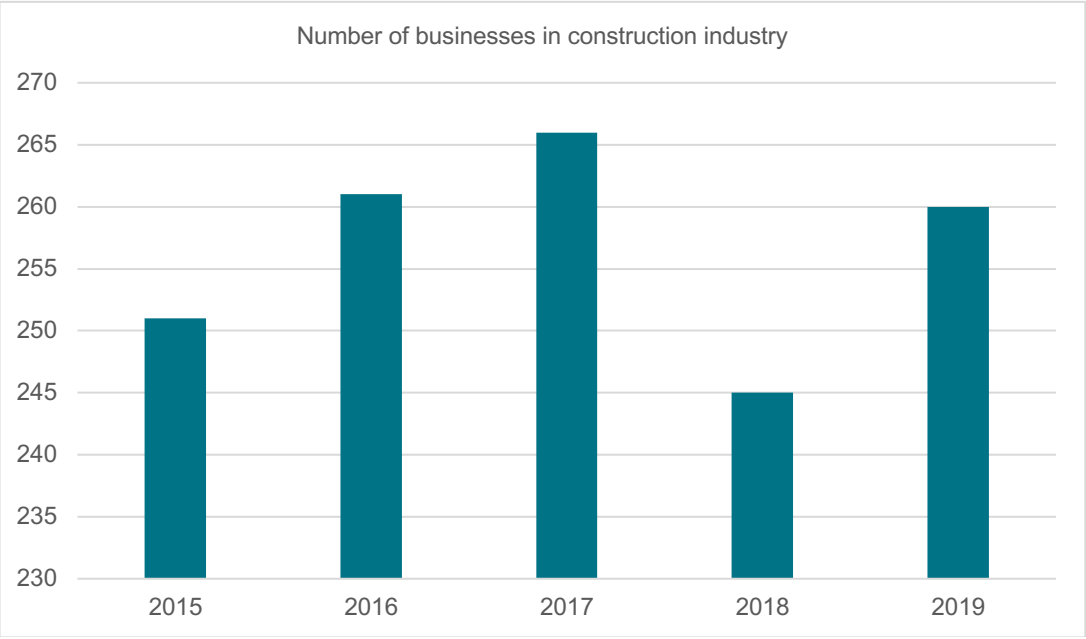

Figure 16: Number of businesses in construction industry in Greenland (Statistics Greenland, ESX1A)

Greenland has a number of companies and operators who can provide services to the operation of the mine. These include service providers within transportation, shipping, construction

work, supply of arctic diesel, site and maintenance work, supply of traditional food and goods, catering, cleaning and administrative support.

5.2 Food production

Food production in Greenland is mainly done in Kommune Kujalleq. One of the focus areas for development in Kommune Kujalleq is investment in the local food production to increase sales domestically and potential increase export.

The production of sheep is the main agricultural production in Greenland of which the vast majority is held in Kommune Kujalleq around Narsaq, Qaqortoq and to a less extend Nanortalik. In recent years the number of sheep farms have decreased while they have grown in size.

In 2019, there were 5 farms in Nanortalik which held 1686 sheep.

The total fish landing in tons has decreased over the last five years in Nanortalik, from 3495 tons in 2015 to 1178 tons in 2020.

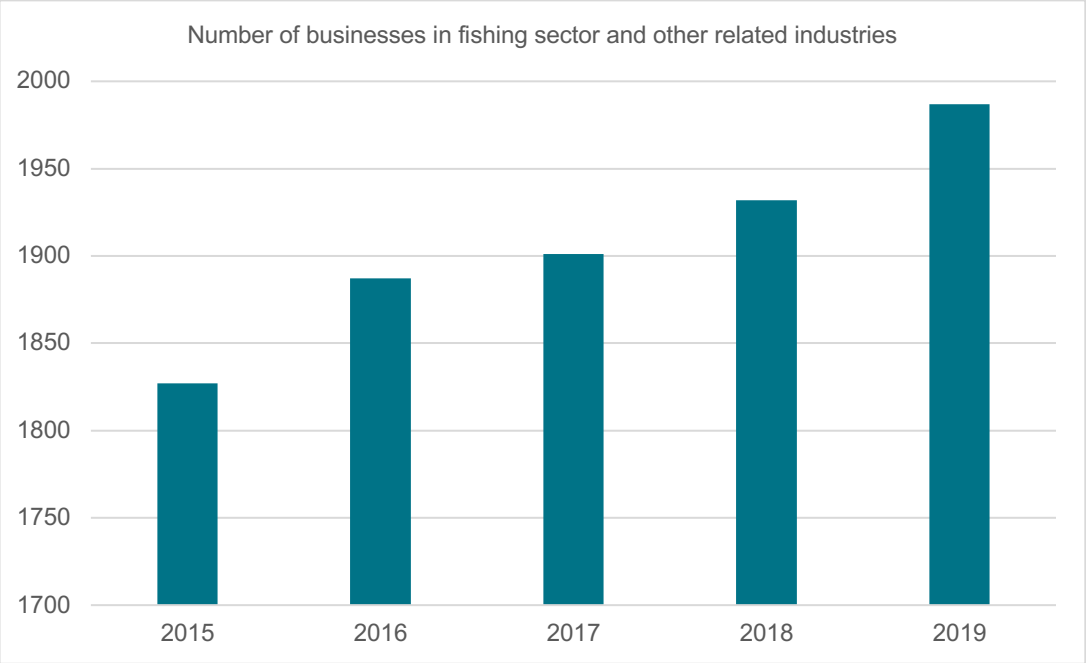

Figure 17: Number of businesses in fishing sector and other related industries in Greenland (Statistics Greenland, ESX1A)

