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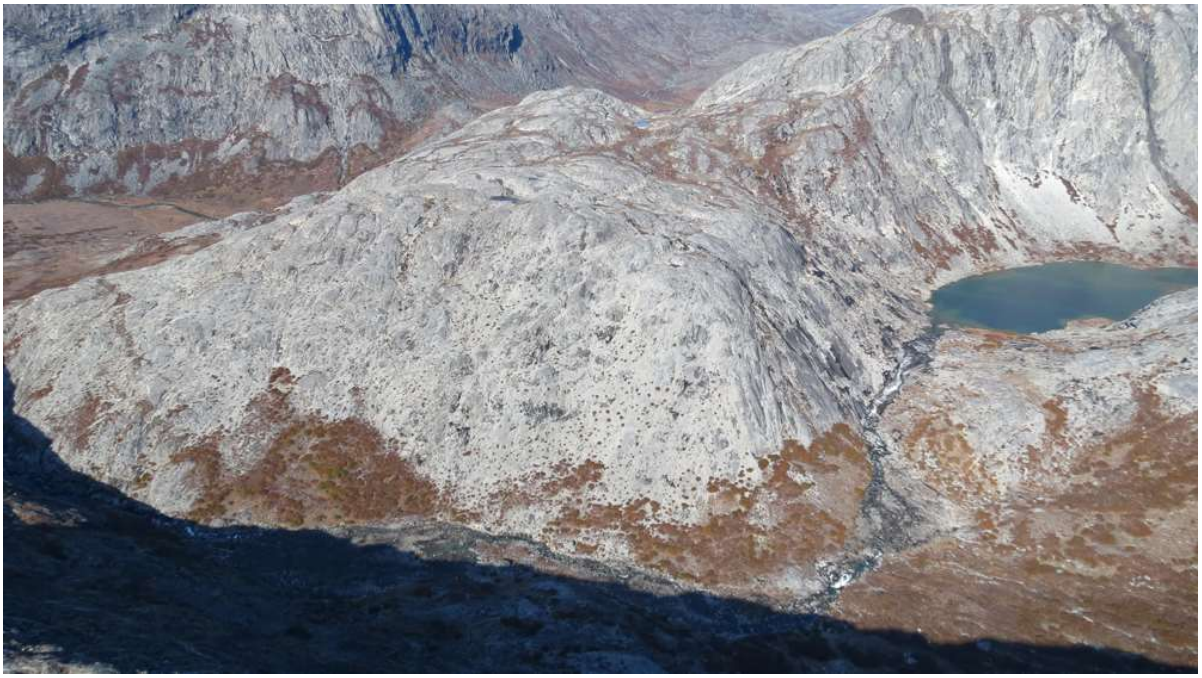
MAJOQQAP QAAVA
SOCIAL IMPACT ASSESSMENT



RAMBØLL Bright ideas. Sustainable change.

GREENLAND ANORTHOSITE MINING

List of abbreviations

Acronym	Description
ADSL	Asymmetric digital subscriber line.
AMA	Employers' Labour market tax.
ARDML	Acid rock drainage and metal(loid) leaching (leaching of harmful metals).
CVR	Det Centrale Virksomhedsregister.
DTU	Danmarks Tekniske Universitet.
DWT	Deadweight tonnage – Load and fuel weight of ship
GAM	Greenland Anorthosite Mining.
HPGR	High pressure grinding roll (milling).
HR	Human Resources.
N.E.C.	Not Elsewhere Classified
IBA	Impact Benefit Agreement.
KNAPK	Kalaallit Nunaanni Aalisartut Piniartullu Kattuffiat – an association of local associations working for business development for Greenlandic fishermen.
KNI	Kalaallit Niuerfiat – Greenland's grocery group.
KTI	Kalaallit Nunaanni Teknikimik Ilinniarfik – Greenland´s vocational schools.
LOA	Length overall (total size – a common terminology for ships).
MEL	Mineral Exploration License.
mmHg	Milometer mercury – a unit for measuring blood pressure.
PKU	Project Competence Development for Unskilled
RAL	Royal Arctic Line A/S.
SIK	Sulinermik Inuussutissarsiuteqartut Kattuffiat - Greenland's largest trade union and organizes short-skilled and unskilled workers.
ToR	Terms of reference.
USD	United States Dollars.
U.å.	Without year.
EIA	Environmental Impact assessment.
SIA	Social Impact Assessment.

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1. NON-TECHNICAL RESUME

1.1 Project description

The purpose of Greenland Anorthosite Mining's mining project at Majoqqap Qaava, is to extract and process anorthosite, which consists primarily of the chemical components; aluminium, silicon and calcium. The deposit at Majoqqap Qaava is unique in its size and chemical composition, making it ideal as a raw material for the production of fiberglass, insulation materials (rock wool), ceramics, fillers for the paint industry and in the production of other aluminium-based materials.

Majoqqap Qaava is located in Kommuneqarfik Semersooq in southwest Greenland. The license area has a size of 51 km2 and is located 130 km southeast of Greenland's capital Nuuk and 30 km northeast of the nearest settlement Fiskenæsset. The project area is located in the inner part of Qeqertarsuatsiaat Kangerdluat along the Kuussuatsiaat valley.

GAM's project area includes terrain at sea level up to approx. 1000 m altitude near the top of Majoqqap Qaava. The anorthosite deposit itself to be extracted is located at an altitude of 300-400 m 12 km from the coast. From the mining area a system of lakes follows the Kuussuatsiaat valley before ending at the north coast of the Qeqertarsuatsiaat Kangerdluat.

The mine will be in planned operation seven days a week during the working season for the mine and the processing plant, which will be 36-48 weeks/year. For the remaining period, the mine will run in a maintenance scenario. The current mineral resource corresponds to a mining period of at least 25-30 years, but the area contains expected resources for a minimum of 50-100 years of further operation.

GAM considers different scenarios for production, which differ in relation to the quantities and types of materials produced, respectively a minimum scenario (scenario A), which consists of a relatively simple processing circuit, and a maximum scenario (scenario B), which involves a more comprehensive processing circuit. Products for the insulation industry and most ceramic products will be fully processed in Greenland, and can be sold directly on to buyers, while products for the E-glass industry will have the final fine grinding done closer to the buyers' factories. This is first and foremost based on unwavering demands from E-glass manufacturers who want strict control of quality, contamination, transport and chemistry in the finely ground product. Manufacturers specifically want to be able to participate in and control the ongoing chemical sampling close to their production as part of their quality control.

In addition, the EU commission's new requirements for sustainability reporting demands that companies prioritize sustainable production and green transition. From 1Q 2023, European companies are responsible for ESG compliance for the entire value chain, and already from 2023 have to report this for the entire value chain in order to be able to sell the products. It has thus been published that ESG audits must be included in the audit from 2025 for large companies (further described in section 4.3).

As the final milling for E-glass is particularly energy-intensive, and as there is no access to green energy in the project area, this can only be done with fossil fuels in Greenland. This is contrary to the requirement for sustainable conversion, and the leading E-glass manufacturers with whom GAM is in dialogue therefore require that fine milling is carried out in Europe or North America, where it is possible to connect to "green" energy sources such as wind, solar or nuclear power.

In addition to these conditions, there are also a number of technical challenges with final fine milling for E-glass in Greenland, as the practical handling of the very fine dust in the project area is difficult, and as moisture creates "lumps" in the ground material, which makes it difficult to use in E-glass smelters, and at the same time requires shipping in significantly smaller closed cement ships, which are both more expensive and also cause increased ship traffic in the fjord and increased CO2 emissions from the project, which due to price and CO2 accounting makes GAM less attractive as a supplier from a commercial point of view.

GAM´s intention is to establish a mine that is both profitable and "green" - thereby minimizing the impact on the local environment and using the most optimal logistical set-up. A number of key parameters thus dictate which production scenario will ultimately be chosen, including the approach to green energy sources, the price of energy, logistics, product handling and the establishment of the necessary off-take agreements with end users.

The project is expected to extract between 400,000 and 1,000,000 tonnes of raw anorthosite per year with a subsequent processing in Greenland and shipping of approx. 300,000 to 800,000 tons of semi-finished material to Europe, North America or elsewhere (depending on which agreements that can be made). In the first years of the mine's lifetime, a reduced production plan is expected, as off-take agreements are established and the mine is scaled up.

The project presupposes an open pit and includes drilling and blasting of solid rock, loading and transport of ore from the mining area to the processing plant. Since the anorthosite ore is exposed on the surface, the planned mining design will not result in the deposit of large quantities of unprocessed anorthosite and other surface materials (so-called "stripping"). If necessary, a waste storage for such surplus materials is established approx. 3.5 km west of the mine along the truck haul route to the processing plant and port facilities. This waste storage will primarily consist of surface materials and anorthosite which are not included in the resource calculation, and therefore cannot be classified according to this. The material will not contain harmful materials or cause dust nuisance in connection with disposal.

Anorthosite ore from the mine is transported by truck to a processing plant on the coast, where the ore is crushed in several stages, and sorted in a resp. optical and magnetic separation. The processed product for shipment will have a grain diameter of approx. 0.7mm or larger, and will be stored in one or more storage facilities on the coast.

Waste materials (tailings) from the processing plant at the coast will primarily consist of coarsely crushed pegmatite and quartz (2-12 cm) from the optical separation, as well as iron-enriched concentrate (approx. 0.7 mm) from the magnetic separation. Based on the results from geochemical environmental and leaching studies carried out, it is considered that waste materials do not pose any risk in terms of leaching of harmful materials and no chemicals or other added substances are used in the processing process. Two possible tailings have been located north of the mine maintenance and accommodation area. One site involves a land-based storage, while the other involves a lake storage immediately northeast of the mine camp.

There is currently no infrastructure that connects the project area with the rest of Greenland, which is why in connection with the project there is a need for the establishment of port facilities, road connections and accommodation for the employees at the mine.

The port facilities will consist of a floating barge solution connected to a fixed port installation. A mechanical ship loader will be placed on the jetty to be able to effectively load bulk carriers. In connection with the project, a road will be established from the mine (17 km) to the processing plant at the port.

In connection with the project, a permanent accommodation for the employees will be established. The accommodation is located in the immediate vicinity of the port and the processing plant. The accommodation area consists partly of buildings with rooms and partly a number of common areas. The total capacity of the camp is based on 2 x 12 hour shifts, with room for replacement over-lap. In addition, extra capacity for unforeseen personnel is included.

Other infrastructure associated with the project includes; administrative office buildings, changing rooms, workshop for vehicles and spare parts, general workshop and warehouse, fuel depot, helicopter platform, laboratory, explosives depot, power plant and waste and a wastewater management plant.

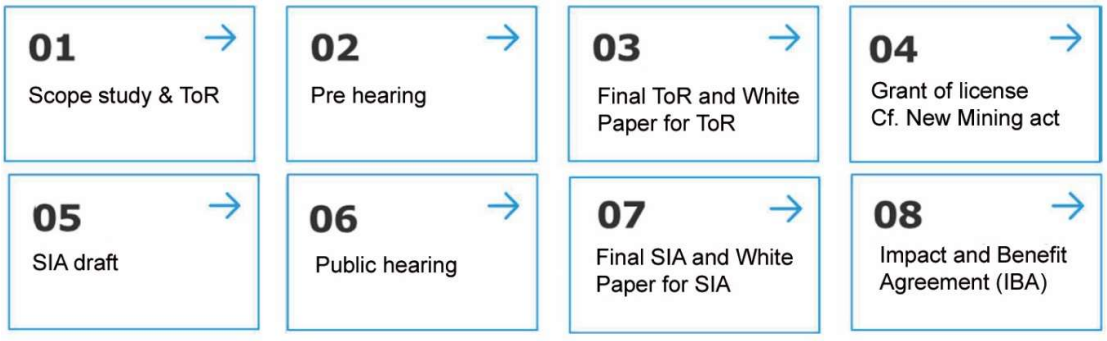
In the construction phase of the project, employment of 30-40 people is expected. The construction phase is expected to start in the second half of 2025. The crew will live in a camp in the project area built by GAM. Infrastructure and buildings are expected to be completed in 2027.

GAM currently estimates that in scenario A there will be a need for approx. 60 employees and in scenario B approx. 90 employees. Mine closure is expected to require 10-15 employees.

1.2 Method and process for SIA

The preparation of the SIA report is only one element in the entire SIA process. The process also includes a number of statutory public hearings as well as an ongoing regulatory process. The figure below outlines the eight main elements of the SIA process.

Figure 1-1: Overall process for SIA



The individual steps or elements in the process are briefly described in the following:

1. The first element is the preparation of a **scope study** and **TOR**.
2. A public **Pre-hearing** is then conducted, which primarily aims to ensure a meaningful involvement early in the process. The pre-hearing itself runs over 35 days, where the material is available on the Government of Greenland's consultation portal (naalakkersuisut.gl). Upon completion of the pre-hearing, the material will continue to be available on the portal together with the consultation responses received.

3. On the basis of the public pre-hearing, a revised **TOR** is prepared, which is subsequently sent to the authorities for approval. TOR must contain a description of the project, a preliminary socio-economic baseline (which is continuously adapted and expanded during the work) as well as a description of what potential impacts the project may have on the local area and Greenland as a whole. In addition, the comments from the pre-hearing and any subsequent changes that have arisen on that basis must appear in TOR. These must also be reproduced in the White Paper for ToR. If at this time the licensee has also completed the ToR for the EIA process and has defined an approved mineral resource, an exploitation permit for the project can be applied for and granted, cf. Section 7 of the Mining Act.
4. A **draft of the SIA report** is then prepared on the basis of the TOR and the socio-economic baseline. The report analyses the degree of impact and the probability of the individual impacts, and measures are identified that can minimize the negative impacts and maximize the positive impacts. Data for use in assessment are collected through a combination of desk research of existing knowledge and analyses, stakeholder meetings, citizen meetings and interviews with stakeholders and the affected citizens.
5. The draft SIA report is sent for **public consultation** for a minimum of 8 weeks, where the material is made available on the Government of Greenland´s consultation portal. During this consultation period, citizen meetings are held in towns/settlements that are particularly affected by the project, cf. the Mining Act to §108. The consultation meetings are held by the authorities with the participation of the company, relevant ministries, scientific advisers - and possibly more.
6. After the public consultation, the **final SIA report and white paper** will be prepared. The White Paper contains answers to any questions that may arise in connection with the public consultation on the draft SIA. The White Paper also contains an indication of and reference to where the SIA report has been adapted on the basis of this.
7. A tripartite negotiation is then initiated between GAM, Kommuneqarfik Sermersooq and the Government of Greenland. The negotiations will lead to a **co-operation agreement (IBA)**, which contains several initiatives which, among other things, will ensure the involvement of Greenlandic labour and companies in the project, knowledge and competence building in Greenland and socio-cultural conditions.
8. The Naalakkersuisut then processes the case and decides whether the documents and the project are to be approved (cf. subsection 1 of the Mining Act §103).

1.3 Assessment of social impacts

The potential impacts of the project are assessed for both the construction, operation and mine closure phases. The assessment is based on collected data and information about the Greenlandic society, as well as interviews with stakeholders, organizations and authorities. The identified potential impacts are shown in the table below.

Table 1-1: Overview of potential impacts

Category	Impact
Employment (section 6.2)	Employment of Greenlandic workers (6.2.1)
	Indirect and induced employment effects (6.2.2)
	Cumulative influences and conflict with other sectors (6.2.3)
	Personal income tax (6.2.4)
	Working conditions (6.2.5)

Education (section 6.3)	Competence development (6.3.1)
Economic impact – not employment (section 6.4)	Business opportunities (6.4.1) Corporation tax/royalties (6.4.2)
The public sector and infrastructure (section 6.5)	Infrastructure (6.5.1) Pressure on the public sector (6.5.2) Public health and emergency preparedness (6.5.3) Vulnerable groups, crime and abuse (6.5.4) Migration (migration and migration patterns) (6.5.5) Cumulative effects (excluding labour market effects) (8.5.6)
Residual Impacts (section 6.6)	Cultural heritage, socio-cultural values and maintenance activities (6.6.1)

For each impact, an assessment has been made of the probability and consequence of the impact. Assessment of the effects of the impacts (negative and positive, respectively) is assessed in accordance with the content of Table 1.2 and 6.2 Criteria for assessing societal sustainability.

Table 1-2: Criteria for assessing societal sustainability

	Positive (advantages and possibilities)	**Negative (risk and impacts)**
Insignificant	The effect will be without social significance / relevance	The effect will be without social significance / relevance
Low	There is an effect, but not an effect that materializes in significant benefits and opportunities socially.	There is an effect, but not an effect that materializes in significant negative societal influences.
Medium	Moderately noticeable effect of increased opportunities and benefits in society.	Moderately noticeable and harmful effect on society.
High	The effect is of significant societal effect in relation to the increased benefits and opportunities that are provided.	The effect is of significant negative societal impact, which to a large extent has an impact on social and societal conditions.

The four defined impact levels are further assessed from a time perspective as well as the number of people who are expected to be affected. In addition, the assessed probability of the impacts is assessed on the basis of the content in Table 1.3 and 6.3.

Table 1-3: Classification of probability

Probability of occurrence of the potential impact	**Description**

Largely unlikely	Influence is rare and is considered virtually impossible in practice. Will be able to occur under unusual circumstances.
Unlikely	No expectation that the impact will occur, but a certain risk for this cannot be ruled out.
Likely	Expectation that the impact will occur, possibly based on previous experience.
Largely likely	Experiences that influence arises under similar circumstances and / or is expected to arise in the project.

Finally, the probability and consequence of the impacts are combined in Table 1.4 and 6.4 below. Detailed description of the included impacts as well as identified measures are presented in section 6. Section 6.7 contains a summary of all impacts in accordance with the evaluation matrix below. The summary of the impacts also contains a list of relevant mitigating measures.

Table 1-4: Evaluation matrix for impacts

	Consequence	Insignificant	Low	Medium	High
Probability	Largely unlikely	Evaluated low degree of positive / negative impact			
	Unlikely				
	Likely				
	Largely likely				*Evaluated high degree of positive / negative impact*

1.4 Overview of potential social and societal impacts

Based on the method described above for assessing societal sustainability, an assessment of identified impacts listed in Table 1-1 has been made. The following sections contain a non-technical summary of the assessments of each identified impact described in section 6. The summary does not contain a source reference, as these appear in section 6.

1.4.1 Employment of Greenlandic workers

The construction phase of the project is expected to require the employment of 30-40 people. The operational phase in scenario A is expected to require approx. 60 employees and the operational phase in scenario B approx. 85 employees. The mine closure phase is expected to require a workforce of approx. 10-15 people. The expectation for the number of employees will apply for a minimum of 9 months per year, and the remaining months will be approx. 25-30 people be employed.

Approx. 30 pct. of the job functions are expected to be occupied by unskilled workers, approx. 60 pct. by skilled workers and the last approx. 10 pct. by managers and academics.

GAM will employ Greenlandic labour to the extent that there are applicants with the right qualifications. Experience from previous mining projects indicates that employment of up to 40-50 pct. Greenlandic labour force is a realistic estimate, primarily in unskilled positions. Expectations for hiring Greenlandic workers at the anorthosite project must, however, be viewed in light of the fact

that unemployment has been declining since 2015 and currently is at a low level, and that there is a structural shortage of labour in the raw materials sector.

In addition, the shifting and seasonal nature of mining may have an impact on how large a share of Greenlandic labour that can be attracted.

Scenario A

Local Impact

The anorthosite project creates opportunities for local jobs to the extent that it is possible to match the local competencies with positions in the mine. The workforce in Qeqertarsuatsiaat is primarily unskilled and there has previously been expressed an interest in employment at the mine among local residents. With the involvement of residents from Qeqertarsuatsiaat in connection with the SIA report, no experiences or concerns have been identified that the working conditions will deter locals from seeking work.

Based on the fact that unemployment in Qeqertarsuatsiaat is currently at a low level and that only a few unemployed people with an interest in taking care of work in the mine have been identified in the involvement process, the employment effects will be limited locally.

Municipal / national influence

As the Greenlandic workforce is characterized by being very mobile, it is possible that workers from other parts of Greenland will seek work at the mine.

The possibility of a municipal / national employment effect will largely depend on the structural conditions that apply in the labour market within the raw materials sector, as outlined initially. The coincidence with other mining and construction projects, general shortage of qualified labour in the sector, as well as a current low unemployment may affect the possibility of employing Greenlandic labour especially in the construction phase.

The project is assessed to be able to provide moderately noticeable employment effects municipally and nationally, which is considered to be largely likely.

Scenario B

GAM expects to employ approx. 85-90 people in scenario B at full operation, but it is not expected that there will be a difference in the need for labour between the two scenarios in the construction and decommissioning phase of the project. The expected employment effects will thus be marginally greater for scenario B.

1.4.2 Indirect and induced employment effects

It is expected that a project like Majoqqap Qaava will have indirect and induced employment effects. Indirect employment effects are the jobs created by subcontractors for the mining project as they experience increasing demand for their services / goods offered.

Induced employment effects are the jobs that are created as a result of increased economic activity in the area when the employees at the mine and local suppliers use their income in the local area. The size of the effect depends in particular on unemployment, skills and structural conditions in the labour market for the sectors in question, and partly on the extent to which the mining project will use Greenlandic suppliers of goods and services.

The induced employment effect also depends on the consumption patterns among those employed in the mine. In particular, foreign labour is expected to have a lower consumption (in Greenland) than national labour. The indirect and induced employment effects are calculated by using a multiplication factor. The use of a factor of 1.2-1.3 is considered to be a reasonable estimate and is in

the same order of magnitude as the factor used in previous SIA reports for Greenlandic mining projects.

Scenario A
The estimated number of indirect / induced jobs in the construction phase is 6-12, in the operational phase 12-18 and in the mine closure phase 2-9. There are a small number of direct employment effects, which is why the indirect / induced employment effects are assessed as a low degree of societal impact.

Scenario B
For scenario B, more employees will be employed in the operational phase. With an expectation of approx. 85 jobs are 17-25 indirect and induced jobs estimated for scenario B.

1.4.3 Cumulative impacts and conflicts with other sectors

The potential impacts of the anorthosite project must be seen in the context of other mining and construction projects in Greenland. It is referred to here as the cumulative influences.

The launch of the Anorthosite project coincides with the Aappaluttoq ruby mine in particular, which according to the plan is expected to close in 2023, and the White Mountain Project, which employs approx. 47 employees in the ongoing operational phase. The construction of the airports at Ilulissat and Nuuk is expected to be completed in 2024.

Overlap with the above projects is likely to lead to competition around the local workers especially in the construction phase. However, the coincidence with ongoing projects also means that there is a possibility of positive cumulative effects on employment, as workers from current construction or mining projects will be able to find employment through GAM.

As there is a large proportion of unskilled labour in Greenland, it is also possible that the mine project will increase competition for unskilled labour and thereby affect sectors that employ a large number of unskilled workers.

Local influence

Through interviews with locals from Qeqertarsuatsiaat, no local residents have been identified who are employed outside the settlement in construction or mining projects other than two locals who are employed in the canteen at the Aappaluttoq ruby mine. Cumulative effects on local employment due to positive overlaps between employments are thus considered unlikely.

The mining project's employment of especially unskilled labour and to a limited extent also skilled workers may in particular compete with the fish factory in Qeqertarsuatsiaat, especially in the summer. Through interviews with local residents of the Qeqertarsuatsiaat, it has been expressed that it is difficult to attract and retain local labour. Therefore, it will be of great importance to the local community if local labour is pulled out of the settlement. Experience from the ruby mine, however, indicates that the above problem is not necessarily current.

Local cumulative employment effects are considered to be of significant importance to the local community but are considered unlikely.

Municipal / national influence

The cumulative effects, which are likely to occur due to coincidence with ongoing construction and mining projects, will in the construction phase most likely create competition for Greenlandic labour, especially unskilled. The municipal / national cumulative impact will in the long run be positive, as it enables the maintenance of Greenlandic employment in the raw materials and

construction sector, and thus not only retention, but also continued upskilling and opportunities for competence development of the Greenlandic workforce.

Positive cumulative impacts will partly be limited in scope to the size of the project, as well as uncertainty about the size of the transfer of labour from ongoing projects to the anorthosite project. The impact is therefore considered to be low and likely.

No concrete experiences with examples with negative cumulative influences have been identified through interviews. Any negative impact must also be seen in connection with the size of the anorthosite project. The societal impact at municipal / national level is therefore assessed as both insignificant and also unlikely.

Scenario B
In scenario B, the project must employ more employees, which is why there will be marginally greater effects, positive as well as negative. However, this does not change the assessment from the previous section

1.4.4 Personal income tax

In Kommuneqarfik Sermersooq, 42 pct. are paid in personal income tax. In addition, the local population can make use of a personal deduction of DKK 48,000 and a standard deduction of DKK 10,000. Foreign labour pays 35 pct. in personal tax in Greenland, but on the other hand has no personal deduction to make use of.

Calculation of personal taxation is based on the expected number of employees and the budgeted annual earnings per. employee.

Scenario A
The estimated total personal income tax for the project's operational phase is DKK 10.9 million. DKK 255.6 million for the construction phase and for the closure phase of the project 2.0 mill. If the estimated indirect and induced employment is included, a total estimated personal income tax is obtained for the project's operational phase of DKK 14.2 million. DKK 332.3 million for the construction phase and for the decommissioning phase 2.6 mill. kr.

Scenario B
The estimated total personal income tax for the project's operational phase is DKK 10.9 million. DKK 339.6 million for the construction phase and for the closure phase of the project 2.0 mill. If the estimated indirect and induced employment is included, a total estimated personal income tax is obtained for the project's operational phase of DKK 14.2 million. DKK 441.5 million for the construction phase and for the decommissioning phase 2.6 mill. kr.

1.4.5 Working conditions

Through interviews with municipal and educational actors, it has been pointed out that it can be of great importance, especially for Greenlandic workers, that despite shift work, it is possible to maintain a good connection to family and traditional lifestyle. In addition, it has also been noted in the interviews that experiences from previous mining projects with the employment of both foreign and Greenlandic labour indicate that conflicts may arise related to a lack of mutual understanding of different cultural and social norms.

Scenario A and B
Based on the size of the project and compliance with legislation in the area, there is no evidence

that the project will affect working conditions either locally, municipally or nationally, to a significant degree.

1.4.6 Competence development

GAM intends to use Greenlandic labour to the extent that there is a qualified competence match within a financial, appropriate framework. Through the employment of Greenlandic labour, opportunities are created for upskilling and competence development through the job functions that are handled at the mine. In addition, the availability of more jobs in the mining sector can help make it more attractive for young people to pursue an educational path in the profession.

In order to target the upskilling of the Greenlandic workforce, as part of the activities around mining, it will be possible to create apprenticeships, education and the opportunity for upskilling to hold higher positions. In addition, a relocation program is planned after the closure of the mine, as well as considerations regarding the employment of an HR manager on the project.

Local influence

The competence level locally is described in interviews as low / predominantly unskilled. There is thus an opportunity for upskilling for the local residents who find employment through the project. As this is expected to be limited to a few local residents, the impact is therefore assessed as low / without great significance and likely.

Municipal / national influence

As the Greenlandic workforce is characterized by a high degree of mobility (which is assumed to be enhanced by work in shifts), it is expected that positions can also be filled by Greenlandic workers outside of Kommuneqarfik Sermersooq. Upskilling through employment in the mine can thus contribute to the development of competence profiles nationally both within mining, but also in sectors with overlapping work profiles.

The assessment of the impact on the opportunities for competence development through the mining project is made on the basis of the same conditions that apply to employment, as employment and the opportunity for competence development and retraining are considered dependent. Of course, provided that Greenlandic workers are retained in employment at the mine over a time horizon that enables skills development and upskilling. The impact is assessed to have a low / moderate municipal / national effect and this is considered to be predominantly likely.

1.4.7 Business opportunities

The mining project can help create business opportunities for both local and municipal actors through the delivery of goods and services. In particular, sailing is expected to be carried out by Greenlandic providers, as well as communication services and fuel deliveries.

In interviews with municipal / national actors, it has been pointed out that there is good experience from previous mining projects that services such as supply and transport can be provided by Greenlandic suppliers. The possibility of business connections will depend on both the necessary needs on the part of the mining project and the capacity on the supplier side in Greenland.

Due to several ongoing construction and mining projects in need of delivery of goods and services, challenges can be created for Greenlandic companies in relation to bidding for contracts. In addition, it can be a challenge in general for Greenlandic companies to bid for larger contracts due to the size of the supply and manufacturing sector.

Scenario A

Local impact

In Qeqertarsuatsiaat, carpentry and plumbing companies have been identified that could be commercially interested in the mining project. Local fishermen and catchers will probably be able to deliver fish and meat to the mine canteen, which is considered to be a likely business opportunity. This will also be of noticeable local importance, as activities associated with hunting and fishing are emphasized as central to settlement life. Additional business opportunities are considered to be limited due to the size of the remaining local businesses.

However, the experience from the Appaluttoq mining project is that this has not led to business opportunities locally. In addition, however, it has not been possible to identify barriers to local delivery of fish and meat to the mine canteen.

Municipal / national influence

The mining project can help to create business opportunities for municipal companies by, for example, using suppliers from Nuuk or Paamiut.

As mentioned in the introduction to the section, there is experience from previous projects with opportunities for business connections linked in particular to specific services. The possibility of business opportunities associated with the anorthosite project is therefore considered probable, but due to the size of the project, the impact will be of low / moderate significance at municipal / national level.

1.4.8 Corporation tax and royalties

Calculated corporation tax and royalties are based on 25 years of mining including two years of ramp up to full production.

Scenario A

The taxable income from 25 years of mining with two years of ramp up amounts to an estimated USD 321 million. The total corporation and dividend tax thus amounts to USD 117 million. Paid royalties over the life of the project are estimated at USD 20.5 million.

Scenario B

The taxable income from 25 years of mining with two years of ramp up amounts to an estimated USD 414.6 million. The total corporation and dividend tax thus amounts to USD 155.6 million. Of this, paid royalties over the life of the project are estimated at USD 31.1 million.

1.4.9 Infrastructure

The section deals with possible impacts for transport, housing, supply and communication.

The most significant infrastructure changes in the local area will be the construction of a jetty consisting of a permanently floating pontoon, as well as the establishment of a 17 km road from the mine to the processing plant at the port. Today, there is neither a jetty nor a road between the mine and the processing plant in the projected area.

Accommodation for the employees will be located in the immediate vicinity of the port and the process facilities. The accommodation area will consist partly of buildings with rooms, partly a number of common areas, including TV and living room, kitchen and dining room. In the long term, GAM wants employees to be able to establish themselves in the area to a greater extent and will therefore work to improve housing conditions as well as recreational opportunities, family stays, etc. to better retain employees and create good attractive working conditions.

In addition, the impact of the project will depend on whether the mine personnel can be sailed directly to the mine or Qeqertarsuatsiaat will have to handle crew changes.

Scenario A

Local impact

Transport to and from the mine will primarily take place by boat / ship from Nuuk of both staff according to shift plans and goods. In special situations where it is necessary, there will be transport by helicopter.

Among the local residents, it has been stated that it will be important if the planned expansion of the infrastructure in connection with the mine can be used in connection with the locals' recreational activities.

No impact on the local housing situation is expected.

No impact on local infrastructure for supply and communication is expected.

Municipal / national influence

Transport of staff and goods will primarily take place with departure from Nuuk, which is why the port of Nuuk will be used. Likewise, the anorthosite project is expected to require a certain number of flights annually for international employees. At present and in the coming years, there will be a number of activities associated with both construction work and raw material activities, which is why it is likely that the required flights associated with the mine project activities will affect the availability of air transport services. However, this will only be the case if Air Greenland does not expand its services in line with an increase in demand.

It is likely that it will occasionally be necessary to use accommodation in Nuuk either by employees or business partners.

Overall, the municipal / national impact on infrastructure is assessed as being low / insignificant and this with overwhelming probability, as the size of the project is taken into account.

Scenario B

As scenario B involves more employees, the identified impacts are likely to be marginally higher for this scenario. However, this is not considered to be of a degree that is expected to affect the above assessment for scenario A.

1.4.10 Pressure on the public sector and services

Pressure on the public sector and services is addressed, as today there is a great deal of pressure on the public services in Greenland. The pressure is due to a decline in public revenues and an increase in public spending due to rising demand.

Scenario A

Local impact

The local impact will depend on the extent to which the mine and mining activities will make use of public services located in Qeqertarsuatsiaat, including whether RAL will have the opportunity to sail to the mine, or whether Qeqertarsuatsiaat will handle crew changes. This has not yet been clarified.

No further positive or negative impacts on the public sector have been identified, so the overall impact is assessed as low and unlikely.

Municipal / national influence

The project will make use of certain public services, for example access to police and customs, as well as general services such as approval and monitoring of the project's activities. Based on the size of the project, its impact on the public sector is expected to be very limited at both municipal and national level, which is why the impact is assessed as insignificant.

Scenario B

Given the low degree of expected impact described for scenario A, it is considered unlikely that this will differ for scenario B.

1.4.11 Public health and emergency preparedness

GAM plans to establish a nursing station at the mine that can handle medical challenges and emergency situations. A qualified nurse or other HSE (health, safety and environment) responsible must be employed here. In addition, there will be an off-road combined ambulance and fire truck at the mine. A contingency plan is implemented in relation to on-site accidents.

Work in the mine will be associated with the risk of accidents in the workplace. This is due to, among other things:

- Fatigue (long work days)
- Heavy lifts
- Noise impact
- Dust impact.

The above-mentioned accident risks are common risks associated with mining work and are thus sought to be minimized through the implementation of health checks, ensuring the working environment, etc. Accident insurance and labour market business insurance are taken out for all employees.

As a workplace, the mine will be a "dry camp" without permission to consume drugs and narcotics of any kind. Ingestion of drugs or narcotics will result in expulsion.

Scenario A

Local impacts

For local workers, it can have a health impact if they obtain a higher income, which among other things can lead to better housing conditions and diet for both the worker and his family. However, the risks mentioned in the introduction to the section will also apply to any local workers.

Experience has shown in the past that helicopter landings in and near the Qeqertarsuatsiaat caused unwanted noise to the inconvenience of locals. However, helicopter visits are only expected to be necessary to a very limited extent.

There have been challenges in recruiting staff for the health station in Qeqertarsuatsiaat, which has affected the quality of health services. It has been expressed among the locals that it would be of great importance for the level of health services locally if the local population could use the mine's health station within an agreed framework.

As the expectation of local workers at the mine is limited to a few current unemployed, both negative and positive direct impacts on the health of these will be limited to this and are thus assessed as insignificant. The importance of local residents being able to use the mine's health station is considered to be of significant importance to the locals.

Municipal / national influence

Health factors mentioned initially in the section will also apply to municipal / national workers. Due to the size of the project, no municipal or national impact on public health is expected, which is why the impact is assessed as insignificant.

Scenario B
Same as scenario A.

1.4.12 Vulnerable groups, crime and abuse

Foreign experience indicates that mining projects have led to increased crime, prostitution and abuse in local areas. However, it has not been possible to identify examples that this has been the case in connection with previous Greenlandic mining projects.

Residents of Qeqertarsuatsiaat have mentioned that transport networks to both the south and the north are important for the distribution of drugs in the local area.

Scenario A
Local impact
Import and spread of new substances locally through the increased volume of traffic, especially from Nuuk, cannot be ruled out. The likelihood of this, however, will depend on whether staff turn-over is to be handled in Qeqertarsuatsiaat.

Through interviews with the residents of Qeqertarsuatsiaat, particularly vulnerable populations or any concerns related to their impact in connection with the planned mine have not been identified.

The overall impact on vulnerable groups, crime and abuse is assessed as low and insignificant.

Municipal / national influence

It cannot be ruled out that the project will lead to increased crime and abuse, perhaps especially in Nuuk. As no experience with this has been identified and based on the limited size of the project, the impact is assessed to be insignificant and unlikely.

1.4.13 Migration (migration patterns)

In Greenland, there is a major relocation from settlement to town, mainly due to education and working conditions. It has been stated in Qeqertarsuatsiaat that migration from the settlement after education and work are usually permanent.

Scenario A
Local impact
It is likely that locals who will be employed at the mine and thereby experience a wage increase will move away from Qeqertarsuatsiaat. This possible impact must be seen in conjunction with the fact that there is a general tendency to relocate and that the impact depends on the employment of premises at the mine. The local impact on migration is assessed as insignificant and unlikely.

Municipal / national influence

No expectations of significant municipal impact on migration due to the size and location of the project.

Scenario B
Same as in scenario A, but with a possible marginally greater impact due to more employees.

1.4.14 Cumulative impacts (excluding labour market effects)

Cumulative impacts are defined as the impacts that result from the gradual and / or combined impact / impact of an activity / project, as a result of other existing, planned or reasonably defined events.

This section touches on:

- Rise in consumer price index (inflation - local, municipal and national)
- Investments in the economy (consequential business for mining)
- Better public service / better citizen services
- Maritime traffic.

Scenario A
Local impact
It is not expected that the project will lead to local income increases, which will be of an order of magnitude that could potentially affect inflation locally.

Although local business opportunities derived from the project are assessed to a limited extent due to the size of the project, it cannot be ruled out that local businesses will have a positive impact by virtue of the business opportunities that the mine potentially creates.

Increased tax payments - both income, corporation tax and royalties - can in the long run lead to a strengthened public sector locally, municipally and nationally. The degree of impact is assessed as low and likely.

It has been pointed out by local residents of the Qeqertarsuatsiaat that the mining work at the Aappaluttoq ruby mine has led to disruption of the trout fishery in particular. Therefore, it is considered probable that nuisances from GAM's mining project, including ship traffic, may lead to disruption of local commercial fishing. This is considered to be of significant importance locally.

Local experience from the Aappaluttoq ruby mine shows that the reindeer in the mining area were briefly affected. Local residents have not expressed concern that the hunting opportunities in the area will be affected in the long term by the mining project, but have emphasized that any long-term impact on the stocks will be of central importance to the locals as well as people traveling to the area from elsewhere in Greenland to hunt reindeer.

Based on previous experience, impacts related to fishing and hunting are assessed as both likely and noticeable to the local community.

Municipal/national influence

The risk of inflation at municipal / national level is considered largely unlikely due to the size of the project.

The presence of several mining projects in the municipality can lead to follow-on investments in the larger cities, such as Nuuk and Paamiut. However, due to the size of the project, this possible impact is expected to be marginal. However, it should be emphasized that the project contributes positively to the development of the raw materials sector and thus also to the general development of business opportunities.

Cumulative impacts at municipal / national level are assessed as low / insignificant and likely.

Scenario B
Same as in scenario A, but with expected marginally greater impacts due to greater employment and greater maritime traffic due to larger amounts of material produced.

1.4.15 Cultural heritage, socio-cultural values and entertainment activities.

In the autumn of 2020, the National Museum of Greenland prepared an archaeological site study (inspection) in connection with preparations for the mining project, where its archaeologists searched the area for prehistoric cultural monuments. The inspected area extends from the port to the construction site for the mine, where construction activities are planned. It was concluded in the inspection that there are no conflicts between ancient monuments and the current construction plans for mining.

There are strong socio-cultural values associated with leisure activities and the use of nature in the area around the planned mining project. Any kind of influence on this will thus be of significant importance. A large part of the local population covers a significant part of their consumption of Greenlandic food through their own hunting and fishing.

Scenario A
Local impact
No significant impact is expected in relation to the cultural heritage that the Greenland National Museum has found.

Tradition and culture associated with occupations in the local settlement environment may be affected if some or more locals find employment at the mine instead of local workplaces. The impact is assessed as low, due to the expectations of local employment effects of the project.

Experience from previous projects indicates that seasonal and shift work can be difficult to reconcile with family relationships in the settlements. There is no particular concern for this among the local population, but it cannot be ruled out that the form of work in the mine may affect traditional family relationships.

The entrance to the bottom of the fjord is narrow in several places and characterized by strong currents, which is why locals have expressed concerns about the risk of accidents and thus the impact on the environment in and around the fjord. There is no experience with accidents in connection with boat transport in the fjord. GAM expects entry to the fjord will be supported by tugboat to increase safety. Accidents cannot be ruled out, but are considered unlikely.

Based on the above, the impact on cultural heritage, socio-cultural values and entertainment activities is assessed as being insignificant but of great importance to the local community.

Municipal/national influence

It is expected that there is a very small / no municipal / national impact on cultural heritage, maintenance activities and socio-cultural values.

Scenario B
Same as scenario A.

1.5 Identified measures for managing impacts

For each of the identified impacts, measures have been identified to deal with them, in order to promote positive impacts and reduce negative ones. Identified measures for handling are shown in Table 1-5 below.

Table 1-5: Identified measures for managing impacts

Impacts	
Occupation	
Employment of Greenlandic workers	Preparation of a description of the requirements for jobs in the different job categories for the three phases of the project. Development of job advertisements for both local and national advertising. Recruitment campaign aimed directly at especially municipal employment; Qeqertarsuatsiaat, Paamiut and Nuuk. GAM is open to the fact that employees from Qeqertarsuatsiaat will be able to be employed in a job scheme other than shift work, as they do not have long travel times home to the same degree as other employees. Contact and possible collaboration with the Greenland Chamber of Commerce, Majoriaq, SIK and the municipal employment service on job opportunities. Contact and possible collaboration with KTI Råstofskolen regarding opportunities for upgrading qualifications as well as internships and apprenticeships. Hiring an HR employee.
Indirect and induced employment effects	Goods and services will be purchased on market terms, but preferably from Greenlandic suppliers, provided that these are competitive. It will be assessed whether GAM can solve sub-tasks itself rather than having these put out to tender. If GAM can solve sub-tasks itself, the starting point for this will be that it can help to create more local jobs.
Cumulative impacts as well as conflict with other sectors	Dialogue and possible collaboration with both local and municipal authorities based on identifying and coordinating existing competencies. Hiring an HR employee to support the recruitment of Greenlandic and other labour, respectively, to be part of competence development projects and other facilitation of employees.
Personal income tax	-
Working conditions	Working conditions are established in accordance with the guidelines of SIK and other Greenlandic trade unions and the ILO conventions. The conditions are intended to ensure that the Greenlandic requirements are met and also help to avoid a distortion of the local labour market. Adoption of rotation plans for the workforce so that family-friendly employment is promoted and the opportunities to maintain family relationships and traditional lifestyles are improved. Some appointments may have been exempt from rotation if the transport distance to the home is short. It is proposed that an introductory course be prepared on intercultural understanding as well as a policy to combat bullying in the workplace. Ongoing workplace assessment and possible preparation of training programs in connection therewith. Requirements for contractors on safety and regulations.

Education	
Competence development	Opportunity to collaborate with educational institutions, including the KTI raw materials school, on education and training. Opportunity for collaboration with the municipality on required courses and continuing education, so that activation of unskilled and unemployed is targeted. HR employee possibly based in Nuuk. To ensure both a good recruitment process and also subsequent training and career development for employees. Creating a relocation program after mine closure.
Economic impacts – non employment	
Business opportunities	Contracts for deliveries and services are operated on market terms but on the basis of priority for Greenlandic suppliers. Contracts are broken up into smaller parts where it does not have negative financial, managerial or temporal negative effects for GAM, in order to improve the opportunities for Greenlandic suppliers to bid. Collaboration with RAL and Air Greenland. In connection with tenders for catering, the starting point is that local and traditional food can be delivered. Including any possibility of agreement with local fishermen and catchers on delivery of fish and meat to the canteen.
Corporation tax/royalties	-
The public sector and infrastructure	
Infrastructure	Opportunity for the inhabitants of Qeqertarsuatsiaat to use the road in connection with recreational purposes and especially in connection with reindeer hunting. Collaboration with Air Greenland on the need for air transport. Collaboration with RAL on opportunities for navigation. If the mining town gets settlement status, this will be possible.
Pressure on the public sector	An increased pressure on the public sector and services municipal / national is assessed partly as being of a limited scope, and partly as both temporary and not possible to remedy.
Public health and emergency preparedness	Preparation of HSE manual and guidelines for the workplace. Establishment of work environment organization. Possibility that residents of Qeqertarsuatsiaat will be able to use the mine health station. Minimizing helicopter flights near Qeqertarsuatsiaat, and possible dialogue with the settlement council about the possibilities of minimizing the inconveniences associated with this.
Vulnerable groups, crime and abuse	In the mine camp there will be zero tolerance for alcohol and other drugs. There will also be an ongoing dialogue with municipal health authorities. GAM intends to have an ongoing dialogue with the settlement chairman of Qeqertarsuatsiaat to address any problems with both vulnerable groups, crime and abuse that the settlement may experience.

Migration (migration patterns)	As described above, the expected possible impacts form part of a general trend around migration from settlements to cities after education and work. No measures have been identified to deal with the impact.
Cumulative influences (labour market effects excluded)	Ongoing dialogue and contact with the settlement council and possibly the local department for KNAPK about possible disturbances of fishing and hunting due to traffic and noise nuisance. Particular attention will be paid to the impact of reindeer in the area, and if so, whether this is temporary or permanent.
Residual impacts	
Cultural heritage, socio-cultural values and maintenance activities	Areas of the license located outside the inspected section have not been archaeologically examined, and the area must be kept free of activities, including construction activities, unless the Greenland National Museum and Archives are involved. Possibility for local employees at the mine to be employed in a different job scheme than shift work, as they have other options for getting to / from work. Possibility for locals to use the paved road at the mine in connection with hunting activities. Possible use of tugboat for entry into the fjord under difficult conditions to minimize the risk of accidents.