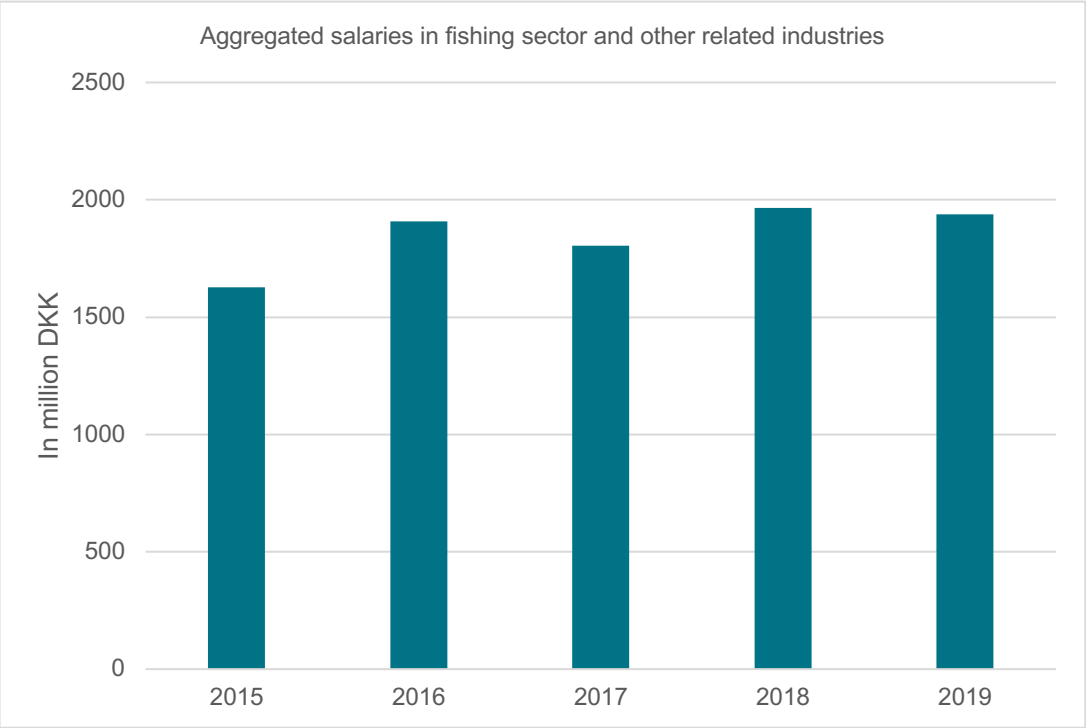

Figure 18: Aggregated salaries in fishing sector and other related industries in Greenland (Statistics Greenland, ESX1A)

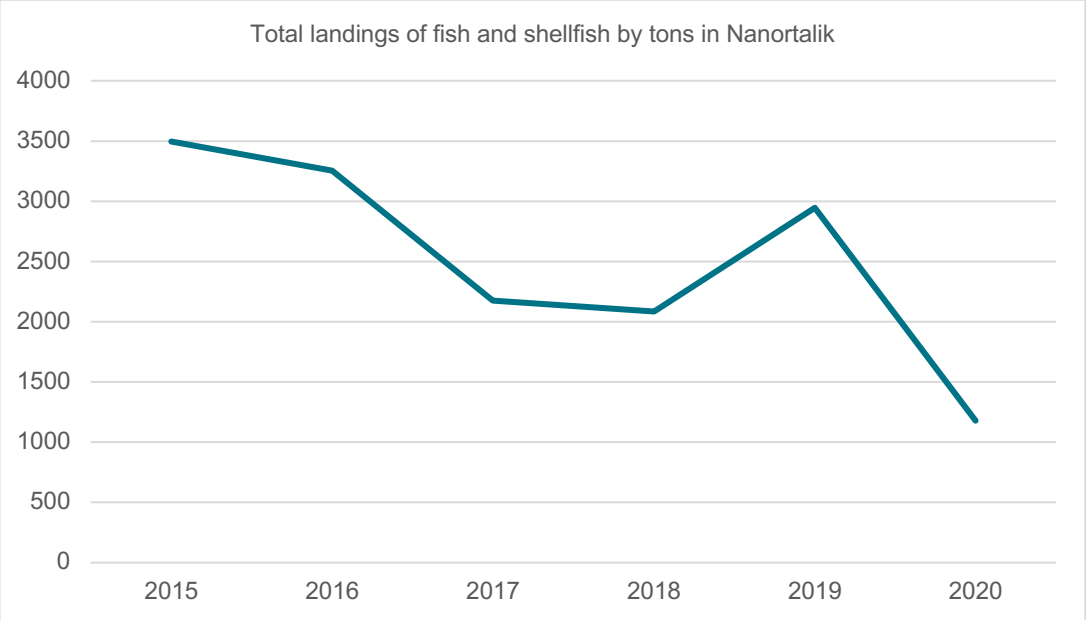

Figure 19: Total landings of fish and shellfish by ton in Nanortalik (Statistics Greenland, FIX001)

Hunting is regulated with defined hunting seasons and licenses required for professional hunters and recreational hunting. Quotas determines the number of animals to be hunted on a yearly basis. Main prey includes seals, whales, reindeer, musk ox, as well as birds. The number

of professional hunters has been stable for the past years, while the catch of all species is declining[18].

Table 9: Farm animals, by species and year in Greenland (Statistics Greenland, FIXHDYR)

	2015	2016	2017	2018	2019
Sheep	17501	18190	17785	18212	17785
The reindeer ranch	3000	3000	3000	3000	3000
Cattle	146	155	193	254	300
Horses	151	137	152	158	129
Chickens	165	211	168	131	189
Bee colonies	6	6	6	6	6

Table 10: Number and size of farms and Sheep in Nanortalik, Qaqortoq, Narsaq, Paamiut and Nuuk (Statistics Greenland, FIXHEKBED)

		Nanortalik	Qaqortoq	Narsaq	Paamiut	Nuuk
Hectares	**2015**	184,8	154,1	766,9	0,1	21,1
	2016	187,6	154,9	776,4	0,1	21,1
	2017	192	155	780	0,1	21,1
	2018	194	157	792	0,1	21,1
	2019	195	160	797	0,1	21,1
Farms	**2015**	5	8	26	0	0
	2016	5	8	26	0	0
	2017	5	8	24	0	1
	2018	5	8	24	0	1
	2019	5	8	24	0	1
Sheep	**2015**	1634	3687	12180	0	0
	2016	1623	3924	12643	0	0
	2017	1665	3848	12272	0	0
	2018	1848	3812	12147	0	405
	2019	1686	3786	11918	0	395

Table 11: Slaughtered lamb, sheep, reindeer and cattle, by year by species and time in Greenland (Statistics Greenland, FIXSDYR)

	2012	2013	2014	2015	2016
Lamb	21967	20344	20316	18413	17602
Sheep	1603	1518	1501	1515	1237
Reindeer	0	112	0	87	73
Cattle	0	17	0	46	23

[18] Greenland in numbers, 2020

There are numerous companies active in Greenland in the food production. Arctic Prime Production is a cod and halibut fishing company, active in Nanortalik. Asimit Aps and Royal Greenland is also active in the fish industry, catching a wide variety of species. Narsaq Seafood A/S specialized in crabs and produces about 210 tons a year.

Isortoq Reindeer Station has its own EU-approved slaughterhouse and slaughters every year approx. 800 to 1,000 reindeer. The station is located in Qaqortoq. Neqi A/S is a slaughterhouse near Qaqortoq which was renovated in 2013 and today appears as an EU-approved modern slaughterhouse.