2. REGULATORY FRAMEWORK

2.1 The regulatory framework

The primary relevant legislation for this project is Inatsisartutlov nr. 26 13/6 2023 on mineral activities (the Mining Act), which entered into force on 1 January 2024. The most relevant provisions of the Mining Act for the SIA process are summarized in the table below.

Table 2-1: The most relevant provisions of the Mining Act for the SIA process

Provision	Content
§ 52, sec. 1	The use of Greenlandic labour
§ 52, sec. 2	Use of Greenlandic enterprises in contracts, supplies and services
§ 53	Processing of exploited mineral raw materials in Greenland
§ 103	Provision for the implementation of the SIA
§ 104	Provision for the preparation of the SIA, including
§ 104 sec. 2	Demonstration, description and assessment of direct and indirect impacts on societal conditions
§ 104 sec. 3	Provision on requirements regarding material and investigations in connection with the SIA
§ 105 sec.1	Announcement to the public on the Naalakkersuisut website or in any other appropriate manner
Chapter 17	Pre-consultation and consultation
Chapter 18	Social sustainability agreement

In addition, there are a number of other laws and international conventions that are relevant to the project. These are shown in the table below.

Table 2-2: Other relevant legislation

Other relevant Greenlandic legislation
• Act on regulation of labour supply in Greenland (Landsting Act no. 27 of 30 October 1992 with amendments) • The Aliens Act (Ordinance no. 150 of 23 February 2001 on entry into force for Greenland) • The Large-Scale Act (The Government Executive Order No. 5 of 25 May 2022 of the Inatsisart Act on construction and construction works for large-scale projects) • Working environment (ordinance no. 1048 of 26 October 2005 with amendments) with associated announcement, including, among other things, Executive Order No. 32 of 23 February 2006 on rest periods and days off in Greenland) • Income Tax Act (Landsting Act No. 12 of 2 November 2006 with amendments)

2.2 Taxation

The section describes the legal framework and provisions that relate to the taxes and revenues that are relevant to the project. The legal framework described above forms the basis for the impact assessment of tax and revenue matters. The sections summarize tax adjustments and concession fees in that order.

2.2.1 Tax regulation

Corporation tax

The corporation tax that the mine will have to pay depends on the profitability of the mine. The corporation tax will be reduced in 2021 to 25 per cent[1], but as dividends, which are imposed at 36 percent in dividend tax, are deductible, corporation and dividend tax together will amount to 36 percent.[2]

Personal taxation

Pursuant to section 1 of the Income Tax Act, the annual income of persons residing in Greenland or persons residing in Greenland for at least 6 months per year is subject to tax.

Greenland's income tax system is shared between the government and the municipalities. In addition to a personal deduction of DKK 48,000 and a standard deduction of DKK 10,000, the personal taxes for Greenlandic workers for the mining project are based on the following elements:

- A national tax of 10 percent to the Greenlandic Government.
- A municipal tax of 26 per cent. to Kommuneqarfik Sermersooq.
- Joint municipal tax of 6 per cent. Paid to the government and distributed to the municipalities. In 2021, about 10 per cent. of the joint municipal tax distributed to Kommuneqarfik Sermersooq,[3] whereas this share is approximately 12 per cent in 2022.[4]

The income tax for 2023 is therefore in Kommuneqarfik Sermersooq at 42 percent.

As a result of an amendment to the Income Tax Act in November 2010, a unit tax rate of 35 percent was introduced for foreigners working in the mineral raw materials industry outside cities and settlements, on the salary derived from their income in Greenland.

Royalty

According to section 17 of the Mineral Act, it is determined in an exploitation permit what remuneration the licensee must pay to Greenland's Self-Government. It can be stipulated below that an annual fee calculated on the basis of the extracted raw materials (royalty) must be paid. For minerals (apart from rare earths, uranium and gemstones), it is calculated as a turnover royalty of 2.5%. This is determined in accordance with Appendix 3 of the standard conditions for exploration permits and Appendices 1-4 to this appendix. The supplement can be read here: https://govmin.gl/wp-content/uploads/2019/07/Addendum_No._3_to_Standard_Terms.pdf

[1] Folketingstidende 2019-2020, tillæg G, Redegørelse nr. R 12 (2/4/2020).
[2] Grønlands Mineral Myndighed (2020b).
[3] Formandens Departement – Grønlands Selvstyre (2020).
[4] Formandens Departement – Grønlands Selvstyre (2021).

3. INTRODUCTION

This report contains the draft assessment of the societal sustainability (SIA) for the Greenland Anorthosite Mining (GAM) project proposal 'Majoqqap Qaava'.

GAM is a Greenlandic mineral exploration company established in 2019, which is owned by a number of private investors, the Greenlandic pension fund SISA, Vækstfonden[5], Greenland Venture and Arbejdernes Landsbank[6]. GAM has in January 2024 submitted an application for an exploitation license for the development of the Majoqqap Qaava project. The purpose of the project is to extract and process anorthosite in Greenland, which can be used in the production of a number of different products, including fiberglass, insulation materials (rock wool), ceramics, fillers for the paint industry and in the production of other aluminum-based materials.

Majoqqap Qaava is located in the inner part of Qeqertarsuatsiaat Kangerdluat. The project is located approx. 130 km southeast of Nuuk and 30 km northeast of the settlement Qeqertarsuatsiaat (Fiskenæsset), which is a small settlement with 176 inhabitants[7]. The project will generally consist of an open quarry with a nearby storage of eventual surface waste materials, as well as a permanent mining town on the coast 12 km from the quarry, containing accommodation, crushing and separation plants, waste storage, storage facilities and a port facility. In addition, a road (17 km) will be established between the mine and the mining town. An annual production of between 300,000 and 800,000 tonnes of semi-finished material is expected annually.

As part of the application process, GAM wishes to submit an assessment of the project's social sustainability (SIA), which describes the potential societal impacts of the project, as well as what measures GAM will initiate to reduce any negative impacts and maximize any positive impacts[8].

With this SIA draft GAM wishes to:

- To describe the SIA process and its purpose
- To describe the project, including the social and local conditions, the location of the project and the most important elements of the project
- To present the most significant impacts of the project for Greenland, the local area and the individual citizen
- To describe the measures that GAM will initiate to reduce negative impacts and maximize positive impacts
- To describe the main stakeholders and their involvement
- To present a plan for monitoring and evaluation.

The final SIA report will be prepared on the basis of this draft and the public hearing.

The report is structured in such a way that section 4 contains a description of GAM's mining project and, including a presentation of the project proposals. Section 5 contains a description of the current societal baseline on which the assessment of potential social and societal impacts rests.

[5] Vækstfonden is the Danish state's financing fund. The fund helps to create more new growth companies by making capital and competencies available.

[6] Greenland Venture A/S is a venture company, established and owned by the Government of Greenland. The Anorthosite project has historically been owned by the company Greenland Gold Resources Ltd., but the license was transferred to the Greenlandic company Greenland Anorthosite Mining ApS at the end of 2020.

[7] Statistics Greenland, Table [BEDST4], 1977-2022.

[8] In addition, GAM also submits an EIA, which describes the environmental impacts of the project.

Section 6 first describes the methodological approach to the assessment, after which the identified potential impacts are reviewed. Section 7 includes frameworks for monitoring and evaluation for handling the resp. positive and negative consequences, section 8 contains a description and overview of the stakeholder involvement made in connection with the preparation.

3.1 Purpose of the evaluation

The Government of Greenland has a stated goal of developing the raw materials industry to become one of the most important sectors (measured by economic activity) in Greenland. The Greenland Government therefore adopted in 2009 Inatsisartutlov nr. 7 of 7 December 2009 on mineral raw materials and activities of importance for this (the Minerals Act). During the preparation of this report, Inatsisartutlov on mineral activities no. 26 of 13 June 2023 (the Mining Act) entered into force on 1 January 2024 and replaced the old Minerals Act with regards to the SIA. The Mining Act partly aims to ensure appropriate preliminary investigation, exploration and exploitation of minerals, as well as an appropriate performance of activities in connection with this, and partly that matters relating to mineral activities are appropriately regulated.

The Mining Act strives for the raw material activities to be carried out properly without harming population health with regard to the safety, environmentally and socially sustainable development of Greenlandic society (cf. section 1 (2) of the Mining Act). This report deals with the socially sustainable development, while environmental conditions are in focus in a parallel EIA report
The Mining Act also stipulates in sections 100 and 103 that no permit is granted for activities such as mining that are expected to have a significant impact on Greenlandic society before the Naalakkersuisut has approved an EIA or a SIA report for the project. However, cf. Section 7 of the Mining Act, an exploitation permit can be applied for and granted for the project if the ToR for both the SIA and the EIA process are approved, and there is an approved mineral resource on the project. The SIA process is described in more detail in 'Guidance regarding mineral projects on the process and preparation of the SIA report' published by the Naalakkersuisut in April 2016, which together with the Mining Act forms the basis for the preparation of the current SIA.

It is a focus area for the Greenland Government that the development of the raw materials area takes place in close interaction between the raw materials companies, the relevant authorities, the Greenlandic community and interest groups. The SIA process therefore focuses on an early and comprehensive involvement process, where all relevant citizens and stakeholders are informed about the project and have the opportunity to provide input to the study.

The overall purposes of the SIA process can be summarized as:

- To ensure the early involvement of relevant citizens and stakeholders through an ongoing dialogue
- To provide a detailed description of the socio-economic conditions in the Greenlandic society before the project is started (baseline)
- To assess the positive and negative impacts for the local community and for Greenland as a whole in the project
- To develop initiatives that reinforce the positive impacts and minimize the negative impacts of the project
- To develop a plan for dealing with the positive and negative impacts (Benefit and Impact Plan).

3.2 Responsible authorities

The Ministry of Business, Trade, Mineral Resources, Justice and Gender Equality is the authority in relation to the areas under which the VSB and IBA processes fall. The Ministry of Business, Trade, Mineral Resources, Justice and Gender Equality therefore handles permits and approvals that relate to socio-economic conditions, including regulations regarding mineral processing in and outside Greenland. This includes infrastructure that relates to local companies and labour and matters including those related to VSB and IBA. The issuing of permits and approvals is also handled by the Ministry of Business, Trade, Mineral Resources, Justice and Gender Equality.

Securing local anchoring takes place by virtue of local authorities, including municipalities and settlement councils. The municipalities play a significant role partly in relation to the negotiations, but partly in relation to creating the framework conditions for both the existing and future business activities locally.[9]

[9] Departementet for Erhverv, Arbejdsmarked og Handel – Grønlands selvstyre (2016).

4. PROJECT DESCRIPTION

The purpose of GAM's mining project is to extract and process anorthosite, which can be used in the production of a variety of products, including fiberglass, insulation materials (stone wool), ceramics, fillers for the paint industry and in the production of other aluminium-based materials.

This chapter contains a brief description of the location of the project, the local conditions in Qeqertarsuatsiaat and the project itself, including the various parts of the project (e.g., the port facility and the processing facility) and the expected need for manpower in connection with the construction phase, operational phase and closure of the mine

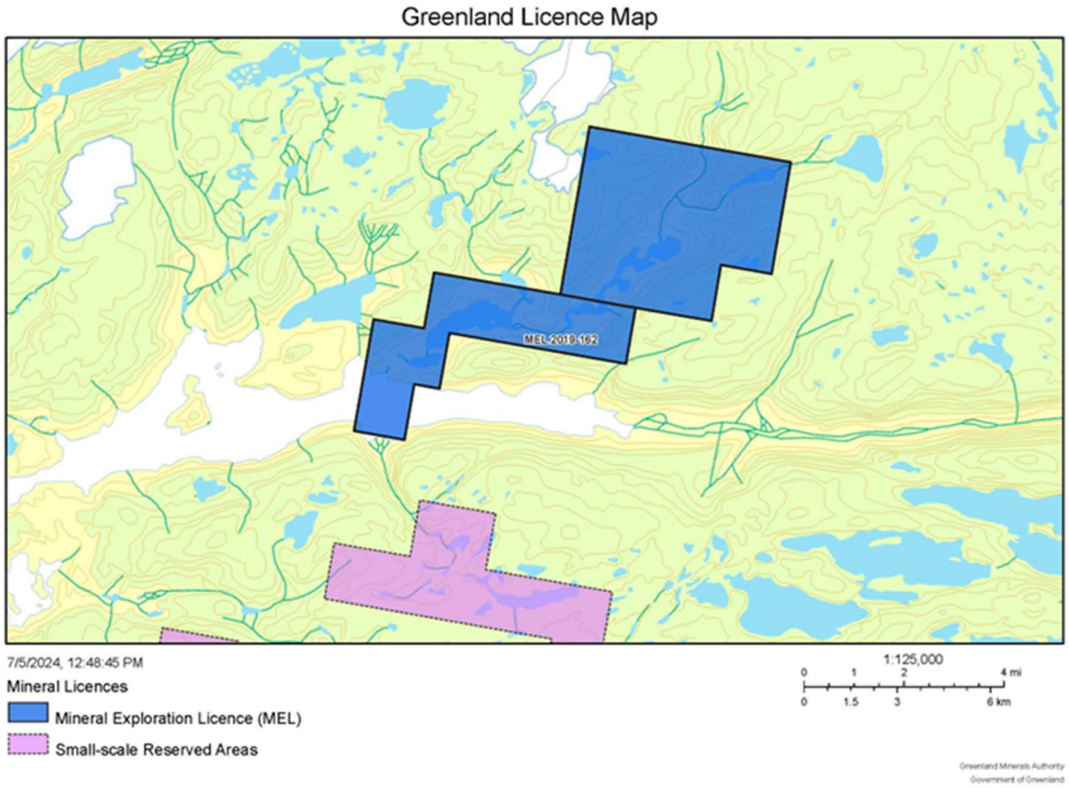
4.1 Project location

Majoqqap Qaava is located in Kommuneqarfik Sermersooq in southwestern Greenland at latitude 63 ° 13'N and longitude 50 ° 12'W. The license area, as shown in Figure 4-1: Over, has a size of 51 km2 and is located 130 km southeast of Greenland's capital Nuuk and 30 km northeast of the nearest settlement Qeqertarsuatsiaat (Fiskenæsset). The project area is located in the inner part of Qeqertarsuatsiaat Kangerdluat along the Kuussuatsiaat valley.

The topography in the Fiskenæs region varies from low-lying areas (0-500 m), dominated by low mountain ridges with moderate to dense vegetation along the coastal areas, to areas with greater relief (up to 1500 m) in the inland area next to the Inland Ice. In the area there are a number of deep fjord systems, which are predominantly ice-free all year round. GAM’s project area includes terrain at sea level up to approx. 1000 m altitude near the top of Majoqqap Qaava. The anorthosite deposit itself to be extracted is located at an altitude of 300-400 m 12 km from the coast. From the mining area a system of lakes follows the Kuussuatsiaat valley before ending at the north coast of Qeqertarsuatsiaat Kangerdluat.

There is currently no infrastructure that connects the project area with the rest of Greenland, which is why in connection with the project there is a need for the establishment of port facilities, road connections and accommodation for the employees at the mine.

Figure 4-1: Overview of the license area



Source: *Project description Majoqqap Qaava. Greenland Anorthosite Mining, 2020*

4.2 The Majoqqap Qaava project

Anorthosite is a white rock that consists primarily of the chemical components; aluminium, silicon and calcium. The deposit at Majoqqap Qaava is unique in its size and chemical composition, which makes it especially ideal as a raw material for the production of fiberglass, which i.e., can be used in the wind turbine industry, for cars, boats, aircraft, etc. Anorthosite can also be used as aggregate in the production of insulation materials (rock wool), ceramics, road materials and cement as well as for paints and coatings and other aluminium-based products.

The mine will be in planned operation 7 days a week during the working season for the mine and the processing plant, which will be 36-48 weeks/year. For the remaining period, the mine will run in a maintenance scenario. Once GAM has entered into the necessary long-term contracts with potential off-takers, the current mineral resource will correspond to a mining period of at least 25-30 years, but the area contains expected resources for a minimum of 50-100 years of further operation.

GAM's intention is to establish a mine that is both profitable and "green" – thereby minimizing the impact on the local environment and using the most optimal logistical set-up. A number of key parameters thus dictate which production scenario will ultimately be chosen, including the approach to green energy sources, the price of energy, logistics, possibility of purifying the finely ground material, handling of products, compliance with quality control process requirements from buyers, as well as establishing the necessary customer agreements with end users.

Therefore, GAM considers different scenarios for production, which differ in relation to the quantities and types of materials produced. In the project description, a minimum scenario (scenario A), which consists of a relatively simple processing circuit, where material for E-glass, ceramic products and fillers for paint is produced, and a maximum scenario (scenario B), which involves a more complex processing circuit for production of E-glass, rock wool, ceramic products and fillers for paints is presented. In both scenarios, the finest product will be an optically and magnetically separated material with a grain size of approx. 700µm (0.7mm).

Since the preparation of the Terms of Reference commission, GAM has been in dialogue with a number of the world's leading producers of the products for which the mine intends to supply raw materials. The conclusion of offtake agreements and understanding of requirement specifications are thus decisive for the mine to be established at all, and largely defines the approach that GAM must implement in the processing and transport of anorthosite. These initial negotiations have made it possible for GAM to nuance the production scenario within the scope of the commission's description. In both scenarios, this means that products for the insulation industry, most ceramic products and certain filler products, can be fully processed in Greenland, and can be shipped out and sold directly to the end users, while products for the E-glass industry will have the final milling to 45 µm carried out closer to the end users. For E-glass products, however, by far the largest part of the processing will still take place in Greenland, as the ore needs to be excavated, coarsely crushed, optically sorted, finely crushed and magnetically separated before shipping.

There are several reasons why the last fine milling for E-glass is placed outside Greenland, which is based partly on the intention to establish a mine that is both profitable and based on green solutions to the extent possible and partly consideration for the local area and buyers of the product. Specific:

- Buyers of the material want a strict control of the fine milling for quality reasons, and that this is placed relatively close to the plants that must use the product to avoid contamination. Experience from previous use of anorthosite has shown that the introduction of even very small amounts of foreign materials in connection with ship transport, trans-shipment and other handling has a negative influence on the smelting process. There is thus a mandatory requirement for clean handling following the milling to 45 µm, where the product is transported in closed silo trucks or closed containers that are cleaned daily following specific demands and driven directly for reloading at the plants' production silos.
- The final fine milling to 45µm is very energy intensive and will therefore require a large diesel consumption if this were to be done using the mine's power plant. This contradicts requirements from the buyers, who in order to be able to supply a green product, also make demands on GAM to use as much green energy as possible. The new ESG laws also come into play, which must be fully implemented at the end of 1Q 2023, where the seller of an end product has ESG responsibility for the entire value chain - the buyers thus demand more proximity and control of the part of the processing that may pose a risk to the end-user of a product. When grinding in Europe, it will be possible to use more green forms of energy for the process, as well as requirements for purity during the final process and until the production silo can be remunerated. However, these requirement specifications also mean that GAM can negotiate a higher price for E-glass products, as the quality of the anorthosite material provides a number of process-related and economic advantages for the manufacturers. This will ultimately increase GAM's profit and thus also increase tax revenue and royalties in Greenland.

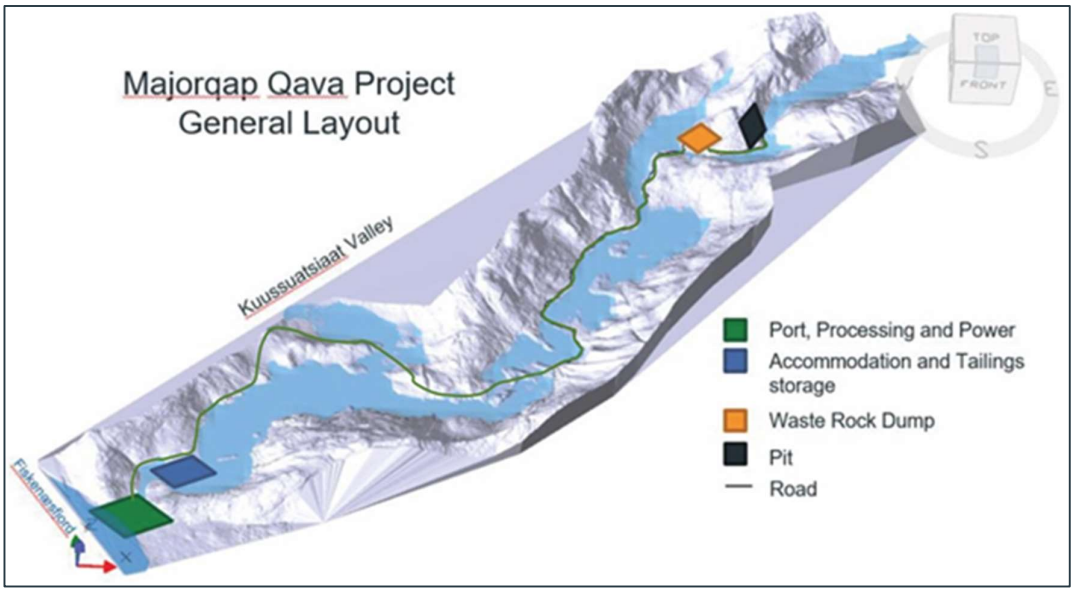
- Handling of very fine material in the project area is difficult and will entail a higher risk of increased dust nuisance both in the mining town and in connection with loading and shipping. At the same time, the material tends to clump together during the fine milling due to moisture and condensation, which will be easier to handle outside Greenland.
- Freight of a 45µm material will require special cement vessels, which are significantly smaller in size than the bulk cargo vessels otherwise used. The use of larger bulk cargo ships will thus require less shipments and reduced CO2 emission as well as limit impact from ship traffic in the fjord. The price of freight with these smaller ships will also affect the case negatively and possibly make it uneconomical.

The project is expected to mine between 400,000 and 1,000,000 tonnes of raw anorthosite per year with a subsequent processing and shipping of approx. 300,000 to 800,000 tonnes of finished and semi-finished material (E-glass) for Europe, North America and possibly other geographical locations (depending on whether scenario A or B is selected). In the first years of the mine's lifetime, a reduced production plan is expected, as the mine is scaled up and purchase agreements are established.

4.2.1 Project layout and elements

The general layout of the project is shown in the figure below.

Figure 4-2: Layout of the Majoqqap Qaava-project



Source: *SRK Consulting 2020.*

As can be seen from the figure, the project generally consists of the following elements:

- Mine and possible waste storage at mine
- Port facilities
- Processing plant and storage area
- Tailings site at the coast
- Accommodation
- Haul road

Mine and possible waste storage at mine
The project presupposes an open pit and includes drilling and blasting of solid rock, loading and transport of ore from the mining area to the processing plant. The raw anorthosite will be drilled and blasted using ANFO (explosive consisting of ammonium nitrate and diesel).

Since the anorthosite ore is exposed on the surface, the planned mining design will not result in the deposition of large amounts of unprocessed anorthosite and other surface materials (so-called "stripping"). If necessary, a landfill for such surplus materials is established approx. 3.5 km west of the mine along the haul route to the processing plant and port facilities. The material will primarily consist of surface soil and coarsely blasted anorthosite blocks which are not included in the resource calculation, and therefore cannot be classified according to this. The material will not contain harmful materials or cause dust nuisance in connection with disposal.

Processing plant and storage area
Anorthosite ore from the mine is transported by truck to a processing plant on the coast, where the ore is crushed in various stages, and sorted in a resp. optical and magnetic separation. GAM does not expect to stockpile large quantities of unprocessed anorthosite. At times, it may be necessary to stockpile smaller quantities if extraction rates exceed the production plans at the processing plant. There will be storage of larger blocks of anorthosite, so the storage will not be associated with dust or leaching problems. The storage area is expected to be located in the immediate vicinity of the processing plant.

The processing of anorthosite contains a number of different steps and generally consists of the following:

- Primary crushing with jaw crusher (<12 cm)
- Primary screening
- Optical sorting
- Secondary screening
- Secondary crushing with cone crusher (<3 cm)
- HPGR grinding (<0.7-0.8 mm)
- Magnetic separation circuit

In addition, there will be a number of technical differences in what goes on in the individual steps in resp. Scenario A and Scenario B, the latter involving several product types to be grinded and sorted. In neither scenario A nor B, any kind of chemicals or other solutes are used in the processing, which is purely mechanical using crushers, HPGR grinding and optical as well as magnetic separation systems.

Storage of dry products can be done on the coast as close as possible to the port facilities. However, it must be ensured that there is free movement of vehicles on a reinforced road area connected to the jetty and the access ramps. Depending on the production scenario, storage of product materials will take place in up to several different formats; outdoor storage (B), covered storage (A + B). Fixed and mobile transport units will be located so that they can easily move product materials from the storage facilities to a mobile ship loader on the jetty.

Tailings site at the coast
Tailings material consists of two main types of materials: Coarse 20-120 mm pegmatite material and fine-grained (<700 to >53 µm) magnetic material. In addition, in scenario A, fine material

<53 µm may be sorted out, although the intention is that this material can be mixed with other product types. At present, it is considered that waste materials do not pose a risk with regard to leaching of harmful metals [ARDML] and otherwise do not contain toxic or harmful elements. This will be finally verified by GAM once ongoing geochemical studies are completed.

Two possible tailings sites have been located north of the maintenance and accommodation area. One site involves land-based tailings, while the other involves depositing tailings in a lake immediately northeast of the mine camp. The main advantage of both locations is the proximity to the processing plant.

Port facilities
Bulk ships of up to 45,000 DWT (Handymax bulk carriers), with a total size [LOA] of up to 180 m length, 28.5 m width and 10.5 m draft, are expected to dock at the port. In order to create the greatest possible operational flexibility, the quay facility will be dimensioned for marginally larger vessel sizes (Supramax bulk carriers) with a total size [LOA] of 199 m length, 32 m width and 12.2 m draft.

GAM has not yet decided which solution will be used to establish a port facility. However, this will certainly consist of a floating barge quay connected to a fixed port installation, and will depend on the dialogue the company has with the construction company, which must carry out the task.

A mechanical ship loader will be placed on the quay to be able to effectively load bulk carriers. The ship loader is equipped with suitable dust-absorbing studs and shielding plates that minimize dust nuisance and ensure an even distribution of materials in the ship's hold.

Accommodation
As described in section 4.1, the project is located approx. 30 km from Qeqertarsuatsiaat, which is the nearest settlement. This means that in connection with the project, a permanent accommodation must be established for the employees. The accommodation is located, cf. Figure 4-2: Layout of the Majoqqap Qaava-project, in the immediate vicinity of the port and the processing plant. The accommodation area consists partly of buildings with rooms, partly a number of common areas, including TV and living room, kitchen and canteen.

The accommodation units will consist of prefabricated modules. The total capacity of the camp is based on 2 x 12-hour shifts, so there is room for the two shifts to be replaced and overlapped with two new shifts. In addition, extra capacity is included for unforeseen personnel (delays, skewed shifts, etc.).

Haul road
Today, there is no connection between the mining area and the location of the processing plant and the port facilities. In connection with the project, a road (17 km) will be established from the mine to the processing plant at the port. The haul route is expected to be a one-lane road with continuous fixed extensions of the road, where two trucks can pass each other on the way to and from the mine. The transport route is designed to follow the terrain in the most optimal and cost-effective way, so that the amount of blasting and road construction can be limited as much as possible.

Other infrastructure

In addition to the above main elements of the project, there will also be additional infrastructural elements to support the work:

- Administrative office buildings.
- Shift room (drying room).
- Workshop for vehicles and spare parts.
- Workshop and warehouse.
- Fuel depot.
- Nursing station and emergency aid (which can also be used by citizens of Qeqertarsuatsiaat). [10]
- Helicopter platform.
- Laboratory.
- Explosives depot.
- Power plant.
- Waste and wastewater management facilities.

4.2.2 Expected number of employees

The construction phase is expected to start in the second half of 2025, depending on how quickly the project is granted the necessary permits. During the construction phase, the crew will live in a camp in the project area built by GAM. The crew will predominantly work in rotating shifts, and the construction of infrastructure and buildings is expected to be completed in 2027.

It is expected that 30-40 employees will be involved in the construction phase. The following job functions will be needed: Construction manager and foremen, surveyors, construction economists, boiler operators, welders, plumbers, fitters, electricians, carpenters, concrete workers, machine operators, crane operators, painters, miners and unskilled workers.

At present, it is not possible to accurately estimate the number of employees in the operational phase of the project. GAM has initially assessed that in scenario A there is a need for approx. 60 employees and in scenario B approx. 90 employees if the assumed production targets are achieved. The table below provides a preliminary overview of the workforce by category. The decision on tugboat will depend on the result of ongoing analyses of sailing conditions resp. required ship types for the chosen business scenario.

Table 4-1: Preliminary evaluation of the necessary work force

		Scenario A	Scenario B
Mine operation	Mine manager	1	1
	Drillers	3	3
	Shift foreman	1	1
	Miners	1	2
	Excavator operator	2	2
	Truck driver	9	11
	Machine operator	3	6
	Operator	3	5

[10] GAM intends that the nursing station can also to some extent be used to serve the citizens of Qeqertarsuatsiaat. Ie. citizens with illnesses or injuries can visit the mine if this, by agreement with the municipality, is more effective than going to Nuuk or waiting a week for the nurse in Qeqertarsuatsiaat to arrive.

	Workers	3	4
	Geologist	1	1
Processing plant	Plant manager	1	1
	Shift foreman	2	2
	Crushing operator	2	4
	Technical operator, processing plant	2	2
	Foreman maintenance	2	2
	Technician maintenance	2	4
	Laboratory technician	1	2
	Workers	1	2
Mine maintenance and technical operation	Technical manager	1	1
	Mechanics	2	5
	Electrician	1	1
	Workers	2	5
	Engineer	1	1
	Storage manager	0	1
	Environmental technician	1	1
Daily operation	Camp manager	1	1
	Chef and kitchen assistants	5	6
	Cleaning assistants	2	2
	Nurse	1	1
Technical maintenance of camp	Janitor	3	3
	IT-technician	1	1
Tug boat		0	3
TOTAL	**TOTAL**	**61**	**87**

In order to meet the requirements, set by the Greenland Government, a closure plan for the mine will have to be assessed and adjusted on an ongoing basis in accordance with the activities that take place in the project area. At present, GAM has drawn up an overall plan for the closure of the mine. The closure of the mine is expected to take up to 1 year from the time the mine closes. The closure is expected to be relatively simple and will ensure the removal of all equipment, the demolition of building structures and the proper closure of the area around the mine to avoid intrusion by unauthorized persons. Thus, a safety zone will be established around the breach, so that the public cannot inadvertently access this and be harmed.

The shutdown is expected to require 10-15 employees. The following competency profiles are expected to be used; machine operators, miners, demolition workers, electricians, carpenters, welders and a foreman.

4.3 Alternative project proposals

In the following, the two prepared project proposals for the mining activities at Majoqqap Qaava are presented. The descriptions are based on the current available technical and economic data as well a product specification from end users. Information and data are still being obtained, and on

the basis of this as well as feedback from the sales activities, the most favourable and competitive set-up for the mining operation will be chosen. This relates in particular to conditions in connection with production, markets and their sizes, infrastructure and the size of the processing plant.

The intention is to establish a mine that is both "green" and economically profitable in order to minimize the impact on the local environment and use the most optimal logistical set-up. Which production scenario is ultimately chosen will therefore depend on a number of key parameters, which include:

- Indications from the markets regarding distribution and specifications of products
- The approach to partnerships with grinding plants for E-glass or decisions about own grinding sites in e.g., Europe and North America, which in turn depend on logistics for customers and not least the access to green energy sources (wind, water, solar, etc.) in Europe and North America at relevant locations, as a partial alternative to the use of diesel in Greenland, which leads to higher CO2 emissions and conflict with requirements for sustainable production
- The price of energy
- A slightly larger (and more expensive) infrastructural footprint is required for scenario B compared to scenario A.

The production description in Table 4-2 contains a description of a minimum scenario, scenario A, and a maximum scenario, scenario B, respectively.

Table 4-2: Project descriptions[11]

	Scenario A	**Scenario B**
Mine	Open pit 36-48 weeks/year (as a starting point March-April to December), two 12-hour shifts, seven days/week. The mine runs at a reduced level of maintenance for the rest of the year. Employment needs for approx. 60 people based on two-team shifts. 560,000 t/year RoM production = 1,700 t/day	Open pit 36-48 weeks/year (as a starting point March-April to December), two 12-hour shifts, seven days/week. The mine runs at a reduced level of maintenance for the rest of the year. Employment needs for approx. 85-90 people based on two-team shifts. 930,000 t / year RoM production = 3,500 t/day.
Haul road	Blasted ore is transported 17 km from the mine by truck to the processing plant at the port.	Blasted ore is transported 17 km from the mine by truck to the processing plant at the port.
Processing	A jaw crusher is used to reduce the rock to <120 mm. Optical sorting of <120 mm crushed material to sort out unwanted pegmatite from the anorthosite, as well as lower the content of silicon and alkali metals. Pegmatite and other sorted material are estimated at 5-10 per cent.	A jaw crusher is used to reduce the rock to <120 mm. Optical sorting of <120 mm crushed material to sort out unwanted pegmatite from the anorthosite, as well as lower the content of silicon and alkali metals. Pegmatite and other sorted material are estimated at 5-10 per cent.

[11] Greenland Anorthosite Mining (2020).

	Secondary cone crushing and sieving, to reduce the ore to <20 mm. Grinding (HPGR) and sieving, to reduce the ore to <0.7-0.8 mm. Separation and sieving of <53 µm size fraction. Magnetic separation of approx. 400,000 tons (E-glass / ceramic / filler material), to reduce the iron content. Magnetic concentrate is estimated at 20 per cent.	Material between 60 and 120 mm is sorted for stone wool via a sieve; Secondary cone crushing and sieving, to reduce the ore to <20 mm. Grinding (HPGR) and sieving, to reduce the ore to <0.7-0.8 mm. Separation and sieving of resp. <0.8 mm, <0.2 mm. Magnetic separation of approx. 400,000 tons (E-glass / ceramic / filler material), to reduce the iron content. Magnetic concentrate is estimated at 20 per cent.
Storage	Covered storage with a capacity of app. 50,000 tons at port site.	Outdoor storage up to 5,000 m2 of >60 to <120 mm coarse rock wool material. Divided covered warehouse with a capacity of 24,000 x 2 tons of fine stone wool material of resp. <0.8 and <0.2 mm.
Tailings	c. 25,000-50,000 tons of pegmatite material per. years to tailings site. 70,000-125,000 tons of magnetic and fine material per. year to tailings site.	c. 55,000-65,000 tons of pegmatite material per years to tailings site. 70,000 tons of magnetics per. year to tailings site.
Shipping	The final product is shipped to Europe in 34,000-45,000 tons of cargo ships approx. 7-10 times per. year. Products for ceramics are sent directly to end users, while products for E-glass require a final milling to 45µm close to the purchaser as part of requirement specifications.	The final product is shipped to Europe in 34,000-45,000 tons of cargo ships approx. 18-25 times per. year. Products for ceramics are sent directly to end users, while products for E-glass require a final milling to 45µm close to the purchaser as part of requirement specifications.

4.3.1 Processing in Greenland

Based on the volume of mined anorthosite ore, GAM plans to locally produce a number of industrial products on-site at Majoqqap Qaava. The final products will be sand-like materials (<700-800 µm grain size), characterized by a high content of aluminium, silicon and calcium and a low content of other chemical elements. Both ore and products contain no heavy metals/metals or other toxic/harmful elements of significance.

The industrial customers to whom the products are to be sold have different requirement specifications for the material to be used in their factories. This means that GAM must "prepare" certain products to a smaller size fraction than is practically and economically possible in Greenland.

The final crushing/grinding of the anorthosite ore in Greenland to <700-800 µm is done with a so-called HPGR, which is a type of crusher where two large rotating wheels grind the ore into sand fraction. As an extension of the HPGR process, a so-called "air classifier" is used, which, using air pressure, then distributes the ground material into the desired size fractions.

If a customer requires that a final grind finer than <700-800 µm is required for them to purchase the product, GAM will do this near that customer's factory. There are several key factors that underlie this choice, including the following:

- Requirements for the implementation and monitoring of quality control with the processed minerals, in order to comply with strict environmental requirements, and to ensure compliance with potential requirement specifications in relation to contamination and new ESG regulations,
- The company is required to establish a mine that is both economically profitable and at the same time maintains a sustainable production that is based as far as possible on the use of green energy sources,
- Difficulties when handling ultra-fine material in the project area, in the form of risk of dust nuisance and clumping of the material due to moisture,
- Ordinary bulk ships and the inability of port facilities to handle ultra-fine powder for onward transport (requirement for special transport and loading/piloting facilities),
- Increased operating and construction costs – finely ground products are very energy-intensive to produce and expensive to store/transport in bulk.

4.3.2 Consequences if ultra-fine milling took place in Greenland

In the following, the project alternative is evaluated, where GAM grinds ultra-fine material to <45 µm in Greenland. The result of this alternative will entail a number of environmental and economic consequences.

The E-glass industry currently mainly uses kaolin as a source of aluminium in fiberglass. Kaolin is naturally a very fine material. Therefore, customers are accustomed to using a fine material in their fiberglass production, and the factory's processes are designed according to this size fraction.

Example of HGPR plant similar to the one that GAM intends to use both in Greenland and in Europe/North America.

The final milling process requires a lot of power and energy to turn the crushing wheels, thereby reducing the anorthosite rock to a powder. The required amount of power is not available locally

and must be produced on site using diesel generators. The difference between crushing to <700-800 µm and <45µm is very large, and in scenario A in combination with increased ship traffic will increase the project's CO2 footprint by 472,000 tons (+55%), NOx by 5,400 tons (+60%) and SOx by 270 (+60%) tonnes over a 30-year mine life if this was done in Greenland. In scenario B, the project's CO2 footprint will increase by 497,000 tons (+42%), NOx by 5,500 tons (+43%) and SOx by 270 (+44%) tons over a 30-year mine life if this was done in Greenland. The above assumes that green energy is used in Europe or North America for the final grinding, which is not possible in Greenland.

- Installed generator capacity without grinding to 45 µm: c. 1,200 kW,
- Installed generator capacity with grinding to 45 µm: c. 2,500 kW,
- Additional diesel consumption during grinding in Greenland: 0.9 Mill. (A) - 1.2 Mill. (B) litres per year,
- Additional power requirements with grinding to <45 µm: 3,430,000 (A) – 4,550,000 (B) kW hours per year,
- Additional CO2 production from grinding in Greenland: 15,700 (A) - 16,600 (B) tonnes per year.

The establishment of final milling of certain product types outside Greenland is expected to involve 6 jobs in a location with readily available green energy. If this process took place in Greenland, it would only increase the labour supply by 2 people, since it is already expected to employ 13-19 people (table 5-1) in the processing plant for comparable job functions, which could also be utilized in the final milling.

Tabel 4-3: Consequences of milling to 45 µm in Greenland

	Description	Consequence
Increased CO2, NOx and SOx emission	Increased consumption of diesel to run HPGR plant to <45 µm. Increased ship traffic in the fjord with 10,000 DWP cement ships rather than 35,000-45,000 DWP bulk ships.	Total extra CO2 emission per year of 15,700-16,600 tonnes. Total extra NOx emission per year of c. 180 tonnes. Total extra SOx emission per year of c. 9 tonnes.
Work force	Additional labour required to handle grinding from <700-800 µm to <45 µm.	Max. two additional employees in Greenland to operate additional HPGR grinding. Existing labour from other parts of the processing plant will be able to be used to a large extent.
Fuel	There will be a need to purchase and set up additional fuel tanks to accommodate the increased KWh consumption on-site in Greenland.	Diesel consumption in scenario B increases from 1.69 Mill. ton per year to 2.89 Mill. ton per year. An increase of 71% greater tank capacity, and correspondingly increased sailing from Polaroil in the fjord.
Processing plant and other infrastructure (CAPEX)	Establishment of additional HPGR plant and air classifier as well as other minor infrastructure.	Marked increase in Greenlandic capital costs if extra equipment, buildings and machinery are to be established in Greenland. Total additional costs of $5.4M.* *Costs for additional HPGR facilities will possibly be transferred to a European or North American facility if there is no locally existing facility that can be used.

Storage capacity and harbour facilities (CAPEX)	Construction of a silo for the storage of >15,000 tonnes of <45 µm material in Greenland, an additional ship loader (scenario B) and closed pneumatic transport system, as well as more efficient systems for dust handling.	Additional capital expenditure in Greenland of USD 2.98M (silo) and USD 2.1M (ship loader). * * Costs for the silo will possibly be transferred to a European or North American facility if there is no locally existing silo that can be used/rented.
Generator capacity (CAPEX)	A larger HPGR solution will require an expanded generator capacity.	The power plant is increased with an extra 400 kWe generator in scenario A and a 1000 kWe generator in scenario B. This entails an additional investment of 1.43 M USD and 1.78 M USD in the two scenarios.
Operating costs (OPEX)	Cost per tonne produced and shipped.	Higher fuel and KWh consumption, additional plant investments and extra shipping costs increase the price per ton of product with 16.6 USD in scenario A and 6.7 USD in scenario B.
Shipping	Transport and handling of finely milled material.	Involves increased environmental and health risk for the spread of dust during loading. As far as possible, bulk carriers do not want to transport large quantities of fine material due to the risk of "cargo liquefaction", where a sudden displacement in the weight distribution in the ship's hold can cause shipwreck.
Risk of moisturization and clumping of material	Finely milled material has a significantly higher tendency to clump together if exposed to moisture than coarser material.	Anorthosite material with lumps cannot be optimally used in the customer's melt bath, as the lumps require a lot of energy to dissolve. The customer can demand compensation or cancel the agreement. The value of the product in a 10,000-tonne cement ship for E-glass is in the order of 1.5-2.0 million. USD.
Risk of contamination	If milling in Greenland, the material will have to be handled and transported multiple times compared to doing this in the immediate vicinity of the customer. Therefore, it is a requirement from the customer that this must take place close to the factory.	Increased risk of contamination of foreign materials from ships' holds, port facilities and storage. The customer's quality control will in the worst-case lead to rejection of the material. The value of the product in a 10,000-tonne cement ship for E-glass is in the order of 1.5-2.0 million. USD.

4.3.3 Status quo alternative (no project)

In the following, the project alternative is assessed, where GAM's mining project is not initiated. The result of a status quo alternative will be that there will be no environmental or societal impacts, advantages as well as disadvantages. The purpose of the SIA process is precisely to uncover expectations of the potential societal impacts associated with the project. The analysis of the status quo scenario as a project alternative thus depends on identified societal impacts and expectations of their significance.

In the following, the assessed most important advantages and disadvantages of failing to start the project are reviewed.

Advantages:
For employment and occupation especially in Qeqertarsuatsiaat, there will be some likelihood that the mine will compete with especially the local fish factory around the unskilled part of the workforce in the settlement. Local activities related to fishing and hunting can also be affected by disturbances in areas, due to the mining activities. Failure to develop the project removes the likelihood of impact on local businesses.

When developing the mining project, there will also be a number of risks that cannot be ruled out. This is especially true; possible risk factors associated with work in the mine (noise, dust, heavy lifting, etc.), risk of increased amount of alcohol and / or drugs as well as disturbance of areas in and around the fjord to the detriment of activities of sociocultural and traditional value. The mining project will also include areas (the exploitation area) that will not be used for maintenance activities by the locals.

For GAM, there will be no benefits from failing to develop the project.

Disadvantages:
If one fails to develop the project, there will be particular disadvantages associated with the lost opportunities for employment as well as the derived effects thereof, including particularly indirect and induced employment and business opportunities both locally, municipally and nationally. In addition, there are expectations of positive cumulative effects due to the retention of employment, as well as the upgrading of the workforce in general, but especially within the raw materials sector. The anorthosite project is expected to create opportunities for education, training and education of the Greenlandic workforce. If the project is not developed, these positive societal effects will be absent.

The project will generate significant tax revenue in Greenland from both personal income tax and corporation tax. If the project is not developed, this income for both the Greenland Government and Kommuneqarfik Sermersooq will lapse.

The project also contributes to the development of the raw materials sector and thus contributes positively to its development, both in terms of competence level, knowledge and the financial resources present.

For GAM, the status quo alternative will be associated with financial losses associated with investments in the investigation as well as various feasibility studies associated with obtaining the necessary permits to initiate the project.

5. DESCRIPTION OF BASELINE

5.1 Social and cultural framework

Greenland is the world's largest island, and approx. 81 pct. of the island is covered by ice. With a population of just 56,000 people, the population density is the lowest in the world at 0.3 people per square kilometre, if you just include the ice-free areas. The population is mainly resident on the southern part of the West Coast, where also the capital Nuuk is located with approx. 19,000 inhabitants. The climate in Central and South Greenland is low and subarctic and thus milder than the north and northwest of Greenland. [12]

The first immigration to Greenland was made between 4,000-5,000 years ago. Subsequently, Greenland has experienced several waves of settlements, and the current Greenlandic population is descended from the last migration, which took place around the year 800 AD. Today's Greenlanders are an indigenous Inuit people and call themselves Kalaallit. Kalaallit makes up approx. 85 pct. of the Greenlandic population, the rest of whom are primarily Danes. Greenlandic (West Greenlandic) is the official language and is used together with Danish in official contexts. However, several different dialects are spoken in eastern and northern Greenland. [13]

Greenland has been an autonomous region within the Commonwealth since 21 June 2009 and, together with Denmark, became part of the EU in 1973, but left the EU after a referendum in 1985. [14]

5.1.1 Politics

Nuuk is home to the Greenland Government, Naalakkersuisut, and the Parliament of Greenland, Inatsisartut, which has 31 members. There are 11 ministries under this[15]. Election of members to Inatsisartut is held every four years, where a candidate can run for a party or as a non-attached member. After each election, the new government is appointed by the Parliament, as well as a chairman of the government, Naalakkersuisut Siulittaasuat. After the April 2021 election, seven parties were represented in Inatsisartut. The largest parties are Inuit Ataqatigiit ("Inuit Cohesion") and Siumut ("Forward"). Greenland has two seats in the Danish Parliament, which are elected in the Danish parliamentary elections. In April 2021, Inuit Ataqatigiit Party (IA) formed a coalition with Naleraq.