There are also multiple companies active in the production of honey and potatoes, such as Narsarsuaq Bigård and Eqaluit Llua. The Upernaviarsuk experimental farm is the Greenlandic government's research and training centre for the agricultural sector. It is located approx. 7 kilometres east of Qaqortoq, and all transport to and from the facility is by boat.

5.3 Compensation scheme for businesses during the COVID-19 pandemic

Business and industries have also been significant impacted by the COVID-19 pandemic in 2020 and in 2021. The GoG has therefore in parallel with other governments established relief or compensation schemes for businesses, who by the authorities are considered to be affected by the pandemic. In Greenland this does mainly include business related to the tourism industry such as restaurant, museums, travel agencies, airlines and transportation companies and hotels. Industries more directly related to the mineral resource section is not eligible for compensation due to the COVID-19 pandemic. Further information can be found: https://www.businessingreenland.gl/da/COVID-19/Akutpakken

6. Labour market

6.1 Existing Labour Market Structure

Greenland has a workforce of about 27,000 people, making up roughly half of the population. Figure 14 shows the distribution of the workforce by gender and age category. The category of people between 50 and 54 years make up for the largest group withing the workforce.

Figure 20: Workforce in Greenland by age and gender, 2018 (Statistics Greenland, ARXSTK1)

Figure 20 shows the workforce distribution by age and gender in Nanortalik. The distribution follows the same trends as in Greenland overall. The largest age groups are the 50-54 and the 55-59-year-old. This means that Nanortalik will soon be facing problems with an ageing population, leaving the workforce. There is a slight overrepresentation of men in the workforce of Nanortalik.

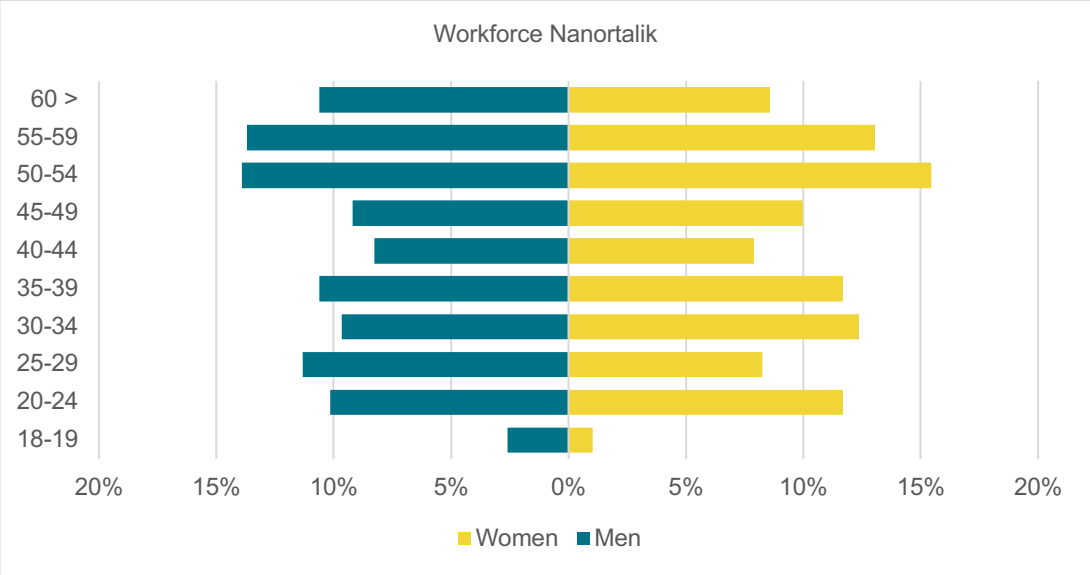

Figure 21: Workforce in Nanortalik by age and gender, 2018 (Statistics Greenland, ARXSTK1)

6.2 Unemployment

Greenland has a high unemployment rate when compared to other northern European countries. The total rate of unemployment has been decreasing over the last years, from 10.3% in 2014 to 5.8% in 2018.

The unemployment rate is especially high amongst young people. The age categories 18-19 and 20-24-years-old are the most affected by the unemployment in Greenland. Within these age categories, women are also more affected by unemployment than men. In 2018, 8% of men and 12% of women in the age category 18-19-years-old were unemployed. For the age category of 20-24-years-old, 8% of men and 11.3% of women were unemployed. For the age groups above 40 years old, women have a lower unemployment rate than men.

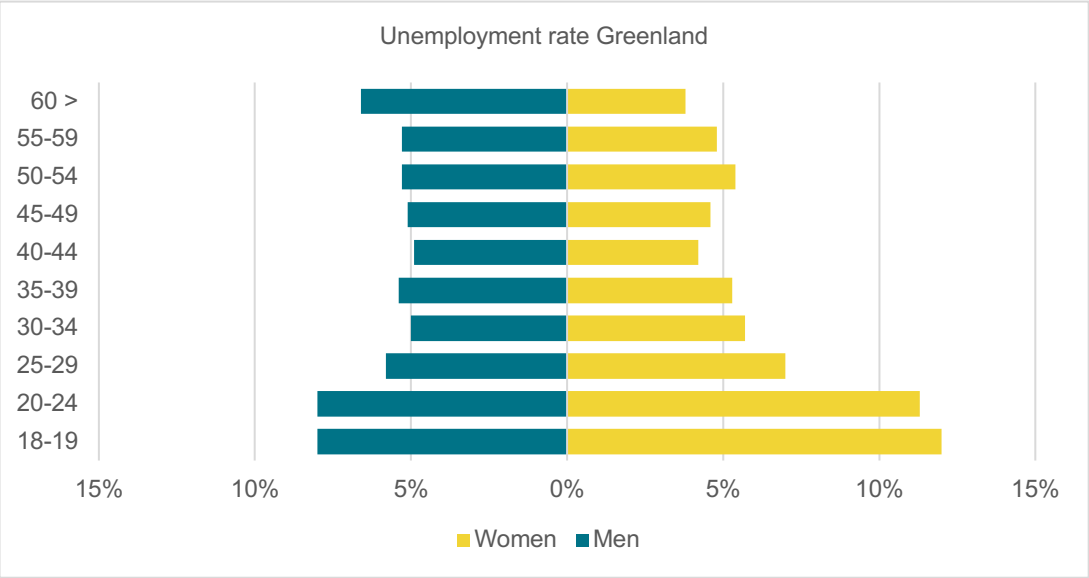

Figure 22: Unemployment rate in Greenland, 2018 (Statistics Greenland, ARXLED4)

The unemployment rate in Nanortalik is higher than the average in Greenland. It is important to note that the number of inhabitants in Nanortalik is small, making the statistics very volatile. The most remarkable level of unemployment in figure 17 is the 67% of women in the age group of 18-19-years-old. The average unemployment rate in Nanortalik, considering all age groups and both genders, is 16.6%. This is almost three times as high as the average in Greenland.