The five Greenlandic municipalities also have elections to the municipal council every four years. The absolute largest party in Kommuneqarfik Sermersooq in the election to the municipal council in 2021 was Inuit Ataqatigiit with 45.1 per cent. of the votes, the second largest party Siumut received 29.4 per cent. of the votes. [16]

The District Board of Qeqertarsuatsiaat consists of five members and meets every two months. Cases concerning the settlement are dealt with here. The actual election of the district council follows the local elections. The district council is serviced by the branch office of Qeqertarsuatsiaat, which is under the head of the citizen administration in Paamiut. The head of the citizens' administration reports directly to the head of the secretariat for the mayor's secretariat. [17]

[12] Grønlands Statistik (2021).
[13] Naalakkersuisut (u.å.a).
[14] Ibid.
[15] Departementer (naalakkersuisut.gl)
[16] Grønlands Statistik, Tabel [SADLANST], 1979-2021
[17] Kommuneqarfik Sermersooq (2016).

5.1.2 Civil society

The Greenlandic labour market is organized into trade unions and associations. SIK (Sulinermik Inuussutissarsiuteqartut Kattuffiat) is Greenland's largest trade union and organizes short-skilled and unskilled workers under both private and public employers. Most miners are organized by SIK. There are 20 local associations under SIK in towns and settlements along the coast. The boards of the local associations appoint delegates to the congress. Qeqertarsuatsiaat has a local association consisting of five board members. [18]

The interest group KNAPK (Kalaallit Nunaanni Aalisartut Piniartullu Kattuffiat) is an association of local associations that work for business development for Greenlandic fishermen and catchers economically, socially and culturally. The association is organized with a general meeting, the main board and including an administration and an executive committee. In addition, there is advice for the different types of fishing and hunting, which are also linked to the local associations. Qeqertarsuatsiaat has a local association under KNAPK. [19]

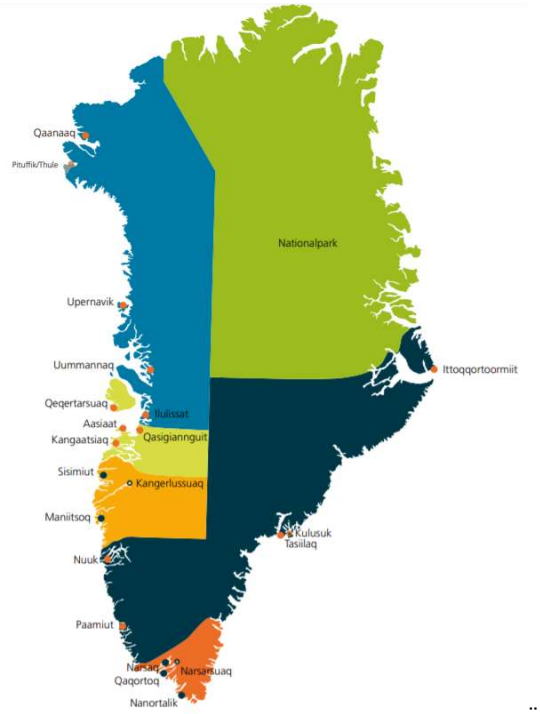
ICC Greenland is an organization under the international organization Inuit Circumpolar Council, which represents Inuit in the Arctic regions of Alaska, Canada, Greenland and Russia. The organization works internationally to maintain the unity of the Inuit, promote rights and interests, secure and protect culture, society and the environment, as well as full participation in the social development of the Inuit's home countries. [20]

5.2 Demography

Greenland is divided into five municipalities: Kujalleq Municipality, Kommuneqarfik Sermersooq, Qeqqata Kommunia, Qeqertalik Municipality and Avannaata Kommunia. The latter two municipalities were first formed in January 2018 from the previously merged municipality of Qaasuitsup Kommunia. As of 1 January 2022, Greenland's population is calculated at 56,562 inhabitants. Nuuk is the largest city with 19,261 inhabitants, located in Kommuneqarfik Sermersooq, which is also the largest municipality measured by population with 23,861 inhabitants.

[18] Sulinermik Inuussutissarsiuteqartut Kattuffiat (2022).
[19] Kalaallit Nunaanni Aalisartut Piniartullu Kattuffiat (2020).
[20] Inuit Circumpolar Council (u.å.).

Figure 5-1: Greenland's municipal division



Source: *Grønlands statistik 2021: 4.*

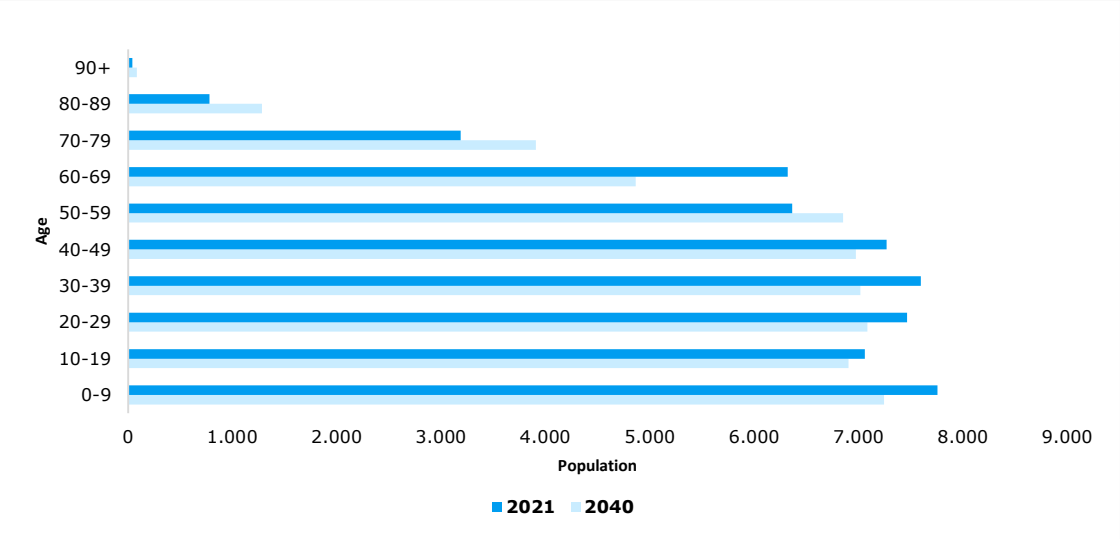
Cities and settlements are located along the coast, with app. 80 percent of Greenland's land area covered by (inland) ice. About 60 percent of the population live in one of the five largest cities; Nuuk, Sisimiut, Ilulissat, Aasiaat and Qaqortoq. The number of inhabitants in the cities has increased since the 1960s due partly to a general population growth and partly due to migration from settlement to town. The population consists of slightly more men than women with a ratio of approx. 1.1 men per woman. It is expected that there will be a reduction in the total population in the coming years, so that from 2021 to 2040 there will have been a decrease of approx. 7.5 pct. In Kommuneqarfik Sermersooq, an increase in the number of inhabitants is expected, as Nuuk, but also the two larger cities Paamiut and Tasiilaq, are expected to experience a population increase. [21]

The population growth in the cities is partly due to migration from settlement to town, which has mainly taken place since the 1960s, when the Greenland Commission worked with incentives to gather the population in larger settlements, including the provision of new housing, access to shops and schools. [22] The internal migration from outlying areas to the cities in Greenland over the last 50 years is considered extensive, considering the size of the population. Developments in fertility, mortality and migration are expected to cause Greenland's population to grow older by 2050 and fall to less than 50,000 inhabitants if no changes occur in relation to current projections. [23]

In line with the development in migration from outlying areas to the towns, the number of people per household has also decreased. At the national level, the number of people per household has fallen from just under three people per household in 1994 to 2.6 people per household in 2021. [24]

[21] Grønlands Statistik (2021) & Grønlands Statistik, Tabel [BEDSTA], 1977-2022.
[22] Hamilton & Rasmussen (2010).
[23] Grønlands Statistik (2021).
[24] Grønlands Statistik, Tabel [BEDHUS1], 1994-2022.

Figure 5-2: Population by age 2021 and projection 2040



Source: *Grønlands Statistik, Table [BEDPROG], 1977-2040.*

Qeqertarsuatsiaat is located between Nuuk and Paamiut approx. 130 km south of Nuuk. The name means 'the quite large island', and the town's other name, Fiskenæsset, refers to the former very large cod occurrence in the area. The town was founded in 1754 and became known in 1920 for the fact that there was cod in the mouth of the fjord all year round. However, the cod disappeared in the mid-1980s.

In connection with the population concentration in the 1950s and 1960s, most of the residents from the areas around Qeqertarsuatsiaat - Kangillermiut, Akunnaat, Ujarassiorfik, Kangerluarsussuaq (Grædefjorden) - were moved to Qeqertarsuatsiaat. This meant that construction of type houses in the settlement was initiated, and the number of inhabitants increased. When there were most inhabitants in the settlement, there were approx. 500 inhabitants, but the population has since then fallen sharply to the current level of 176 inhabitants. The population development thus follows the general trend in all of Greenland and Kommuneqarfik Sermersooq, where the population in the settlements moves to the larger cities, including Nuuk and Paamiut. [25]

In Qeqertarsuatsiaat, the population has decreased by approx. 38 pct. between 1977 and 2022 from 290 to 176 inhabitants. In Qeqertarsuatsiaat, the number of persons per household has decreased from 3.4 to 2.7 over the same period. [26]

5.2.1 Age- and gender division

As mentioned above, the gender distribution in Greenland is unevenly distributed with more men than women. The figures in Table 5-1 show that the relationship between men and women has been stable in recent years. As can also be seen from the table, the same trend applies in Qeqertarsuatsiaat, where the ratio between men and women in 2022 is 1.4.

[25] Kommuneqarfik Sermersooq (2016).
[26] Grønlands Statistik, Tabel [BEDSTD], 1977-2022.

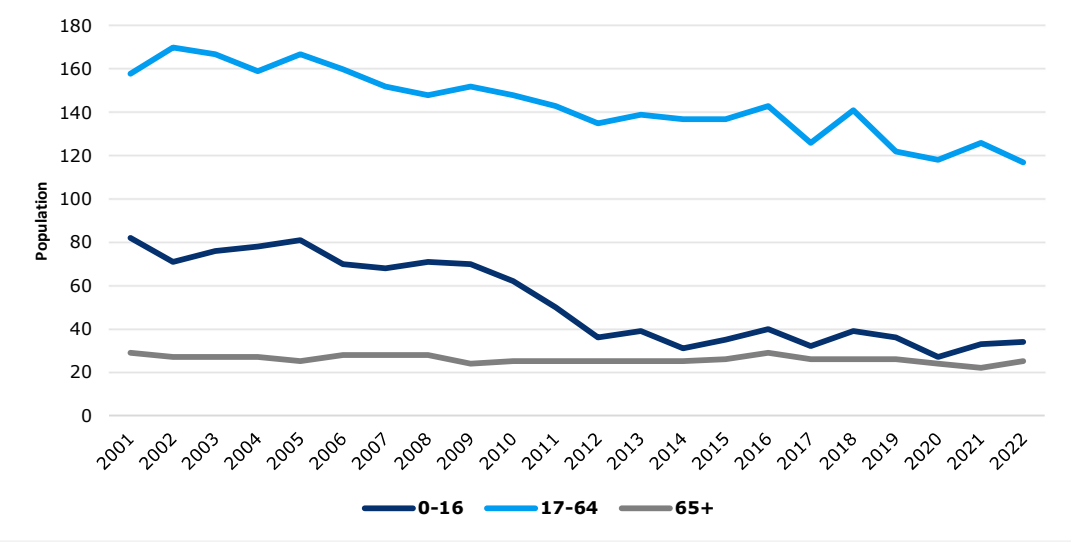
Table 5-1: Development in population by gender between 2015 and 2021

Population and gender division	2015			2022		
	Men	Women	Ratio	Men	Women	Ratio
Entire country	29.555	26.428	1,12	29.804	26.759	1,11
Nuuk	8.922	8.070	1,11	10.130	9.131	1,11
Qeqertarsuatsiaat	114	84	1,36	104	72	1,44

Source: *Grønlands Statistik, Table [BEDSTD], 1977-2022.*

The national development in the age composition of the population over the last 20 years has shown a steady increase in the number of older people (+65 years), while the number of young people under 16 has been steadily declining. In Nuuk, the number of young people under the age of 16 has been stable during the period, whereas there has been a large influx of people of working age between the ages of 17-64. Since 2001, the population of Nuuk has increased from 13,649 to 19,261. During the same period, the population nationally increased from 56,245 to 56,562 inhabitants. [27]

Figure 5-3: Population development in Qeqertarsuatsiaat by age, 2001-2022



Source: *Grønlands Statistik, Table [BEDSTD], 1977-2022.*

As can be seen from Figure 5-3, the change in the number of inhabitants of the Qeqertarsuatsiaat is characterized by a decrease in the number of children and adults of working age. Compared with Greenland as a whole, there is a smaller proportion of young people under 16 and a larger proportion of older people over 65 in Qeqertarsuatsiaat. [28]

5.2.2 Immigration and emigration and population mobility

Relocations in Greenland are distributed with a predominant proportion of relocations that take place within the cities, between the cities and from settlement to town. Historically, Greenlanders

[27] Grønlands Statistik, Tabel [BEDSTD], 1977-2022.
[28] Ibid.

have been very mobile to follow hunting opportunities. Today, mobility is largely due to relocations to work and education.

Table 5-2: Relocations between towns and settlements, from town to settlement and settlement to town, 2010-2020

Relocations	2010	2012	2014	2016	2018	2020
Between towns	4.553	4.440	4.695	4.926	5.133	4.651
Between settlements	346	418	345	397	318	300
From settlement to town	1.325	1.359	1.403	1.264	1.233	982
From town to settlement	1.070	1.079	1.201	1.138	1.098	956

Source: *Grønlands Statistik, Table [BEDBAF2B], 1993-2021.*

Net immigration in Greenland has been negative since 2010. The relationship between immigration and emigration largely reflects the connection to the Commonwealth. Most journeys thus take place between Greenland and Denmark. However, greater variation is seen in the numbers. [29] As Table 5-3 illustrates, net immigration has been consistently negative in the period 2010-2020, whereas there have been a few years of positive net immigration for persons born outside Greenland.

Table 5-3: Net immigration, 2010-2020

Net immigration	2010	2012	2014	2016	2018	2020
Born in Greenland	-276	-615	-449	-360	-266	-167
Born outside of Greenland	117	-97	-134	54	66	-874

Source: *Grønlands Statistik, Table [BEDBAF2B], 1993-2021.*

Qeqertarsuatsiaat has also experienced a large relocation as a result of relocation after education and work. The tendency in the settlement has been that once young people and adults have received either education or work in the cities, they do not return to the settlement again (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.3 Economy

5.3.1 National Economics

The most important industry in Greenland is fishing, where especially the export of shrimp, cod and halibut is important. However, dependence on fisheries means that the economy is vulnerable to price fluctuations. Development of sectors other than the traditional industries linked to fishing and hunting is therefore central to attracting additional income opportunities and foreign investment. [30] In addition, the block grant from the Danish state makes up a large part of the public budget in Greenland. The block grant was frozen in 2009 at DKK 3,439.6 million. DKK annually, which is continuously adjusted for Danish inflation. [31]

The importance of the fishing industry for the economy means that fluctuations in prices constitute a factor of uncertainty for both the industry as a whole but also for the country's overall economy. For example, exports fell in 2020 as a result of lower sales to restaurants and canteens, which is why the price of the most important export products fell by 10-20 percent. However, fluctuations in the prices of fish products of this magnitude are not unusual. For this reason, there is also a focus on developing a broader business base. [32]

[29] Grønlands Statistik (2021).
[30] Ibid.
[31] Departementet for Uddannelse (2022).
[32] Danmarks Nationalbank (2021a) & Danmarks Nationalbank (2021b).

Table 5-4: Development of Greenland's economy 2015-2022

	2015	2016	2017	2018	2019	2020*	2021*	2022*
BNP	-2,5	6,0	0,1	1,8	1,7	0,9	1,8	2,5
Private consumption	0,2	1,2	0,9	0,4	1,9	1,5	1,5	1,0
Public consumption	-0,6	1,5	1,7	2,7	4,3	1,5	0,4	0,4
Gross investments	10,2	9,3	-4,1	-3,0	46,6	0,2	4,8	8,0
Export of goods and services	11,8	16,9	-3,8	8,4	-5,3	-5,0	3,0	2,0
Import of goods and services	1,7	8,2	-3,5	5,0	18,9	-2,2	3,0	3,0

Source*: Danmarks Nationalbank (2021a) and Danmarks Nationalbank (2021b).* Note: **Prediction for 2020-2022, Økonomisk Råd and Danmarks Nationalbank.*

In the period 2017 to 2022, both GDP and private and public consumption have increased steadily. The continued economic development despite the corona crisis is largely attributed to the fact that passenger transport to and from Greenland has been done by plane, which has provided good opportunities to reduce the risk of infection. However, the pandemic has had negative consequences for the tourism industry. [33]

It is expected that the positive growth since 2016 will continue on the basis that there is growth in employment and that construction activity is very high due to large investments in infrastructure. Among these, the establishment of new airports in Ilulissat and Nuuk plays a significant role. In addition, there has been an increase in catches of sea-going shrimp fishing, which is of significant importance to the Greenlandic economy. [34]

The general management of the public sector in Greenland consists of the municipalities, the Greenland Government and the state. Public administration and service are handled by authorities and institutions, which mostly provide non-market services and redistribute income and wealth. As can be seen from Table 5-55, the largest items in the municipalities consist of expenditure on social protection, education and general public services. For the Greenland Government, the majority of expenditure goes to general public services, followed by health care and education. The majority of the items in Table 5-5 is financed by block grants from the Danish state as well as taxation and a small part through fees and user fees.[35]

Table 5-5: Distribution of public expenses, 2020

Total	Public administration and service	Municipalities	Greenland Government	Government sector
	DKK 1.000			
Total	**12.612.974**	**6.023.040**	**7.436.321**	**1.372.560**
General public services	1.659.378	1.018.716	2.073.062	45.082
Defence	241.313	..	..	241.313
Public order and security	1.036.745	90.460	809	945.476
Economic affairs	1.376.117	318.332	946.560	112.136
Environmental protection	248.583	178.510	68.820	25.799
Housing and public facilities	224.425	144.328	80.096	..

[33] Grønlands Økonomiske Råd (2020).
[34] Ibid.
[35] Grønlands Statistik (2021).

Health care	1.970.975	..	1.970.941	34
Leisure, culture and religion	436.261	181.211	256.011	3.720
Education	2.049.261	984.097	1.086.775	..
Social protection	3.369.916	3.107.386	953.247	..

Source*: Grønlands Statistik, Table [OFDFUNK], 1994-2020.*
Note: Total public administration and services are consolidated, which means that transfers between sectors have been removed.

5.3.1.1 Challenges for the public budget

Investments in infrastructure and urban development mentioned in the previous section are expected to increase the total public debt from approx. 22 pct. of GDP in 2019 to approx. 45 pct. of GDP in 2024. This will help to increase the Greenland Government's risk exposure significantly in a few years. This must be seen in the context of a fiscal sustainability problem in the longer term, as in the coming years there will be changes in the size of the population, age composition and level of education. Specifically, there will be fewer people of working age and more older people. [36]

With the current welfare schemes and expected demographic changes, public expenditure is expected to exceed public revenue from 2025 onwards, resulting in a lack of annual funding of around 5.4 percent of GDP. Increasing the retirement age, in line with a higher life expectancy together with streamlining the public sector, could help to solve the sustainability problem. [37] Public finances are also challenged by the fact that the income level is generally low and that much activity, especially in the settlements, consists of traditional sources of income (hunting, fishing, etc.), which are not taxed. The total personal taxation is between 42-44 percent, of which the majority consists of municipal tax of between 26-28 percent and the remainder of national tax and joint municipal tax.[38]

5.3.2 Description of employment and business activity

The Greenlandic labour market is very similar to the Scandinavian structure with employers 'and employees' organizations, collective agreements and legislation for the working environment, holidays and occupational injury compensation. As can be seen from Table 5-66, the majority of jobs are in the public administration, followed by fishing and related occupations. The table also shows the gender shift between industries, where the majority of employees in public workplaces are women, whereas the majority of the self-employed fishermen and related workplaces are men. In addition, most of the public workplaces are located in the cities, whereas fishing and hunting are more closely linked to the settlements. Out of the total number of employees, there are slightly more men than women.[39]

Table 5-6: Main occupation (average per month) among permanent residents in 2020, by gender

	All	Men	Women
Public administration and service	11.527	3.642	7.885
Fisheries and fisheries-related industry and trade	4.136	3.424	712
Wholesale and retail trade	3.011	1.542	1.469
Construction	2.039	1.858	181
Transport and goods handling	2.004	1.548	456

[36] Danmarks Nationalbank (2021a).
[37] Ibid.
[38] Skattestyrelsen (u.å.).
[39] Grønlands Statistik (2021).

Accommodation facilities and restaurant business	708	343	365
Information and communication	605	420	185
Administrative and ancillary services	490	316	174
Energy and water supply	444	366	78
Other service professions	353	171	181
Liberal, scientific and technical services	302	188	114
Real estate	282	176	106
Manufacturing	246	181	66
Banking and financial industry	218	78	140
Mining	94	67	26
Agriculture, forestry and agriculture-related industry and trade	75	55	20

Source: *Grønlands Statistik, Table [ARDBFB1], 2008-2020.*

In 2020, the workforce is registered at 26,978 people, corresponding to approx. 48 percent of the total population. The labour force is by far predominantly resident in the cities, thus of only just under 12 percent of the workforce resides in settlements.

Due to the significant importance of fishing for the economy, there is a focus on the development of other business sectors. Part of the goal is to increase mining activities as well as the tourism industry. However, the corona crisis is expected to have a significant impact on the development of these industries in the short term. The tourism and transport sectors as well as mineral activities have been hit hard, and there is uncertainty about how long parts of these industries will be affected. In recent times, however, commodity prices have risen, which has a positive effect on mining. [40] It is expected that the higher prices and the reopening of society will lead to an increased investigation effort in the future.

The Greenland Government plays a major role in the Greenlandic business sector, where the Government has ownership in a total of 14 joint stock companies, including Royal Greenland, Air Greenland, the grocery group KNI, Royal Arctic Line and TELE Greenland. Overall, the Government limited companies make up a large part of the total production and value creation in the country. In 2019, 63 percent of the total Greenlandic employment employed either in the Government companies or activities or public service and administration. The privately owned companies in Greenland are often smaller and the work here is more seasonal.[41]

Table 5-7: Profit after tax and number of employees in main occupations, 2015-2019

	Profit after tax (DKK 1,000)			Employees (no. of employees)		
	2015	**2017**	**2019**	**2015**	**2017**	**2019**
Fisheries and fisheries-related industry and trade	538.292	468.847	774.031	2.497	2.572	2.778
Mining	-541.592	-142.233	-388.512	133	78	80
Manufacturing	17.277	44.476	48.644	198	213	243
Construction	60.659	70.284	176.407	1.610	1.835	1.744

[40] Danmarks Nationalbank (2021a) & Danmarks Nationalbank (2021b).
[41] Ibid.

Wholesale and retail trade	111.587	177.554	164.378	2.392	2.507	2.703
Transport and goods handling	122.231	59.121	123.888	1.434	1.660	1.738
Accommodation facilities and catering	8.756	23.186	26.999	412	463	469
Real estate	51.342	120.509	140.552	633	587	551
Banking, finance industry and insurance	-3.900	126.354	142.839	176	175	178
Real estate	75.928	91.098	153.287	261	274	273
Services	66.811	32.723	21.512	206	229	252
Administrative and support services	14.094	551	16.408	387	395	332

Source: Grønlands Statistik, Table [ESDRESBAL], 2003-2019.

In conjunction with the rising growth described in the previous section, it is expected that in the coming years there will be a shortage of skilled labour, especially in the construction industry, health, education and mining, but also unskilled labour. The shortage of skilled labour has also been evident in recent years. Among other things, this is reflected in the number of registered jobseekers, which has been falling sharply. However, the shortage of labour is to a large extent regionally conditioned and is mostly felt in the cities. Large relocations to Nuuk in recent years have resulted in real housing shortages, which constitute a barrier to further expansion of the city. In total, investments of DKK 2 billion are planned. DKK towards 2026 in addition to the establishment of the new airport in Nuuk, which is expected to be completed in 2024. [42]

In the preparation of their forward-looking business strategy, Kommuneqarfik Sermersooq has formulated a special focus on the growth potentials in industries related to tourism, maritime industries, fisheries, industry and food. Business development is focused on education and qualification of labour, as the business community in the municipality is particularly in demand for this. Thus, focus has been placed on the fact that both the education, labour market and housing areas support this in the strategy, as well as the development of framework conditions for the profession. [43]

Qeqertarsuatsiaat is a smaller settlement, which is why there are a limited number of local businesses. The settlement has its own supermarket (Pilersuisoq), a fish factory owned and operated by Royal Greenland, fuel supply (Polaroil), telecom and post office, a youth hostel and some small shops and one-man businesses. The fish factory is the largest workplace in the settlement with approx. 30 employees in the high season and almost five in the low season. The primary species processed at the factory are crabs, cod and roe in barrels.

An extract from the CVR register shows that 31 companies and associations have been registered in Qeqertarsuatsiaat as of 4 December 2020. [44] Through interviews in Qeqertarsuatsiaat in March 2022, it is noted that there is a timber trade with 3-4 employees, a plumber with 1- 2 employees, a youth hostel owned by a resident of Nuuk, as well as a sealskin procurement.

[42] Danmarks Nationalbank (2021a).

[43] Sermersooq Business (2021).

[44] Baseret på udtræk fra virk.dk, hvor der er filtreret på postnummeret 3900 Nuuk. Herefter er der gennemført en manuel gennemgang af adresser for at finde virksomhederne.

Table 5-8: Registered business and associations in Qeqertarsuatsiaat

Main business	No. of companies
031100 Ocean fishing	7
433200 Carpenter and joinery business	3
432200 Plumbing business	3
949900 Other organizations and associations n.e.c.	2
931200 Sports associations	2
941200 Professional associations	2
237000 Cutting and polishing of minerals	1
561020 Pizzerias, grill bars, ice cream bars mv.	1
942000 Unions	1
467600 Wholesale of raw materials and semi-finished products	1
452020 Body workshops and car paint shops	1
452010 Car repair workshops, etc.	1
329900 Other manufacturing n.e.c.	1
889910 Associations, grants and foundations with disease-fighting, social and charitable purposes	1
017000 Hunting, trapping and associated services	1
471110 Grocery stores and 24-hour kiosks	1
949200 Political parties	1
960900 Other persona services n.e.c.	1

Source: *CVR-registeret, 4. December 2020.*

Most people in the settlement work as fishermen and hunters, of which approx. 17 are commercial trappers. In addition, the land-based industry consists primarily of public workplaces, which are occupied by both skilled and unskilled labour. The public workplaces consist of the settlement office, a retirement home, kindergarten, school and nursing station. In addition, there are a number of technical workplaces under the municipality, which cover snow removal, renovators and the waste dump, which, however, are without permanent employees. The municipality also maintains the football field. In addition, there is a fire station, Nukissiorfiit electricity and water supply, post office and bank store. The latter two are housed at the grocery store, Pilersuisoq (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.3.2.1 Jobseekers

Characteristic of the Greenlandic labour market is a large seasonal variation in employment, which is partly due to the climate and partly to the country's large geographical distribution, which i.a. contributes to limiting labour mobility. The large seasonal variation in the Greenlandic labour market is thus also reflected in the proportion of jobseekers[45], which fluctuates a lot during the year. In general, unemployment is higher in the first quarter than in the remaining quarters of the year. There is also a gender shift between cities and settlements in the number of unemployed. As can

[45] Antallet af ledige opgøres ifølge *The International Labour Organisation* og foreskriver, at arbejdssøgende personer, som i referenceperioden har været registreret som beskæftiget, ikke registreres som ledige. Opgørelsen over arbejdssøgende betragtes dog som en god indikator for den aktuelle udvikling af ledigheden (Grønlands Statistik 2020a).

be seen from Table 5-9, unemployment/number of jobseekers is higher in the settlements than in the towns. The shift also reflects that the distribution between the sexes is relatively equal in the cities, whereas there is an over-representation of women among the unemployed in the settlements. In addition, there is high unemployment among young people.

Table 5-9: Job seekers by gender, time and place of residence

	2015		2017		2019		2021	
	Men	Women	Men	Women	Men	Women	Men	Women
Greenland total	1937	1521	1561	1206	1082	842	877	704
Towns	1679	1239	1327	947	911	656	722	553
Settlements	256	282	234	260	172	186	155	151

Source: *Grønlands Statistik, Table [ARDLED2] and [ARDLED1A], 1996-2021.*

Unemployment in Greenland varies across educational levels. For example, the unemployment rate for workers with a higher education is 0.5 percent, while the unemployment rate for workers whose highest completed education is primary school is 9.3 percent (figures from 2018). [46] It is described in the Labour Market Report 2018-2019 that the Greenlandic unemployment rate is largely due to a structural challenge in matching the competence profiles to the existing labour market.

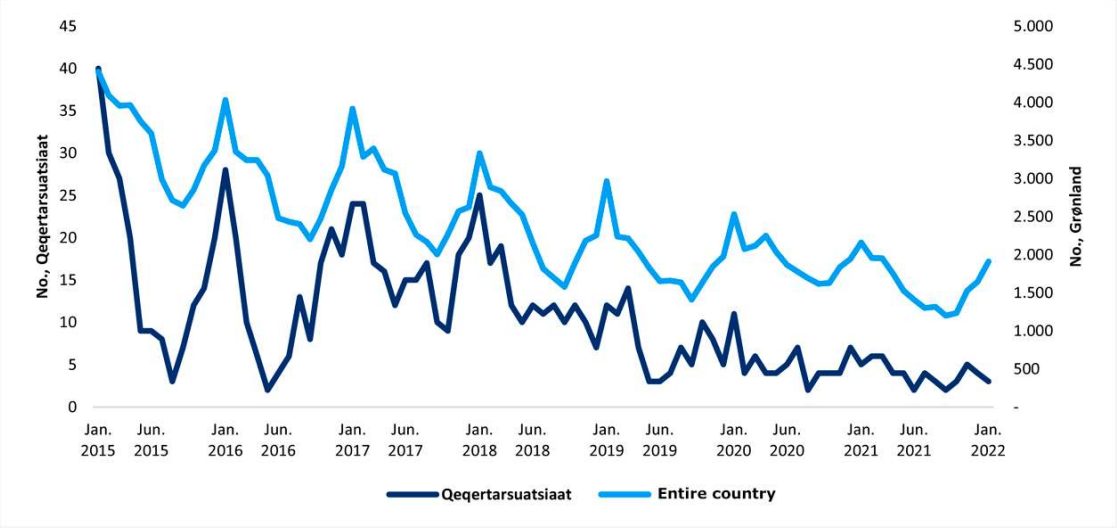
The average number of jobseekers in the whole country was 1580 in the period from February 2021 to February 2022. In the same period, this figure for Nuuk and Paamiut was respectively, 279 and 63, and in Qeqertarsuatsiaat there have been an average of 4 jobseekers. [47] Statements from Statistics Greenland indicate that out of the 1580 jobseekers for the whole country, 991 are assessed as ready for work. In Paamiut the number is 52 and in Nuuk 116. [48]

The share of jobseekers in Qeqertarsuatsiaat illustrated in Figure 5-44 follows the same structural trend with seasonal variation as for the rest of the country. It is also clear that the general trend in the number of jobseekers has been declining since 2015. Through interviews in Qeqertarsuatsiaat in March 2022, it is confirmed that unemployment is generally low in the summer, while in winter it rises slightly to between three and five. It is noted that there is a single unemployed person in match group three.

It is estimated that in recent years it has succeeded in lowering unemployment by more young people traveling to the city to take education (Personal Communication, Qeqertarsuatsiaat, March 2022).

[46] https://stat.gl/dialog/main.asp?lang=da&version=202001&sc=AR&subthemecode=o3&colcode=o.
[47] Grønlands Statistik, Tabel [ARDLEDMA], 2010-2022
[48] Grønlands Statistik, Tabel [ARDLEDMA], 2010-2022

Figure 5-4: Registered jobseekers for the whole country and Qeqertarsuatsiaat, 2015-2020



Source: *Grønlands Statistik, Table [ARDLED2B], 2010-2020.*
Note: *As there are no figures on the size of the labour force at rural level, it has not been possible to state the proportion of jobseekers as a percentage of the labour force.*

5.3.2.2 Challenges for the labour market

The most important challenges in the Greenlandic labour market are the lack of labour, including both unskilled, skilled and educated, where especially the lack of the latter group is a challenge. Paradoxically, there are still a large number of unemployed. There is a larger proportion of unemployed in the settlements. The geography of Greenland plays a role in this context, as commuting is rarely an option. The cities may thus have difficulty in attracting labour from the settlements. In addition, there is a large group of young unemployed, who often end up in long-term unemployment after periods without either education or employment. [49]

Table 5-10 reflects the above points in a significantly higher unemployment rate in the country's settlements, for which the highest unemployment is found among young people between 18-24 years.

Table 5-10: Unemployment rate on average per. month among permanent residents by place of residence and gender, 2020

	Towns		Settlements	
2020 Unemployment rate	**Men**	**Women**	**Men**	**Women**
18-19 years	6,1	6,9	16,7	29,4
20-24 years	6,4	7,2	11,5	16,7
25-29 years	4,7	5,1	6,4	10,9
30-34 years	4,3	5,0	6,6	10,1
35-39 years	5,0	4,4	6,1	9,3
40-44 years	4,6	4,1	7,8	10,5
45-49 years	4,1	4,1	6,1	6,3
50-54 years	6,0	4,2	5,2	8,5
55-59 years	5,3	4,2	6,7	8,0

[49] Departementet for Sociale Anliggender og Arbejdsmarked (2021).

Over 60 years	5,6	3,2	7,9	7,3

Source: *Grønlands Statistik, Table [ARDLED4], 2010-2020.*

5.3.3 Regional and local economy

Comparing the disposable personal income between the towns and settlements in Kommuneqarfik Sermersooq and the whole country, it appears that the Qeqertarsuatsiaat is above the average personal income for the whole country and only slightly below the income level in Nuuk. The total increase in disposable personal income in Qeqertarsuatsiaat since 2015 has roughly followed the overall development for the whole country with a percentage increase of 7.1 percent for the settlement. However, it is important to note that the increase in income is due to an increase in income among men, as there has been a decrease among women. If you compare this with the increase at the national level, women have experienced an income increase of 15.5 percent and men 11.6 percent. It is also noted that apart from Qeqertarsuatsiaat, only the towns of Nuuk and Tasiilaq and the settlements of Sermiligaaq and Tiilerilaaq experience wage increases during the period. [50]

Table 5-11: Development in disposable income since 2015

	Disposable income (1.000 DKK.), 2020				Change since 2015 (pct.)		
	Total	**Avg. income**	**Men**	**Women**	**Total**	**Men**	**Women**
Whole country	7.269.558	128,8	4.190.132	3.079.426	13,2%	11,6%	15,5%
Nuuk	2.973.179	158,1	1.752.485	1.220.695	18,7%	16,7%	21,6%
Tasiilaq	182.886	95,5	99.410	83.476	7,9%	10,3%	5,2%
Paamiut	139.185	111,6	78.539	60.646	-3,7%	-6,8%	0,5%
Ittoqqortoormiit	33.997	94,2	18.532	15.465	-3,7%	-5,4%	-1,6%
Qeqertarsuatsiaat	**24.872**	**137,4**	**15.820**	**9.052**	**7,1%**	**13,6%**	**-2,7%**
Kuummiit	18.692	73,6	11.409	7.284	-5,0%	-4,5%	-5,8%
Kulusuk	16.770	77,6	8.797	7.972	-8,0%	-10,9%	-4,6%
Sermiligaaq	13.762	65,5	7.465	6.297	19,5%	18,1%	21,3%
Arsuk	9.090	110,9	5.095	3.995	-10,5%	-13,5%	-6,3%
Tiilerilaaq	7.123	76,6	3.775	3.348	3,4%	1,9%	5,1%
Kapisillit	4.902	116,7	3.389	1.513	-15,4%	-3,4%	-33,9%
Isertoq	4.188	72,2	1.881	2.306	-18,3%	-14,5%	-21,2%

Source*: Grønlands Statistik, Table [INDPI103], 2002-2020.*

There are few households in Qeqertarsuatsiaat that support themselves through mixed economy. For the fishery, these are primarily commercial fishermen, and the rest of the inhabitants are employees or outside the workforce. Physical work such as fishing and technical workplaces are mostly handled by men. Office and service workplaces are increasingly handled by women. Two of the women of the settlement are employed in the canteen at the ruby mine (Personal Communication, Qeqertarsuatsiaat, March 2022).

[50] Grønlands Statistik (2021).

5.4 Education

There is a 10-year compulsory education in Greenland, which is why all children between the ages of 6 and 16 are obliged to receive education. However, the parents themselves decide whether the teaching is to take place in primary school or as home teaching. The primary school is divided into three stages and includes a 3-year junior stage, a 4-year intermediate stage and a 3-year senior stage. The children from the smaller settlements typically move from home to the nearest town to take 8.-10. grade. There are 24 city schools and approx. 60 rural schools. There are four high school educational institutions located in Aasiaat, Sisimiut, Nuuk and Qarqortoq. [51]

Young people who want a youth education in Greenland must first go through a preparatory education course of two years. If you want to take a vocational education, choose the general line, and for upper secondary education, choose the extended line. Subsequently, it is possible to choose youth educations and higher educations that follow the same course as Denmark. [52]

In Qeqertarsuatsiaat there is a primary school, which offers tuition up to and including the 9th grade, and with the possibility of school care at the school for children in 1-5. grade. Teaching in subsequent grade levels and continuing education is offered in Nuuk. There are a total of 16 schools in Sermersooq, where most settlements have a school attached. [53]

There are eight vocational schools in Greenland:

- Socialpædagogisk Seminarium, Perorsaanermik Ilinniarfik - Ilulissat (Social helper education)
- Food School, INUILI - Narsaq
- Jern & Metalskolen, Saviminilerinermik Ilinniarfik - Nuuk
- Niuernermik Ilinniarfik Business School - Nuuk
- Greenland Maritime School - Paamiut & Nuuk
- Center for Health Education, Peqqissaanermik Ilinniarfik - Nuuk
- Business School, Niuernermik Ilinniarfik - Qaqortoq
- Building & Construction School Sanaartornermik Ilinniarfik - Sisimiut

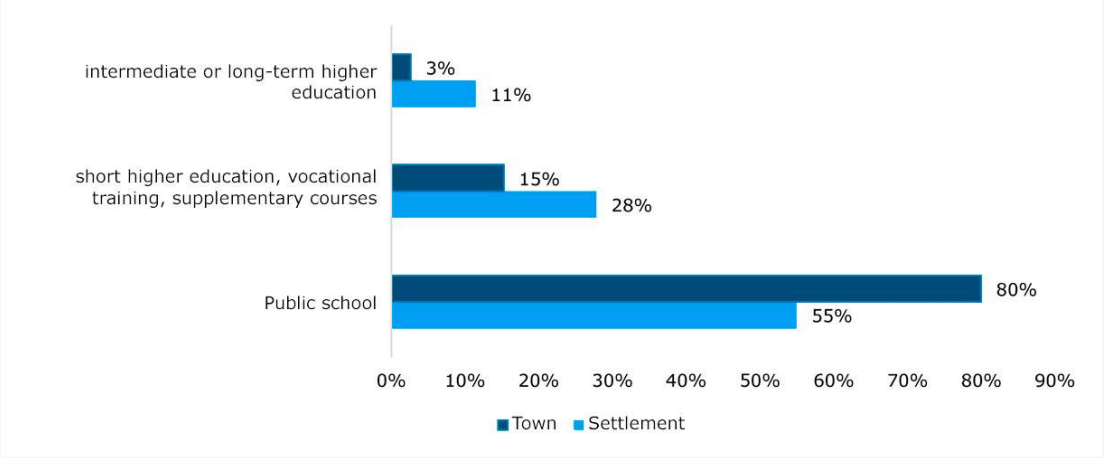
The four higher education institutions in Greenland are:

- University of Greenland, Ilisimatusarfik: Academic educations at bachelor's and master's level, as well as profession-oriented educations. There are three diploma and master's programs and six special programs and courses
- Social Pedagogical Seminar, Perorsaanermik Ilinniarfik: Education of professional bachelors within social pedagogy
- Center for Arctic Technology (ARTEK), which trains Arctic engineers
- Greenland Institute of Nature, Pinngortitaleriffik. Has several PhD students affiliated and also houses the Greenland Climate Research Center.[54]

54 pct. of the Greenlandic population has no education other than primary and lower secondary school, and as can be seen from figure 5-5, there is a very large difference in the levels of education between rural and urban areas. 20 pct. of the population in the settlements have a higher level of education than the compulsory 10 years of primary school. In the cities, slightly less than half of the population has an education that extends beyond primary school.

[51] Nordisk Råd (u.å.a).
[52] Naalakkersuisut (u.å.b).
[53] Kommuneqerfik Sermersooq (2016).
[54] Naalakkersuisut (u.å.b).

Figure 5-5: The highest completed education of the population (16-74 years), 2020



Source: *Grønlands Statistik, Table [UDDISCPROD], 2002-2020.*
Note: Population in cities between 16-74 years: 37,142. Population in settlements between 16-74 years: 5,247.

At educational levels in addition to primary school, there is a skewed distribution between the genders. Thus, 346 women and 173 men began a high school education in 2020. In the same year, 369 women and 315 men were admitted to a vocational education, and 38 women and 26 men were admitted to a short higher education. In longer higher educations, 201 women and 71 men were admitted in 2020. [55]

In addition, there is a tendency in the education system for a relatively large drop-out rate. In 2020, the dropout rate was 54.8. In 2019, there were 453 young people who continued directly in employment without further education, and 928 young people who were neither in education nor in employment. The two groups of young people together make up a share of 60.7 percent of young people between 16 and 18 that year. [56]

The level of education is a bit higher for Kommuneqarfik Sermersooq, when comparing across the five municipalities. [57]

In Qeqertarsuatsiaat there is a settlement school which offers tuition up to and including the 7th grade. The school has almost 20 students and a teacher rating of 3.35. Pupils who want a final exam from primary school are offered a free stay at a dormitory in Nuuk. Pupils who want to continue their schooling after 9th grade can take various educations in, for example, Nuuk or other towns in Greenland. There is no publicly available data on the population of Qeqertarsuatsiaat at the level of education and skills.

The majority of the inhabitants of Qeqertarsuatsiaat are unskilled. The trend in recent years has been that young people who apply for further education after primary school do not apply to return to the settlement after completing their education. So despite the fact that many young people from the settlement take further education, the workforce in Qeqertarsuatsiaat remains unskilled. Relocation due to further education takes place primarily among women, as many men stay in the settlement to become fishermen (Personal communication, Qeqertarsuatsiaat, March 2022).

[55] Grønlands statistik, Tabel [UDDISC11I], 2013-2020.
[56] Grønlands Statistik (2021).
[57] Grønlands Statistik, Tabel [UDDISCPROH], 2002-2020.

5.4.1 Vocational education and training

Greenland has a university, Ilisimatusarfik, which offers 11 different bachelor educations. Three master educations are offered, which is why a larger proportion of master students' study abroad compared with other levels of education. The university also offers continuing education in the form of three master's and diploma programs in journalism, Arctic specialist medical care and special pedagogy. In addition, there are two special educations within medical care, single educations under the various bachelor subjects and three courses. [58]

The university is located in Nuuk, and in 2020 there were 137 active men and 256 active women on the bachelor education. The same gender shift applies to the master programs, where in 2020 there were 51 active men and 125 active women. [59] The drop-out rate was around 36.1 percent from admittance in 2018. [60]

Skilled and unskilled workers, including the unemployed over the age of 18, have the opportunity to receive so-called AMA courses (Employers' Labour Market Tax). The courses are aimed at the vocational education area and aim to get the jobseeker into a job or to increase the level of competence. For example, in construction, raw materials or iron and metal. In addition, there are courses in project and competence development for the unskilled (PKU courses), which are primarily aimed at the unskilled in the workforce over 25 years. The intention with PKU is that unskilled people can build up competencies that are in demand in growing industries, such as the building and construction area, the raw materials area and tourism. PKU courses typically last 1-2 weeks. The courses are offered by the industry schools.