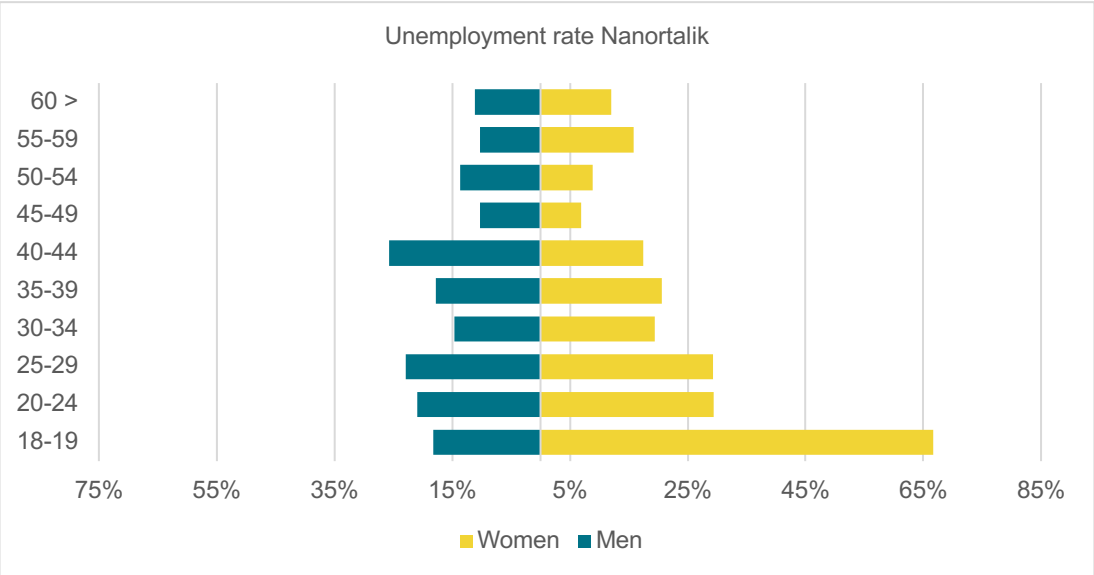

Figure 23: Unemployment rate in Nanortalik, 2018 (Statistics Greenland, ARXLED4)

In April 2020, 144 people in Nanortalik were registered as unemployed. While 99 were considered available for job opportunities, the remainder were considered to be in need of additional training or other support addressing underlying social challenges before being able to enter the labour market.

Unemployment in Nanortalik is also fluctuating between the yearly quarters. The Greenlandic labour market has a large seasonal variation in employment, due to the climate and the geographic dispersion, which limits mobility (Greenland in Figures, 2020). Unemployment in 2018 in Nanortalik was higher in the first two quarters of the year, compared to the two last quarters.

Table 12: Unemployment Nanortalik by quarter, 2018 (Statistics Greenland, ARXLED3)

	Men	Women
Quarter 1	81	60
Quarter 2	81	55
Quarter 3	52	47
Quarter 4	52	43

The local jobcentre (Majoriaq) has knowledge of the jobseekers in their area at any given time as well as the qualification of people seeking employment. Around 10 people were registered as unemployed in Alluitsup Paa in March 2020[19]. Furthermore, the municipality (Kommune Kujalleq) has mapped the competences in the local labour force and have a list of persons, who have attended mining relevant short courses as part of the governmental financed "Project Skills Development for the Unskilled" (In Danish: PKU-kurser).

The unemployment by educational attainment in Greenland has been divided in five different categories: primary, upper secondary (general and vocational), post-secondary non-tertiary, and bachelors/masters/equivalent. As shown in figure 18, unemployment is mainly prevalent among people with only primary level education attainments. In 2018, 1331 people in the category *primary educational attainment* were unemployed. The second-largest category is the upper secondary educational attainment, including vocational training, this category contained 204 people.

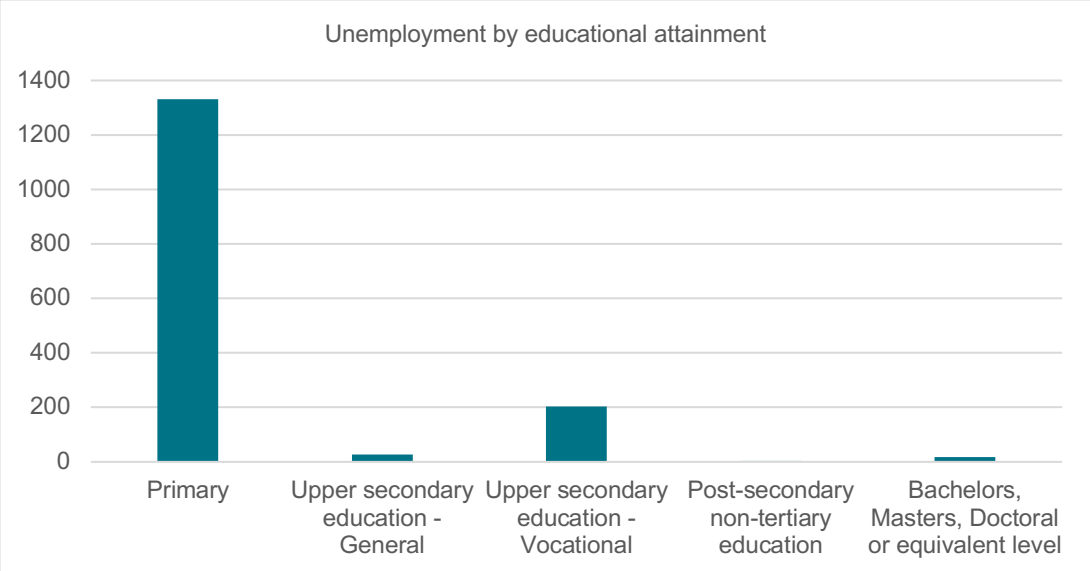

Figure 24: Unemployment by educational attainment in Greenland, 2018 (Statistics Greenland, ARXLED6)

[19] Source: Local branch of SIK in Alluitsup Paa

7. Education

In Greenland, the first ten years of primary and lower secondary education are mandatory, and children start primary school at the age of six. Small settlements do not offer the 8th to 10th grade, necessitating young people from these settlements to leave their families and move to the nearest town.

Though increasing, the education level in Greenland remains the lowest among the Nordic countries. About half of the population of the 25-64-years-old has no education above the lower-secondary level, compared to about 1/4 in other Nordic countries (Greenland in Figures, 2020). In Greenland, 61% of the population has lower secondary education attainments and 22% has attained vocational education and training.