The majority of the educational upskilling of persons in Greenland takes place through the Majoriaq centers. The centres act as a link between education and the labour market. The purpose of Majoriaq is to get unemployed citizens further into employment, which is why their primary tasks are job placement, guidance for education, upskilling and work. There is a total of 17 Majoriaq centres in Greenland. [61] Citizens of Qeqertarsuatsiaat are affiliated with Majoriaq Nuuk.

KTI-Råstofskolen is located in Sisimiut and belongs to a unified Tech College Greenland (KTI). The raw materials school in Sisimiut educates and offers preparation courses for workers in the construction and mining industry. The courses offered are AMA and PKU courses. For example, it is possible to take various drilling courses, courses in machine operation and -driving, etc. as well as basic and follow-up course in blasting. In addition, it is possible to take a skilled education, as either a machine contractor or a miner. [62]

In Sisimut, DTU Arctic is also located in some of KTI's buildings. Here you can take a diploma in engineering in Arctic Construction and Infrastructure (the first three semesters take place in Sisimut - in addition, you can take the internship in the 6th semester in a Greenlandic company). [63]

As mentioned in the previous section, the majority of the inhabitants of Qeqertarsuatsiaat are unskilled. However, it was pointed out in interviews that in connection with the opening of the Aappaluttoq ruby mine, approx. 9 unskilled people were sent from the settlement to Denmark on a

[58] Ilisimatusarfik (u.å.a).
[59] Ilisimatusarfik (u.å.b).
[60] Grønlands Statistik (2020b).
[61] Kommuneqarfik Sermersooq (2022).
[62] Sunngu (u.å.).
[63] DTU Arctic - Uddannelse (2021).

course with a view to employment at the mine. However, the training never resulted in an employment (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.5 Public health

The health service in Greenland is divided into five regions; Avannaa, Disko, Qeqqa, Kujataa and Sermersooq. It is an objective of the Greenlandic health system that health services offered in the five regions are as comparable as possible. However, large transport distances, which only take place by plane, helicopter or boat, mean that there are challenges associated with the logistics, as well as the recruitment of staff for the most sparsely populated areas. In the largest city in each of the regions, a regional hospital is located, and each region is headed by a senior regional physician and a senior regional nurse. In addition, there are health centres in the other cities as well as nursing stations and consultation offices in the settlements. [64]

In Qeqertarsuatsiaat there is a nursing station that is used as a settlement consultation with a "pipaluk".[65] The community consultation is staffed by an employee who usually works 30-40 hours a week. The aim is for all employees to have completed training as a settlement health worker. The settlement health workers and their permanent holiday replacements must complete the medical certificate course for unskilled porters and settlement health workers. The health workers, and to the extent that they have permanent replacements, must be able to operate the telemedicine equipment, including teleconferencing via Lync. There is the possibility of daily contact with specialized professionals at the health centre/regional hospital via Pipaluk/teleconference. The settlement receives official visits from specialized professionals (doctor, nurse, nursing assistant, health assistant, pharmacist) from the health centre/regional hospital 3-4 times a year. The official visits will increasingly be preceded by a telemedicine review of the patients with the settlement health worker in order to qualify the settlement visit and ensure the optimal utilization of the resources allocated to the official visits. The visits can to a certain extent be replaced by telemedicine consultations. [66]

With permanent residence in Greenland, you are entitled to a number of free health services. Residents in settlements and smaller communities that are out of reach of the services are thus entitled to have the transport covered to the nearest locality where this is provided. These include:

- Treatment by a doctor/specialist.
- Hospitalization and stay in hospital and nursing station.
- Care for pregnant women and mothers and health care for new parents.
- Preventive health examinations.
- Vaccinations within the vaccination program, and special cases outside.
- Prescription medication.

5.5.1 Organization of the health sector

With the division into regions rather than districts, which came into force in 2011, the health sector's organization now consists of several larger and less geographically dispersed health institutions, which in future will have to cooperate across former district boundaries to provide relevant services.

One way to calculate the number of employees in the health care system is to look at statistics in relation to the number of man-years. Based on data from Statistics Greenland, it can be seen that in 2019 there were 1,589 employees in the health care system in Greenland, while in 2020 there

[64] Nordisk Råd (u.å.b) & Peqqik.gl (u.å).
[65] Pipaluk er navnet på det telemedicinske udstyr, som findes i bygderne.
[66] Peqqik.gl (u.å).

were 1,607 employees. [67] However, it is not possible to calculate the number of employees in the entire sector for the municipalities using this data base. However, it is an option to look at the collective groupings as a proxy for employees, where it is possible to divide the number of employees by geography. This method is presented in Table 5-12.

Table 5-12: Distribution of employees in the health sector and total man-years, 2020 - divided by city

	Total number of man-years	Doctors and psychologists	Health assistant and nurse	Others*	SIK-employees†
Greenland total	1.842	172	646	163	861
Nuuk	832	111	379	108	234
Tasiilaq	85	4	23	4	54
Paamiut	34	0	9	1	24
Ittoqqortoormiit	6	0	3	0	3

Source: *Grønlands Statistik, Table [OFDOA6], 2015-2020*.

Note: * *Bio analysts, occupational therapists, physiotherapists, midwives, medical secretarial students, merit health assistants and health officials.* † *Trade unions organizing unskilled and short-skilled workers. Included are SIK Health Assistants, etc. and SIK Health Area, etc.*

As can be seen from the table, the majority of the health personnel in Greenland are SIK employees (46.7 percent), who are typically unskilled or people with a short education. The same trend is seen if one considers different districts. The only exception is Ittoqqortoormiit, which has the same proportion of SIK staff and health assistants and nurses - this is probably due to the low number of total posts in this district. Furthermore, it can be seen that the majority of health employees in Sermersooq Municipality are located in Nuuk, where the national hospital Dronning Ingrids Hospital is located.

The Greenlandic healthcare system is very much influenced by the country's geography, level of education and the equipment that is available. In addition to expensive patient transport and long distances, the Greenlandic healthcare system has been challenged by problems in recruiting staff, especially to the most sparsely populated areas. The political goal is that "The health service must strive for equal access to the health service's services regardless of place of residence". In other words, citizens should be treated equally as far as possible, whether they live in a remote settlement or in a town with a hospital or health centre. Especially in northern Greenland, there are many settlements, which are often far from a town with a hospital/health centre. The aim is to visit a doctor, nurse, health assistant in the settlements 3-4 times a year and a visit to the dentist once a year.

A nurse/health assistant reviews the cases sent to her daily and sends answers to the person responsible for settlement health about which treatment or further examinations are to be initiated. As nurses and health assistants have expanded their area of responsibility and competence in Greenland, this means that they can handle 80 percent themselves of the cases without involving a doctor. [68]

Sometimes it is necessary for patients from the settlements to come to a hospital, just as some patients need treatment either in Nuuk or in Denmark. The transport costs for the selective treatment are large, but if there is a need for an acute transfer of patients who require an evacuation, the transport costs for the individual patient increase enormously. Typically, an evacuation from the coast to Nuuk costs DKK 50,000-100,000, while an evacuation to Denmark easily runs up to DKK 300,000-500,000. Evacuations at a price of DKK 750,000-1 million DKK occurs more than

[67] Grønlands Statistik, Tabel [OFDOA1], 2015-2020.

[68] Højgaard (2016a).

once a year. Therefore, the aim is for as many transports as possible to take place with the first route connection or as chartering and not as evacuation. These are difficult decisions, which, however, are always governed by the indication for acute treatment and not by finances. The weather and technology on planes/helicopters occasionally prevent transport. In those cases, the patient is treated at the local hospital or in the settlement supervised by the specialists in Nuuk or the doctors at the local hospital and in special cases also by the doctors at Rigshospitalet, until the transport of the critically ill patient can begin. [69]

As can be seen from the table below, there is a correlation between the number of residents in each district and its health staff ratio, so that there are relatively more health staff per citizen in Nuuk and fewer in Ittoqqortoormiit.

Table 5-13: Total man-years and staff per citizen, 2020

	Total man-years	Population	Citizen per man-year
Greenland total	1.842	56.081	30,4
Nuuk	832	18.552	22,3
Tasiilaq	85	2.843	33,4
Paamiut	34	1.381	40,6
Ittoqqortoormiit	6	348	57,5

Source: *Grønlands Statistik, Table [OFDOA6], 2015-2020 and Table [BEDSTD] 1977-2022.*

As part of the political goal, a Pipaluk was installed in all settlements with more than 50 inhabitants, which made it possible to obtain rapid medical guidance from the central expertise. With Pipaluk, a settlement health professional can examine a patient with the various clinical examination devices, create a case and send the results to the nearest hospital/health centre to subsequently receive guidance in the further treatment of the patient. It is also possible with Pipaluk to advise and support the health workers in the outlying areas through the use of video consultations.

5.5.2 Healthcare

In each of the five health regions, the following categories of institutional health services are now defined, which are typically created on the basis of population in the individual localities in the regions:

- Settlement consultation without a "Pipaluk" - Population base <50 inhabitants. Here, there staffing consists of an employee, who is typically employed between 12-30 hours, who covers consultations, home visits, emergency help, administration and other related tasks. In addition, the settlement receives official visits from specialized professionals 2-4 times a year.
- Settlement consultation with a "Pipaluk" - Population base 50-200 inhabitants. The settlement consultation is typically staffed between 30-40 hours per week, which covers consultations, home visits, emergency help, administration and other related tasks. Through Pipaluk, there is the opportunity for daily contact with specialized professionals at the health centre and the regional hospital. The settlement receives official visits from specialized professionals 3-4 times a year.
- Health station - Population base 200-500 inhabitants. The health station is staffed with either a nurse or health assistant and/or settlement health worker and will typically be staffed during the period from 8-16 on weekdays. The health stations receive official visits from specialized professionals 4-8 times a year.
- Small health centre - Population base 500-1,200 inhabitants. The smaller health centre is staffed with a nurse, health assistant and health assistants. They receive official visits from

[69] Højgaard (2016b).

professionals (e.g., health nurse, midwife, bio analyst, pharmacist) from the regional hospital 2-4 times a year.
- Larger health centre - Population base> 1,200 inhabitants.
- Regional Hospital: Located in the one of the region's cities with the most inhabitants.
- Dental Clinic - One or more clinics in cities with more than 500 inhabitants

To the extent permitted by the circumstances, persons registered in the population register residing in Greenland are entitled to the following benefits:

- Preventive health examinations.
- Medical treatment, including any specialist medical treatment.
- Admission and stay in health care institutions, including care for pregnant women and mothers.
- Dental treatment in health care/dental care institutions, including preventive dental care.
- Outreach health service.
- Health care.
- Nursing in health care institutions or at home.
- Prescription drugs, including non-prescription drugs according to detailed rules laid down by the Naalakkersuisut. [70]
- Vaccination against certain diseases.
- Aids that replace or correct defective or missing body parts
- Physiotherapy treatment that takes place in connection with outpatient medical treatment or hospitalization in the health care institutions.
- Certificates, in accordance with detailed rules laid down by the Naalakkersuisut.

Public dental clinics are found in all cities with more than 500 inhabitants as well as associated settlements. Here, general dental check-ups, root canals, caries treatment, orthodontics and dentures are handled. To some extent, it is also possible to carry out specialized dental treatment. All settlements receive at least one annual visit from a dentist (with the exception of the smallest settlements), where it is possible to make an appointment in advance. [71]

Qeqertarsuatsiaat has a health station. From the health service in Nuuk, medicines and medications are sent by the coastal ship to the settlement, which is received by the branch office. There have been challenges in recruiting to staff the health station. Thus, there has not been a permanent staff with a health nurse in the last few years. Since the turn of the year (2021/2022), the station has been staffed with a substitute. The settlement receives visits from health professionals from Nuuk several times a year (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.5.3 Health status

5.5.3.1 Infectious diseases

The most common infectious disease in Greenland is tuberculosis, which is 20 times as common in Greenland as in the other Nordic countries. In addition, sexually transmitted diseases make up a large proportion. In Table 5-14, it can be seen that chlamydia is the most common infectious venereal disease. Likewise, it can be found that infectious diseases are found to a greater extent in women than in men. In the period between 2015 and 2018, there is a decrease in the number of gonorrhoea cases, which was replaced by a marked increase in 2019. There has also been a relatively large increase in the number of syphilis cases. The number of chlamydia cases is fairly stable.

[70] Peqqik.gl (2015).
[71] Nordisk Råd (u.å).

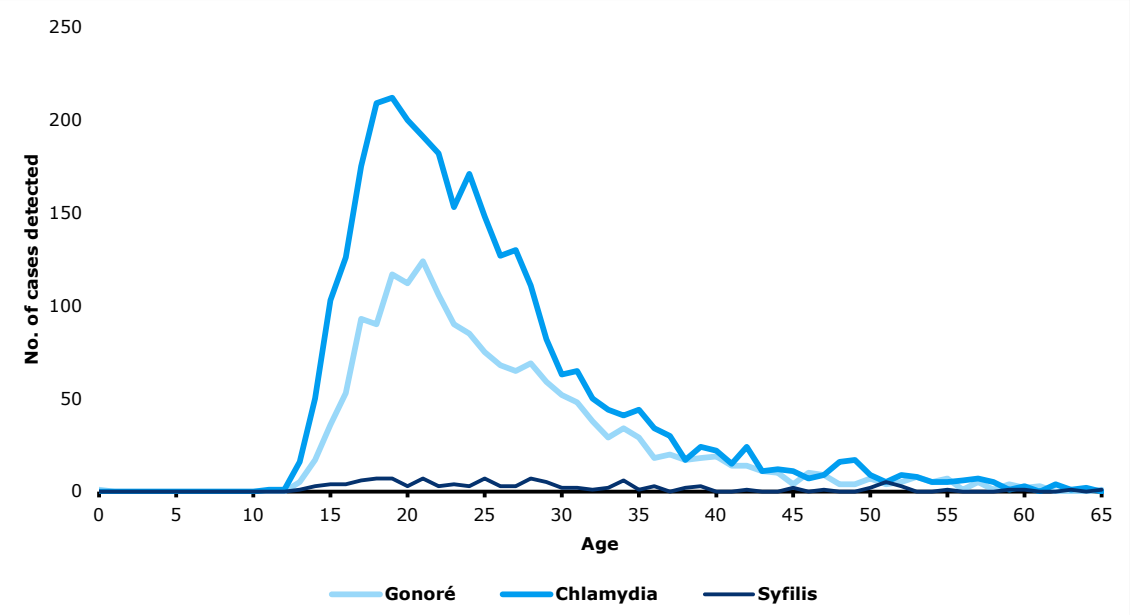
Table 5-14: Overview of established cases of sexually transmitted diseases in Greenland divided by gender and time

		2015	2016	2017	2018	2019
Gonorrhoea	Men	669	600	521	483	734
	Women	859	723	702	593	988
chlamydia	Men	1.144	1.138	1.286	1.139	1.117
	Women	1.832	1.913	2.161	1.960	1.901
Syphilis	Men	27	33	13	59	49
	Women	30	38	9	80	70

Source: *Grønlands Statistik, Table [SUDLSKS1], 2009-2019.*

The increase in chlamydia cases occurs earlier in the period than in gonorrhoea cases. Both diseases peak around the age of 18-19 years, after which there is a slight, continuous decline. It is thus between the ages of 15 and 30 that infectious sexually transmitted diseases are most common.

Figure 5-6: Overview of infectious sexually transmitted diseases - broken down by age



Source: *Grønlands statistik, Table [SUDLSKS1], 2009-2019.*

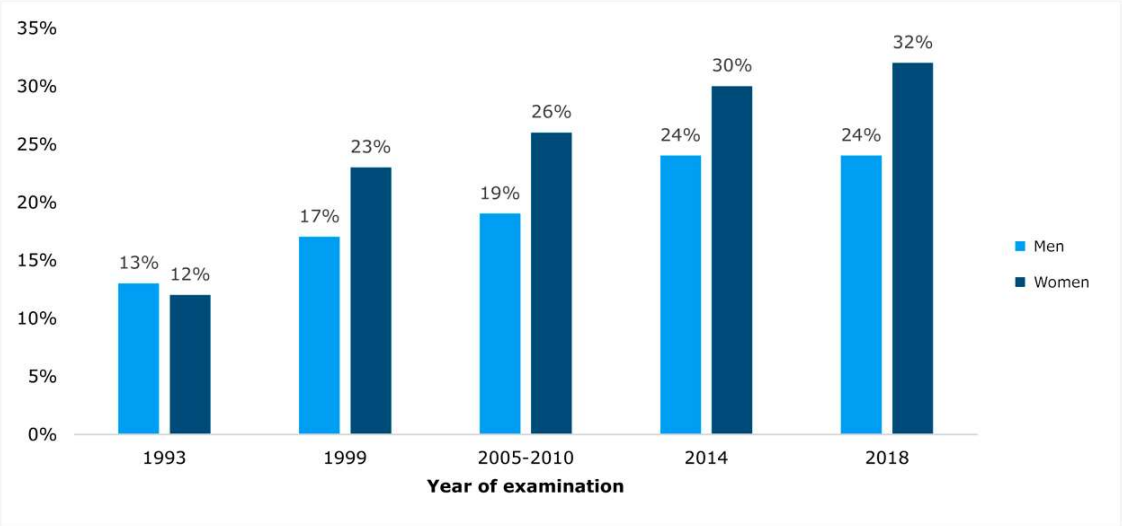
The increase in infectious diseases begins at the age of 14 and increases markedly in the teenage years until it peaks at the age of 18-19. In 2019, the highest number of infected among the 19-year-olds was registered with 212 cases. However, there has been a small change in the large spread of diseases among young people, as fewer young people aged 18-19 were diagnosed with chlamydia in 2019 compared to previous periods. However, the number of diagnosed diseases is unchanged over the entire age range.

There are no known outbreaks of infectious diseases among the locals in Qeqertarsuatsiaat other than a few cases of Covid-19. The spread of Covid-19 has not been experienced as large. In early 2020, there was a single case of tuberculosis, but the disease is otherwise considered non-existent locally (Personal Communication, Qeqertarsuatsiaat, 2022).

5.5.3.2 Common diseases

In the last 100 years, there have been major changes in Greenlanders' diet and physical activity, and the effect of this is one of the biggest challenges for public health in Greenland. Since the first population survey of public health in 1993, obesity has been a steadily increasing problem in Greenland. Locally caught traditional diet has gradually been replaced by more imported foods, including an increasing intake of sweets, cakes and other sugary and fatty foods - in contrast to the traditional very fatty Greenlandic diet. In addition, there has been a reduction in the amount of physical activity in everyday life. [72] Table 5-15: illustrates the increase in the proportion of severely obese since 1993. The increase in the number of overweight thus also constitutes a health problem in relation to the incidence of type 2 diabetes and cardiovascular disease.

Table 5-15: Development in proportion with a BMI of 30+ divided by gender and time



Source*: Statens Institut for Folkesundhed (2019).*

There has been a decrease in the proportion who assess that their own health is good or really good from 64.4 percent. of the population in 2005 to 59.0 in 2018. Conversely, there has been an increase in the proportion who assess to have a good quality of life, although the proportion has decreased in the period between 2014 and 2018.

Based on the Greenland Nutrition and Exercise Council's dietary recommendations, five measurable indicators for diet and one measurable indicator for exercise have been developed. Table 5-16: presents data for these indicators. It is seen that there are more who eat vegetables daily, while there are fewer who eat fish at least once a week. In addition, there has been a marked increase in the proportion of Greenlanders who drink juice or soda on a daily basis. The indicators of physical activity, as well as the intake of fruit and marine mammals are relatively unchanged during the period.

[72] Statens Institut for Folkesundhed (2019).

Table 5-16: Development in selected health parameters 2005-2018

Variable in pct	2005	2014	2018	2018 in pct of 2005
Physically active 1 hour a day	85,4	81,0	86,6	101
Eat fruit daily	37,2	44,9	38,8	104
Eat vegetables daily	23,9	30,4	29,6	124
Eat fish at least once a week	56,0	50,2	42,8	76
Drink juice or soda every day	24,4	32,1	43,9	180
Eat marine mammals 1-3 times a week	35,9	35,7	33,3	93

Source*: Statens Institut for Folkesundhed (2019).*

The table below shows the development in death-related diseases. It can be seen that men to a greater extent than women develop cancer and heart disease. Furthermore, it can be seen that in the period presented there has been a slight increase in the number of death-related diseases.

Table 5-17: Distribution in underlying cause of death divided by gender over time

	Gender	2015	2016	2017	2018	2019
Cancer	Men	54	65	62	77	71
	Women	47	43	64	59	62
Endocrine and nutritional diseases	Men	4	8	8	2	6
	Women	2	2	7	1	5
Heart diseases	Men	38	42	52	47	48
	Women	19	26	21	30	19

Source*: Grønlands statistikbank, Table [SUDLDA1A], 2002-2019.*

The proportion of the Greenlandic population with high blood pressure (defined as> 130/80 mmHg), or who have started blood pressure lowering treatment, has increased since 2010. There may be several reasons why high blood pressure occurs, but smoking, obesity and diabetes are common risk factors. There has also been an increase in the number of people with diabetes and prediabetes. The reason for this is primarily due to a higher average life expectancy, and an increasing number of overweight people. The main consequences of diabetes are vascular complications in the large vessels in the form of blood clots in the heart and brain, as well as circulatory problems in the legs and thereby the risk of wounds and amputations. It is estimated that approx. half of the cases of diabetes in Greenland are not diagnosed. [73]

There are a few residents of Qeqertarsuatsiaat with diabetes, and cancer is considered to be common (Personal Communication, Qeqertarsuatsiaat, March 2022).