Ilisimatusarfik is Greenland's only university, it offers 11 bachelor and 4 master programs. As only a few higher educations are offered in Greenland, 30 per cent of the students go abroad and the majority study in Denmark.

Greenland is facing an educational shortfall, leading to several sectors having to import workers with the required formal competences, despite the high levels of unemployment in certain areas of Greenland.

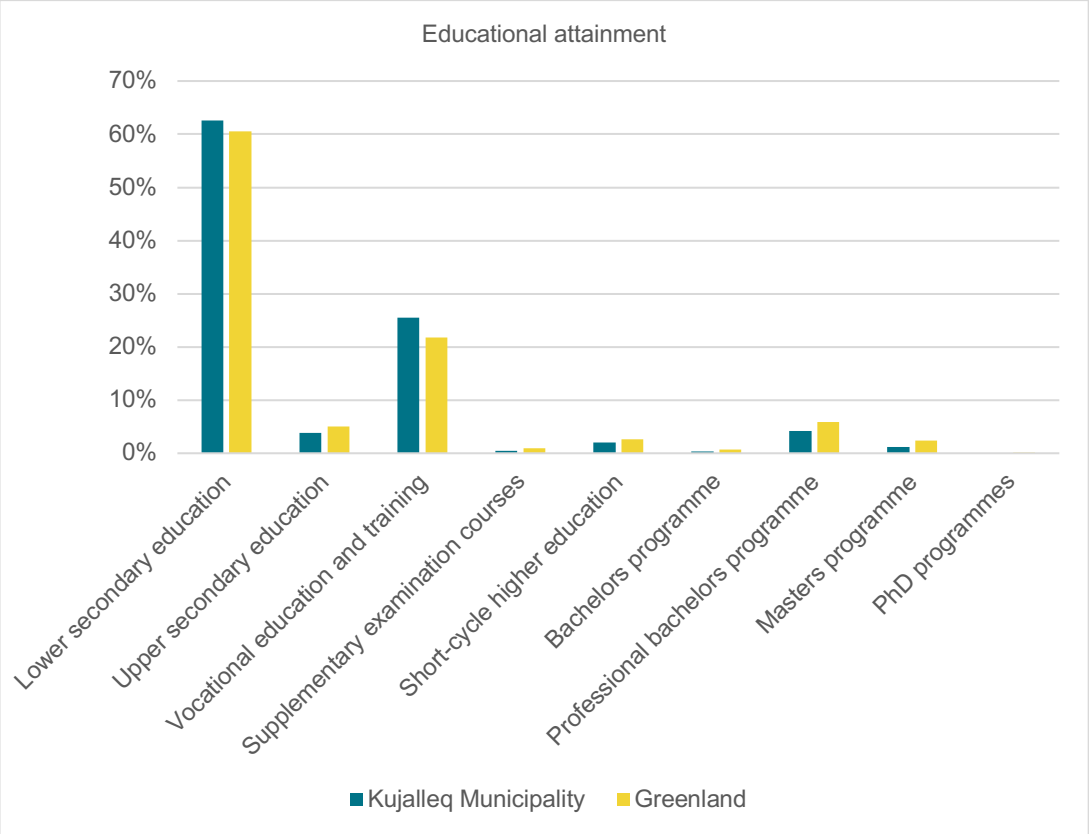

Figure 25: Educational attainment in percent of population over 16 years in Greenland and Kommune Kujalleq, 2019 (Statistics Greenland, UDXISCPROE)

The formal educational attainment for people in the Kommune Kujalleq is lower than the average in Greenland. 63% of the people in the municipality have lower secondary education at-

tainments and 25% has attained vocational education and training. The people from the Kommune Kujalleq are underrepresented when it comes to upper secondary education (4%), short-cycle higher education (2%), professional bachelors programme (4%) and masters programs (1%).

In Kommune Kujalleq, men have a greater tendency to discontinue education than women. In 2019, 1655 men had only attained lower secondary education while 1364 women had, meaning more women continued their studies.

Table 13: Educational attainment in number of persons over 16 years in the Kommune Kujalleq, 2019 (Statistics Greenland, UDXISCPROE)

	Men	Women	Total
Lower secondary education	1655	1364	3019
Upper secondary education	85	99	184
Vocational education and training	676	553	1229
Supplementary examination courses	13	10	23
Short-cycle higher education	48	47	95
Bachelor program	6	8	14
Professional bachelor program	60	141	201
Master program	35	24	59
PhD program	0	0	0

Table 14: *Educational attainment in number of persons over 16 years in Greenland, 2019 (Statistics Greenland, UDXISCPROE)*

	Men	Women	Total
Lower secondary education	11266	14234	25500
Upper secondary education	1163	946	2109
Vocational education and training	4089	5085	9174
Supplementary examination courses	214	195	409
Short-cycle higher education	505	626	1131
Bachelors program	177	110	287
Professional bachelor program	1766	735	2501
Master program	509	474	983
PhD program	15	23	38

7.1 Vocational training

There are a number of vocational schools in Greenland. Most relevant for potential employees in the mining sector is the *Greenland School of Minerals and Petroleum (The Mining School)* (*Kalaallit Nunaanni Teknikimik Ilinniarfik*) located in Sisimiut. The mining school is part of Tech College Greenland (KTI) a vocational school with approximately 650 students. The school has four departments: iron and steel educations; building and construction educations; mineral and petroleum educations as well as a department for upper secondary education. The school has

departments in Nuuk and Sisimiut[20]. The mining school also offers mining relevant short courses for the exploration and mining courses as part of the governmental financed "Project Skills Development for the Unskilled" or as part of the courses financed through the labour market fee (In Danish: "Arbejdsmarkedsafgiften"). Below is a list of the mining relevant short courses, which the mining school has offered or will offer in 2021:

Title	Duration
Operators of earth-moving machinery	5 weeks
Rigging and lifting	3 weeks
Diamond Core Drilling	6 weeks
Blasting (Shot Firer)	2 weeks
Arctic first aid	1 weeks
Stone Crushing & Screening	2 weeks
English terminology in the mining industry	2 weeks

It is possible to establish new relevant short course which can target the specific mining project. New courses need to obtain approval from the labour department in the GoG.

Innovation South Greenland suggest establishing an International Mining School in Kommune Kujalleq cf. the proposal for business development, "Kujalleq Nutaaq". The plan is still at a preliminary stage and is therefore not described in further detail in this social impact assessment report.

The Maritime Centre Greenland provides education within the maritime sector in Paamiut, Nuuk and Uummannaq. The school offers education and training programs within navigation, shipping and fishing.

The number of students completing vocational education has increased over the past decade. Furthermore, the exploration for potential mines, and the construction of the Greenland ruby and Hudson Mining projects have led to an increase in available national competences.

Table 15: Enrolment in types of vocational education and training in Greenland in 2017, 2018 and 2019 (Statistics Greenland, UDXISC11I)

	2017	2018	2019
Electrician	17	27	15
Smith	8	9	9
Vessel and snowmobile mechanic	15	18	11
Vessel fitter	13	10	15
Auto mechanic	15	9	17
Skilled Miner	5	5	4
Skilled Construction Machine Operator	13	6	10
Carpenter	46	45	23
Plumber	14	9	6

[20] KTI 2019

Dragnet manufacturing worker	16	15	7

7.2 Adult education and training

There are two governmental financial support mechanisms providing opportunities for adults to receive skills training: 'project competency development for unskilled' (PKU) and AMA-grants[21].

PKU has been established to mitigate unemployment among unskilled people above the age of 25. Focus is on providing people with no or limited work experience, skills that can lead to future employment in industries that are expected to grow. PKU has been used by other mining projects to finance short courses, which has enhanced the pool of unskilled Greenlandic labour related to specific tasks at the mining project.

7.3 Compulsory occupational health and safety courses in Greenland

Employers with10 employees or more, are pursuant to law to enrol at least two employees for compulsory occupational health and safety courses According to Executive order No. 914 dated the 26th of June 2013 the occupational health and safety course has to be at least 37 hours and take place over at least 4 business days. The occupational health and safety course is offered by the Working Environment Authority in Greenland. The course is only offered in Danish and Greenlandic.

8. Health

Greenland has a universal healthcare system with free access, including dental treatment and birth control. These is one central hospital in Greenland located in Nuuk, Dronning Ingrid's Hospital.

Since 2011 the health system has been organized into five health regions in the five municipalities. Each region has a regional hospital located in Ilulissat, Aasiaat, Sisimiut and Qaqortoq. The regional hospitals are the centre of the health care system, with a number of additional health centres, nursing stations and settlement consultations. In Nanortalik there is a larger health centre providing emergency services as well as general health promotion, prevention and treatment services. Smaller health centres are located in settlements with 500-1200 inhabitants, while health stations are available in settlements with 200-500 inhabitants. In the smallest settlements with less than 200 inhabitants, Pipaluk tele-medical equipment is available. In case of severe illness patients are transferred to Denmark.

The average life expectancy in Greenland is 68.8 year for men and 73.0 years for women[22] this is relatively low compared to Denmark where life expectancy is 79.3 and 83.2 years for men and women respectively[23]. The low life expectancy is partly due to high mortality rates amongst young people caused by accidents and suicide. The death rate in Greenland is 8.9 deaths per 1,000 inhabitants[24].

The causes of death have been relatively stable between 2016 and 2018 except for cancer, which has been an increased cause of death. Cancer is also the most common cause of death

[21] SUNNGU Grønlands Uddannelsesguide 2019
[22] Greenland in figures 2019
[23] Statistics in Denmark 2019
[24] Greenland in figures 2019

in Greenland. In 2018, 136 people died from cancer in Greenland. Table 10 shows an overview of the causes of death in all of Greenland. The number of people dying from accidents has decreased from 39 people in 2016 to 23 in 2018. The causes of death in Nanortalik follow the same trends as in Greenland. In Nanortalik, 3 people died in 2018 from suicide. This number has remained relatively stable over the last years. With 27 deaths in 2018, more than 10% were suicides.

Table 16: Causes of death in Greenland and Nanortalik (Statistics Greenland, SUXLDA1)

	Greenland			Nanortalik		
	2016	**2017**	**2018**	**2016**	**2017**	**2018**
Total	**488**	**501**	**492**	**33**	**33**	**27**
Infectious incl. parasitic diseases	10	16	11	0	0	1
Cancer	108	126	136	9	6	10
Other tumours	2	2	3	0	0	0
Blood (-forming) organs, involving the immune system	5	1	2	0	0	0
Endocrine, nutritional and metabolic	10	15	3	1	1	0
Mental and behavioural disorders	22	25	13	0	2	0
Nervous system, eye and ear	5	15	12	0	0	1
Heart diseases	68	73	77	7	7	3
Other circulatory system diseases	47	52	44	6	3	2
Respiratory system	43	42	50	3	4	0
Digestive system	16	17	21	1	1	1
Skin and subcutaneous tissue	0	0	0	0	0	0
Musculoskeletal system and connective tissue	3	0	2	0	0	0
Genitourinary system	7	9	5	1	0	1
Pregnancy, childbirth and the puerperium	0	0	1	0	0	0
Certain conditions originating in the perinatal period	3	3	3	0	0	0
Congenital malformations and chromosomal abnormalities	1	2	0	0	0	0
Symptoms, signs and abnormal findings	18	16	27	1	1	0
Accidents	39	36	23	1	5	4
Suicide and attempted suicide	48	40	45	2	3	3
Homicide and assault	3	6	3	0	0	0
Other	2	0	3	0	0	1
Deaths without medical information	28	5	5	1	0	0
Unknown	0	0	3	0	0	0

Table 14 shows the number of positive tests for sexually transmitted diseases (STD) in Greenland. Chlamydia is the most common STD in Greenland. With 3099 cases in 2018, 5.5% of the Greenlandic population was tested positive for Chlamydia. Sexually transmitted diseases are more common in Greenland than the rest of the Nordic countries. In comparison 0.6% of the population in Denmark tested positive for Chlamydia in 2018[25]. In Greenland, Chlamydia is most common in the age groups between 15-29-years. Gonorrhoea and syphilis are less common than chlamydia. The occurrence rate of gonorrhoea in Greenland was equivalent to 1.9 % of the population. Gonorrhoea is the most common in the age groups between 20-24-years.

[25] https://en.ssi.dk/surveillance-and-preparedness/surveillance-in-denmark/annual-reports-on-disease-incidence/chlamydia-2018

Table 17: Number of positive tests for sexually transmitted diseases in Greenland, 2018 (Statistics Greenland, SUXLSKS1)

Age group	Gonorrhoea	Chlamydia	Syphilis
Total	**1076**	**3099**	**138**
0-4	2	0	1
5-9	0	0	0
10-14	14	52	0
15-19	270	950	25
20-24	311	912	37
25-29	181	531	34
30-34	139	279	17
35-39	60	155	5
40-44	44	80	4
45-49	28	58	6
50-54	18	43	7
55-59	6	25	1
60-64	1	7	1
65+	2	7	0

There is an overrepresentation of sexually transmitted diseases in Nanortalik compared to Greenland. With 1,185 inhabitants living in Nanortalik, almost 10% of the population has tested positive for Chlamydia in 2018.

Table 18: Number of positive tests for sexually transmitted diseases in Nanortalik, 2018 (Statistics Greenland, SUXLSKS2)

	2018
Gonorrhoea	40
Chlamydia	109
Syphilis	1

8.1 COVID-19 cases in Greenland

Greenland has like the rest of the world been hit by the COVID-19 pandemic. As of April 2021, only around 30 people in Greenland in total have been infected with Sars-CoV-2 (Coronavirus). A low number of cases in Greenland has been maintained due to an effective travelling ban imposed by the GoG. This mean that travellers can only enter Greenland with an approval from the authorities. To obtain an approval a passenger needs to have a negative result from a PCR-test, which is not older than 72 hours before boarding the plane bound for Greenland. After arrival in Greenland the passenger must quarantine (isolate) for 5 days and then get retested. If the result is negative the quarantine is lifted, and the person is subjected to the precautious rules generally imposed in Greenland (physical distancing, mask wearing in airports, high hand-hygiene etc.). In South Greenland people can be tested at local health centres in Narsarsuaq, Narsaq, Qaqortoq and Nanortalik.[26]

[26] https://corona.nun.gl/?sc_lang=da

9. Social issues

9.1 Crime

The Greenlandic court system is comprised of four District Courts and The Court of Greenland, to represent first court level. The High Court of Greenland represents the second court level. As the Greenlandic court system is still a part of the Danish court system, the Supreme Court of Denmark is also the third court level for Greenland.

The justice system in Greenland emphasizes resocialization. Convicts are generally allowed to maintain some degree of everyday life during imprisonment. Six correctional facilities exist in Greenland with a 154 total inmate capacity. Mentally deviant offenders may be sentenced to time indefinite imprisonment in Denmark.

Table 19: Verdicts by precautionary measure, 2019 (Statistics Greenland, KREAF)

	2017	2018	2019
Total incriminating decisions	2,498	2,036	2,215
Warnings	65	53	85
Suspended sentence	366	272	350
Unsuspended imprisonment	391	294	320
Fine	1,466	1,219	1,254
Community service	26	45	22
Notification of social services (under 15 y/o)	80	43	82

According to Greenlandic police, one of the biggest crime issues is violence. In 2019 there were 936 reported incidents of violence which is a 25% increase from 2018 and the highest number reported. Another area of concern is the high number of reported sexual assaults, which has also increased in 2019 from an already high level. The prevalence of violence and sexual assaults is more than 3 times and 10 times higher of that in Denmark respectively.[27] Serious offenses against persons including homicide, sexual offences and violence are shown in table 20.

Table 20: Verdicts by precautionary measure, 2019 (Statistics Greenland, KREAF)

	2017	2018	2019
Homicide	5	6	1
Attempted homicide	10	8	11
Violence against the individual	420	395	370
Sexual offences	201	199	248

The Greenlandic Crime Prevention Council (*Pinerlutsaaliuinermut Siunnersuisoqatigiit* - PiSiu) consist of relevant authorities and organizations working together to prevent crime and increase the safety of citizens. The strategy for 2016 - 2020 has four focus areas:

1. Prevention of violence and sexual offences

[27] Grønlands Politi Årsstatistik 2019

2. Prevention of substance abuse
3. Prevention of enrichment crime
4. Prevention or cyber crime

9.2 Drug and Alcohol Abuse

One of the focus areas of the public health prevention strategy 2013-2019 was substance abuse, which was identified as the largest public health issue in Greenland. During that period the public health program *Inuuneritta II* focused on the implementation of prevention measures. Issues of drug and alcohol abuse in Greenland has declined over the past decade and is now in pair with other Nordic countries.

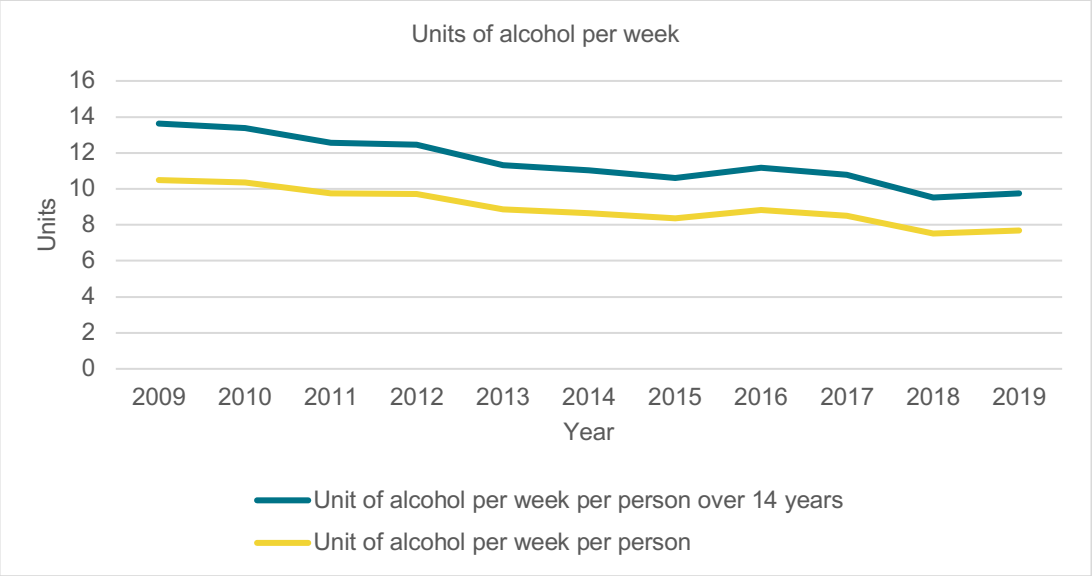

Figure 26: Units of alcohol consumed per week per person between 2009 and 2019, Greenland (Statistics Greenland, ALXALK4)

9.3 Vulnerable Groups

Vulnerable groups are often linked to and caused by factors such as poor health, lack or limited education and unemployment.

Three vulnerable groups are identified:

- People experiencing physical or mental disabilities, or with severe health issues include drug and alcohol abuse
- Households with no recent history of members having been employed
- Unemployed young men limited competences

10. Nature and land use

There are only few major hunting or fishing interests in or near the Project area. However, the Kirkespir Valley is to some extent used by local people from Nanortalik and surrounding settlements for gathering of berries and fungi for private households. It has been reported that seals and other marine mammals have been hunted in the Amitsup Saqqaa Fjord, and a few local fishermen also put up their nets in the fjord.

A previous study (Glahder 2001) has shown that the most important natural resources in terms of local use in the vicinity of the Nalunaq project site are i) the Arctic char populations living in

the three rivers running to the Amitsup Saqqaa Fjord and in the two fjord areas (i.e. Kirkespir Bay and Kangikitsoq) which are protected until 2003 from pound net fishing, ii) the Snow crab population in the Amitsup Saqqaa Fjord, possibly with a reasonable size and with a good quality, iii) the spawning Capelin populations in the two bay areas of Kirkespir and Kangikitsoq rivers, and iv) flocks of Eiders and Brünnich's guillemots wintering in Amitsup Saqqaa and adjacent fjords.

There are three sheep farmers near Tasiusaq and five around Nanortalik. According to the Development Plan 2017-2028 additional land has been allocated to establish sheep farms in Kommune Kujalleq.

11. Archaeological sites and cultural heritage

A walk-over survey of the project area was undertaken by the Qaqortup Katersugaasivia (Qaqortoq Museum), under the auspices of the Kalaallit Nunaata Katersugaasivia, the Greenlandic National Museum in 1988[28].

A total of 24 ruins were identified and described. All the ruins are located on the flat plain within about 0.6 km of the shore of the fjord. The ruins are of Norse origin and there was no evidence of Inuit or Greenlandic remains. The ruins are all very decayed and difficult to identify by the casual observer. However, they still represent a complex of residential and commercial sites with all the 'functions' characteristic of a self-sufficient Norse settlement. Whilst it is not possible to date the settlement without further investigations, it is likely the area was active in the period 1000-1500 CE.

A smaller group of Inuit ruins were located on the North side of the bay, some 500 m from the delta (high tide level). Since these were outside the concession area they have not been considered further. These sites will not be disturbed by the mine's operations.

12. Transport infrastructure

Travel between different towns and settlement in Greenland is challenging due to distances and relatively high cost of services. With large distances, low population densities and challenging terrain, goods and passengers are primarily transported via ship, plane or helicopter.

12.1 Air transport

Greenland hosts 13 public airports of which six have the capacity to receive international flights, 43 heliports[29]. All public airports and the majority of the heliports are owned and operated by Mittarfeqarfiit.

Narsarsuaq and Kangerlussuaq are the two major international airports, with 1,830m and 2,810m landing strips respectively. These airports have regular flights arriving and departing from Denmark, and during summer, from Iceland Narsarsuaq is the transport hub for all flights to Kommune Kujalleq. Narsarsuaq airport is a modern CAA approved airport that can accommodate a variety of aircraft, including Boeing 737. Daily helicopter services operate from Narsarsuaq to Qaqortoq and Nanortalik. Development plans suggest relocation of the international

[28] Berglund & Elling, 1988
[29] Mittarfeqarfiit, 2021

airport of Narsarsuaq and upgrading of the heliport in Nanortalik and establishing a 600m landing strip for fixed-wing aircraft in 2022[30]. Air Greenland is the sole provider of domestic flights to Greenland.

Airports with longer runways are under construction in Nuuk and Illulissat, which are scheduled to be completed by the end of 2023 or during 2024. Furthermore, a tendering process for establishing an airport with a runway up to 1500 meters has been conducted in March 2021. it still remains to be seen whether the tendering process will result in the government-owned company Kalaallit Airports Group concluding a contract for constructing an airport in Qaqortoq with a construction company.

12.2 Sea transport

There are between 180-200 harbours and ports across Greenland, varying in size from small fishing harbours to ports capable to berthing cruise ships. The container cargo is shipped to Nuuk and then distributed along the coast. Within Kommune Kujalleq, all three towns have larger harbours Port facilities. The largest container storage is in Qaqortoq whereas Nanortalik has a combined fishing and shipping harbour. The state-owned Royal Arctic Line is the primary cargo carrier servicing these towns and providing service to the settlements in the area.

12.3 Service agreements in relation to transportation of passengers in parts of Greenland

In part of Greenland the GoG has concluded service agreement with a shipping company and an airline for securing transportation services for the inhabitants. In South Greenland service agreements has been entered for the period 2021 to 2030 with the helicopter service provided by Air Greenland A/S, while passenger transport by boat is provided by Diskoline A/S[31]

[30] Kommune Kujalleq Development Plan 2017-2028

[31] https://naalakkersuisut.gl/da/Naalakkersuisut/Departementer/Boliger-og-Infrastruktur/Infrastruktur/Servicekontrakter

Appendix 4 Procurement Policy

Nalunaq A/S

Procurement policy for Greenlandic suppliers

Nalunaq A/S strives to make a significant contribution to Greenland in the form of awarding contracts to Greenlandic Enterprises providing that they are considered technically and commercially competitive pursuant to section 18 (2) of the Mineral Resources Act.

Nalunaq A/S therefore encourages any Greenlandic Enterprises that are interested in supplying goods and services to support Nalunaq A/S mineral resource activities in Greenland to register in our database as a supplier.

When completing the registration, please submit the following information:

Technical information

1. References from Projects on which the supplier has provided goods and services for mineral resource companies operating in Greenland over the past three years. The references should, to the extent possible be accompanied by certificates of satisfactory execution and outcome for the most important works.
2. Information about the educational and professional qualifications of employees who have delivered services and goods to mineral resource companies operating in Greenland.
3. An inventory of the company's tools, machines, plant or technical equipment available in relation to conducting mineral resource activities.
4. Any information about previous contribution to exploratory/mining activities in South Greenland, or other industries.
5. A signed declaration of consent that Nalunaq A/S can store any data included in the above list which might be subject to the Greenland data protection legislation.

Information used for identifying contribution to the Greenlandic Society.

6. Proof of the entity's registration in the Greenlandic Business Register.
7. Your contact information as supplier (Company name, Contact name, e-mail and phone number)
8. How many of the current employees are registered as residing in Greenland according to the Greenland National Register (folkeregistret).
9. A signed declaration of consent that specifies which data included in the above list can be passed on to foreign companies that use sub-contractors, with the objective of establishing potential collaborations between Greenlandic and foreign companies.

Please see a list of current contracts open for tender during the construction phase where the total contract package is assessed to have a value above 1,5 mio DKK in the link below [link].

If you are interested in working with us, please provide the requested information above by clicking on the submit button. When considering the supply of goods or services under 1,5 mio DKK, Nalunaq A/S will consult the supplier database and contact any Greenland Enterprise which meets the technical requirements. Based on this, Nalunaq A/S may ask for a quote and other information such as balance sheets, annual reports, financial statements for previous years, which clarify whether the Greenland Enterprises is commercially competitive or not.

This Policy will be reviewed and updated when the SIA and IBA have been negotiated and approved.