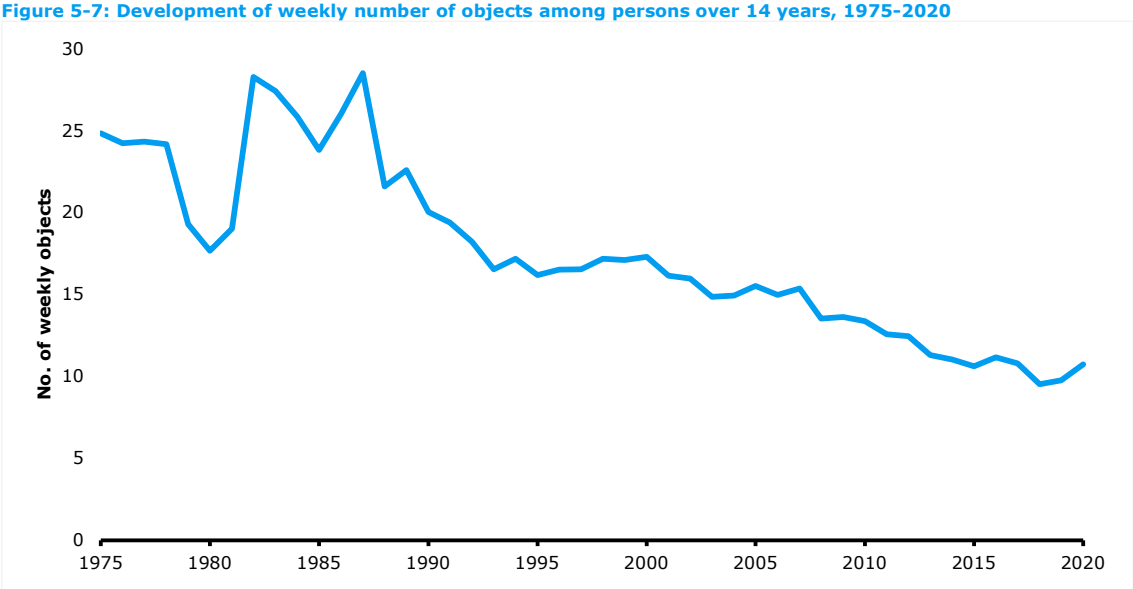
5.5.3.3 Social and emotional well-being

Greenland has undergone major social and cultural changes since 1950, from a society based on local hunting and fishing to being based more on wage labor and internationalization. Since the mid-1980s, there has been a steady decline in both alcohol and tobacco consumption, so that today the level is on a par with the rest of the Nordic region. There has also been a decrease in the

[73] Ibid.

number of intoxicants, as well as the proportion of parents with children under the age of 18 with a potentially harmful alcohol consumption.[74] However, there is still a strong focus on problems related to alcohol abuse and alcohol in the home growing up as well as the occurrence of violence and abuse, as these problems are considered to be related to the occurrence of suicidal thoughts. [75]

Figure 5-7: Development of weekly number of objects among persons over 14 years, 1975-2020



Source: *Grønlands Statistik, Table [ALXALK4], 1975-2020.*

The intake of both alcohol and tobacco smoking is evenly distributed across age groups in Greenland. Alcohol consumption decreases slightly with age, but there are no major age-related fluctuations. The same picture shows for tobacco smoking, where the proportion of daily smokers is slightly lower for the age group 60+ years, but otherwise is evenly distributed across age groups. For both alcohol consumption and tobacco smoking, consumption is higher among men than for women. Only in the number of daily smokers are there slightly more women than men in the age groups from 35-60 + years. [76]

The suicide rate has been 6-7 times higher in the last 25 years than in the rest of the Nordic region. As shown in Table 5-18, the suicide rate is significantly higher for men than women. There has been a decline in the rate of total suicides since 2005, but as there are relatively large fluctuations in the annual rate, this is not an expression of a clear trend.

Table 5-18: The number of suicides as the underlying cause of death divided by gender and time

	2005		2010		2015		2019	
	Men	Women	Men	Women	Men	Women	Men	Women
Greenland total	38	11	40	15	20	12	33	11
Nuuk	3	2	11	2	1	3	5	0
Tasiilaq	4	2	2	5	2	1	6	1
Paamiut	2	2	0	3	0	0	2	0
Ittoqqortoormiit	1	1	1	0	0	0	1	0

Source: *Grønlands Statistikbank, Table [SUDLDA1A], 2002-2019.*

[74] Grønlands Statistik, Tabel [SUDBUC], 2005-2018.
[75] Statens Institut for Folkesundhed (2019).
[76] Ibid.

Both suicide, suicide attempts and suicidal thoughts are overrepresented in the younger part of the population. Thus, it was 18.5 percent of the 15-24-year-olds who attempted suicide in 2018, and in the same age group had 33 percent suicidal thoughts. The same figures for the 35-59-year-olds were respectively 3.3 percent and 13 percent. [77] From the population survey from Greenland in 2018, there is a coincidence between a higher incidence of suicidal thoughts and having experienced resp. alcohol problems in the childhood home, violence in the childhood home and whether one has been abused in childhood. [78]

Through interviews with residents of Qeqertarsuatsiaat, it is pointed out that there are problems with alcohol and drug abuse as well as a certain amount of gambling addiction. Crime is mostly found in the form of minor thefts, for example at the grocery store. The extent of this, however, is considered less than earlier. Violence is also only considered to be to a limited extent and often as being linked to alcohol consumption. For example, by disagreements in drinking groups, which end in fights. Suicide is considered relatively rare, and the last to be remembered was two years ago (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.5.4 Social benefits and facilities

In the social area, Greenland largely follows the Nordic model. In connection with unemployment, illness and maternity leave, persons residing in Greenland are entitled to income-replacement benefits under certain conditions. Citizens with low or no income who do not meet the requirements are instead entitled to public assistance. Housing insurance and child allowance are granted to low-income families as a supplementary benefit. In addition, citizens with reduced working capacity under the age of 66 have the opportunity to apply for an early retirement pension, and all citizens who have reached the age of 66 are entitled to a retirement pension. Care is provided for old-age and early retirement pensioners both in their own home or in a nursing home. The largest item in public services in 2019 was old-age and early retirement, followed by public assistance and housing insurance.

Table 5-19: Paid public aid, housing insurance, child allowance and number of early retirees, 2015-2020

Public aid (kr.)	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Total	132.564	109.457	103.711	87.972	75.685	75.118
Kommuneqarfik Sermersooq	54.983	49.521	45.969	39.114	29.597	29.924
Housing insurance (kr.)						
Total	8.982	8.226	7.611	7.630	7.541	7.317
Kommuneqarfik Sermersooq	3.353	2.984	2.759	2.762	2.731	2.684
Child allowance (kr.)						
Total	3.157	3.091	3.091	3.439	3.417	3.311
Kommuneqarfik Sermersooq	1.031	1.055	1.039	1.208	1.170	1.153
Early retirees (no.)						
Total	2.457	2.248	2.248	2.280	2.385	2.407

Source: *Grønlands Statistik, Table [SOD004], [SODBS01], [SODFPE2], [SODBT01], 2009-2020.*

In Qeqertarsuatsiaat, there are 10 homes for the elderly, for which home assistants are employed. However, there is no nursing home or day care. In addition, there are some recipients of maternity benefits. However, the number has been declining in line with changes in the age composition of the settlement. There are a few recipients of tariff assistance, but consequently expenditure on the

[77] Ibid.
[78] Ibid.

unemployed has been declining in line with the fall in unemployment (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.5.5 Vulnerable persons

There are some vulnerable groups in Qeqertarsuatsiaat. These include few people with physical or mental disorders, and as was also noted in the previous section some with alcohol or drug abuse. In the group of inhabitants with alcohol abuse, there are a few young people, including young people, who do not have their own home. For this group, the abuse is assessed as a significant barrier in relation to carrying out work or the possibility of further education (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.6 Use of land, ecosystems and property rights

5.6.1 Use of land and property rights

The majority of Greenland's land area (81 percent) is covered by ice. App. 410,000 km2 is ice-free, corresponding to the size of Sweden, and lies as a rim of up to 250 km in width along the coast. [79] There is no private property right in Greenland, and all areas are for public use. Therefore, no area may be utilized from the public use without permission from the area authority. It is possible to apply for area allocation for a specific use, and an allocation of area is basically indefinite, but contains a number of conditions regarding commissioning, compliance with local plans, etc. An area allocation can thus also not be made the subject of purchase, sale or pledge, but can be transferred with permission from the area authority if, for example, a building on the area is sold. [80]

In addition to activities for self-sufficiency and various leisure activities, the land-based subsistence base in Greenland consists of agriculture, where sheep breeding in particular is important. The majority of Greenland's sheep farming is located in southern Greenland in the districts of Narsaq, Nanortalik and Qaqortoq, where 97.8 percent of the total Greenlandic herd of sheep was located in 2019. [81] There are also a few farms in Nuuk Fjord. [82]

Greenland's agriculture currently consists of approx. 40 farms where the primary production is lamb. It is formally a liberal profession, but with a restriction on ownership, as agriculture may only be owned by persons with connections to Greenland. Financially, agriculture receives significant support, which is partly distributed directly through the Finance Act for investment, but also as a subsidy for the selling price of products and indirectly through loans below market interest rates. The vast majority of Greenlandic farms would make a loss without the current support schemes, which is why these are crucial for the existence of agriculture in Greenland.[83]

Agriculture in Greenland has existed since the settlements of the Norsemen, and since the 1780s, cattle and goats have been produced and milk has been produced alongside the hunting industry. Since 1990, climate change has meant that it has been possible to establish commercial cultivation of potatoes and vegetables. Greenlandic agriculture is thus changing due to the new opportunities that have arisen as a result of a milder climate. It is expected to influence the development of agriculture, as well as the methods used. Higher temperatures are likely to enable better yields and higher production capacity for feed and crops, but will also create greater fluctuations in the weather, and potentially contribute to the introduction of invasive species.[84]

[79] Grønlands Statistik (2021).
[80] Bing et al. (2020).
[81] Grønlands Statistik, Tabel [FIDHEKBED], 2005-2019.
[82] Kolofon (2019).
[83] Copenhagen Economics (2016).
[84] Kolofon (2019).

On an equal footing with other forms of agriculture, Greenland's largest agricultural production, lamb production, has been increasing in recent years, and was at its highest in the period 2000-2010. Lamb constitutes the primary production of meat in Greenland, and the majority of the production is also sold in Greenland. Cattle were introduced in 2004, and in 2020 there were approx. 300 number of cattle distributed on four farms.[85]

Municipal in Sermersooq, in 2019 there was one agricultural farm located in Nuuk. The area covers 21.1 hectares and holds 395 sheep.

Table 5-20: Development in the number of sheep farms and sheep divided by time and place of residence

		2005	2011	2013	2015	2017	2019
No.of farms	Narsaq	30	29	29	16	24	24
	Qaqortoq	14	11	9	8	8	8
	Nanortalik	6	6	6	5	5	5
	Paamiut	2	1	0	0	0	0
	Nuuk	2	1	0	0	1	1
No.of sheep	Narsaq	14.060	13.721	14.947	12.180	12.272	11.918
	Qaqortoq	4.266	4.056	3.903	3.687	3.848	3.786
	Nanortalik	2.471	2.379	2.144	1.634	1.665	1.686
	Paamiut	291	71	0	0	0	0
	Nuuk	299	5	0	0	0	395

Source: *Grønlands Statistik, Table [FIDHEKBED], 2005-2019.*

There is currently no agriculture in Qeqertarsuatsiaat, but northeast of Qeqertarsuatsiaat construction of buildings for a farm has begun. The plan is first and foremost the cultivation of potatoes, but in the future also other crops (Personal communication, Qeqertarsuatsiaat, March 2022).

The importance of nature has also been emphasized through interviews with locals in Qeqertarsuatsiaat. The areas in and around the fjord are used for many different activities, such as hiking, berry and stone collection, as well as collecting and storing winter supplies. The protection of the areas is therefore central to the locals (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.6.2 Ecosystem services

The size of Greenland means that the living conditions of plants vary greatly from area to area. The large differences in temperature, wind conditions, precipitation and soil conditions as well as the competition between the different species mean that there is great variation in the distribution of the plants. The largest plant group consists of lichens, fungi, mosses and algae.[86]

Hunting and trapping of both terrestrial and marine animals is an important part of the way of life in Greenland, and in many places, these constitute a significant supplement to the household economy. Hunting is regulated partly through fixed hunting seasons and partly through licenses for resp. leisure and professional hunting. In addition, there is quota regulation on several species.

[85] Naalakkersuisut (u.å.c).

[86] Denstoredanske.dk (14/01/2022).

Table 5-21: Development in the number of residents with a leisure or professional hunting certificate

		2017	2018	2019	2020
Leisure hunter	Town	1.916	2.010	2.041	2.254
	Settlement	43	46	41	51
Professional hunter	Town	180	174	184	189
	Settlement	34	37	40	36

Source*: Grønlands statistikbank, Table [FIDBEVIS], 1993-2020.*

Of terrestrial mammals, reindeer and musk oxen are the most important prey animals in Greenland. Other terrestrial mammals consist of polar bears, snow hares, collared lemming, polar foxes, leeches and polar wolves. Polar bears are perhaps Greenland's most iconic animals and are categorized as vulnerable on the Greenland Red List and the IUCN Red List. This assessment is partly due to the fact that a reduction of more than 30 percent is expected. in the number of polar bears over the next three polar bear generations (i.e. 45-50 years) as a result of climate change. The polar bear is extremely rare to find on the west coast from Upernavik down to Paamiut.[87]

In relation to hunting at sea, the ringed seal has been central, but there are several different species of seals, including walruses. Whaling consists mainly of humpback whales, narwhals and belugas. Killer whales and sperm whales are rarer toothed whales, whereas several of the large baleen whales (blue whale, fin whale, saithe, minke whale and humpback whale) are relatively common in the summer.[88]

There are approx. 225 fish species in Greenland, where the majority are Atlantic fish, which are associated with southern and southwestern Greenland. Further north there are approx. 50 different types of high arctic fish species. For fishing, cod, redfish, halibut and salmon in particular are the most important species. There are only four types of freshwater fish, the most common being the mountain trout, which is found in streams and lakes throughout Greenland.[89]

Bird life consists of approx. 60 different species, of which 20 breed mainly on the coast. The birds are found everywhere in Greenland from the coast to isolated nunataks or far out to sea. Only the inland ice does not constitute a habitat for birds. Half of the breeding birds migrate away from Greenland in the winter. Large constituents of the bird species belong in the southwestern part of Greenland, as this area is closest to other Arctic areas near Canada. Common eider ducks and king eider ducks can be found near Nuuk and Qeqertarsuatsiaat, among others. Hunting king eider ducks is closely linked to hunting common eider ducks. Both species are shot primarily in southwestern Greenland in the winter, where they overlap in distribution. The hunting times are identical for the two species, as in practice they can be difficult to separate when it comes to females and young birds. In addition, there are also frequent occurrences of sea eagles and peregrine falcons in the area.[90]

[87] Grønlands Naturinstitut (u.å.).
[88] Denstoredanske.dk (10/05/2020).
[89] Denstoredanske.dk (10/05/2020).
[90] Ibid.

Table 5-22: Development in the hunting of mammals and birds

No. of animals shot	2006	2010	2015	2020
Ringed seal	86.169	61.635	57.584	30.088
Greenlandic seal	95.945	90.909	62.847	32.351
Porpoises	2.940	2.093	2.009	3.318
Guillemot	89.282	64.468	45.792	2.262
Eider duck	25.356	27.492	22.588	6.175
King Eider duck	4.356	27.492	22.588	6.175
Little auk	24.900	28.984	22.516	21.945
Grouse	17.067	19.247	10.375	6.125
Reindeer	15.135	12.721	12.097	9.535
Musk oxen	2.420	2.485	2.386	1.802
Polar bear	119	100	142	153

Source: *Grønlands statistikbank, Table [FIDFANGST], 2006-2020.*

The primary land-based hunting among the inhabitants of the Qeqertarsuatsiaat is for reindeer. There is a large occurrence of reindeer in the fjord areas around Qeqertarsuatsiaat. Traditionally, the inhabitants have gone on reindeer hunts, where they have camped in the areas close to the coast. Today, the reindeer have moved closer to the fjord. This has made it possible to go on day trips to catch reindeer. It is also noted by the locals that the area is generally a popular destination for hunting reindeer. That is why, for example, visitors from Nuuk come regularly to hunt.

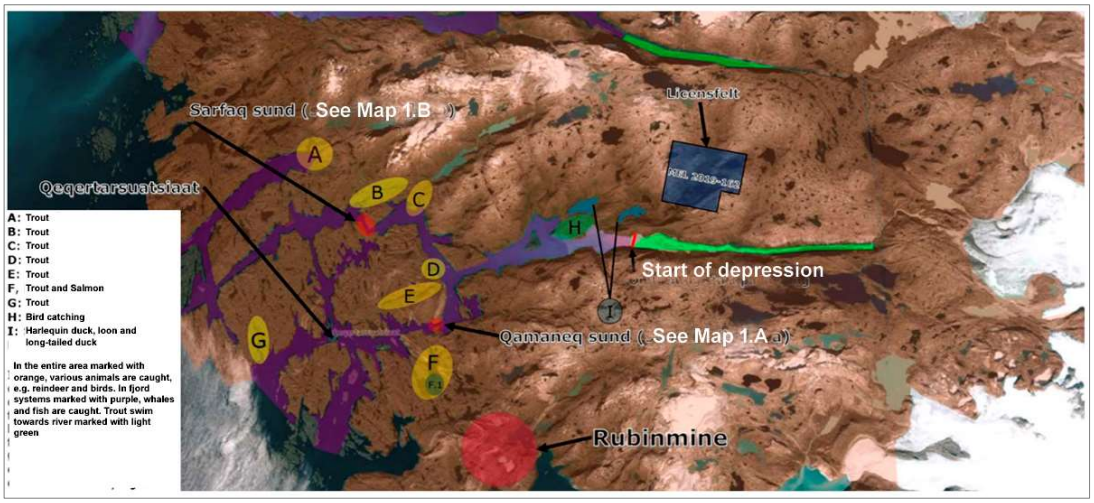
Hunting among the locals in Qeqertarsuatsiaat is mostly done as recreational hunting. Thus, most issued hunting licenses are recreational hunting licenses (Personal Communication, Qeqertarsuatsiaat, March 2022).

In addition to reindeer, locals also catch e.g., grouse and snow hares. The grouse are found in large numbers in the areas around the fjord. Breeding birds such as streamers, ice pockets and sea urchins are located in the area where GAM's mining project is planned. In the lakes in the area, there are also freshwater trout (Personal communication, Qeqertarsuatsiaat, March 2022).

5.6.3 Sea-based livelihood

Fishing is the most important occupation in Qeqertarsuatsiaat and is thus a key element as a livelihood. Fishing is primarily for trout and Ammassætter (capelin) as well as cod with bottom nets. The presence of trout is very large in the fjord system. Capelin in particular spawns throughout the fjord. Designated areas for fishing are shown in Figure 5-8. In addition to the primary fish species, some halibut are also fished, although the stock today is much smaller than before. In addition, redfish and catfish are fished. The northern parts of the fjord have been designated as spawning areas for suckler cows and cod. Around Qeqertaq there is also an important spawning area for cod. At the bottom of the fjord there are a number of harbour seals. Humpback and minke whales are common throughout the fjord and hunting of them is common. Occasionally, toothed whales and guinea pigs are also spotted (Personal Communication, Qeqertarsuatsiaat, March 2022).

Figure 5-8: Designated areas for fishing and trapping. Prepared in connection with workshop with the fishing and fishing association



5.7 Tourism

Kommuneqarfik Sermersooq has developed a tourism policy that will help to support a positive development in tourism[91], which can be seen from the increase in the number of hotel nights in Sermersooq West, see Figure 5-9, in the period 2008 to 2016. Since then, a stagnation has occurred as well as a decline after 2020, which can be attributed to the Covid-19 crisis.

Figure 5-9: Number of hotel nights and occupancy rate in Sermersooq West

Source: *Grønlands Statistik, [TUDKAP], 1996-2020.*

Passenger ships arrive at Qeqertarsuatsiaat twice a week, from where it is possible to sail both north and south along the coast. There are ship calls all year round in the settlement. KNI

[91] Kommuneqarfik Sermersooq (u.å.).

Pilersuisoq A/S is responsible for the port authority in Qeqertarsuatsiaat.[92] The transport in Qeqertarsuatsiaat takes place resp. on foot, via four-wheeled scooter and snowmobile.[93]

A hostel is managed in Qeqertarsuatsiaat, which constitutes the local accommodation options (Personal Communication, Qeqertarsuatsiaat, March 2022).

Destination (one-way fare)	Price one-way (DKK, low season)	Price one-way (DKK, high season)
Qeqertarsuatsiaat-Arsuk	900	1.150
Qeqertarsuatsiaat-Ilulissat	2.200	2.800
Qeqertarsuatsiaat-Kangaamiut	1.325	1.700
Qeqertarsuatsiaat-Maniitsoq	1.100	1.400
Qeqertarsuatsiaat-Narsaq	1.375	1.750
Qeqertarsuatsiaat-Nuuk	725	725
Qeqertarsuatsiaat-Paamiut	625	800
Qeqertarsuatsiaat-Qaqortoq	1.375	1.750
Qeqertarsuatsiaat-Qeqertarsuaq	2.175	2.725
Qeqertarsuatsiaat-Sisimiut	1.625	2.100
Qeqertarsuatsiaat-Aasiaat	2.050	2.600

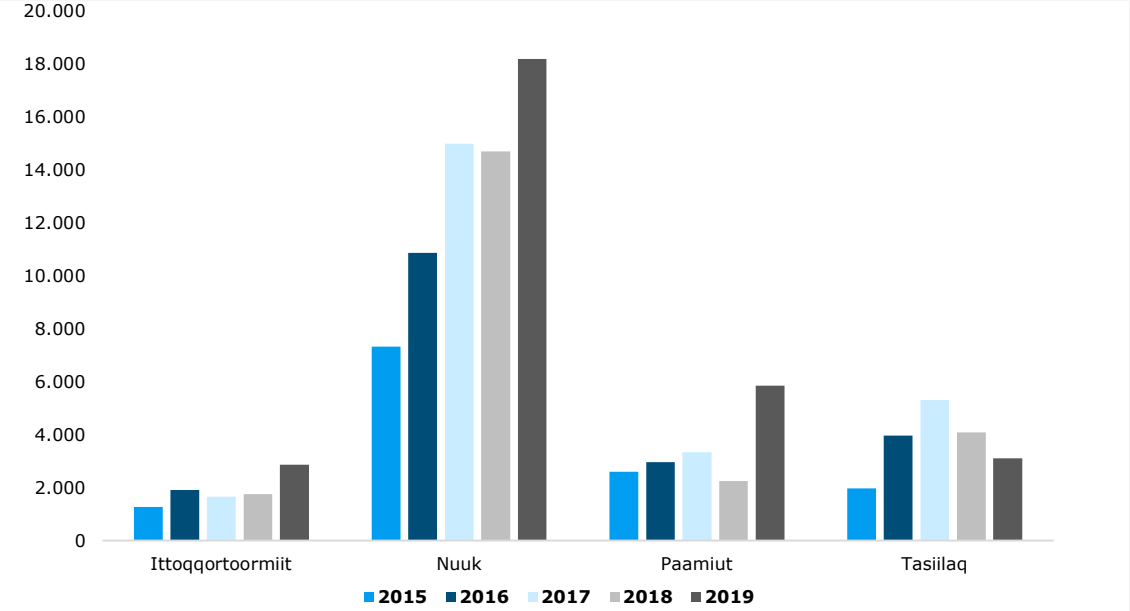
Table 5-10: Fares for travel from Qeqertarsuatsiaat

Source: Arctic Umiaq Line (u.å).

In Figure 5-11, it can be seen that the proportion of cruise passengers in Nuuk has increased sharply over the last few years. Ittoqqortoormiit and Paamiut have also seen an increase, while there has been a drop in passengers to Tasiilaq.

[92] Naalakkersuisut (u.å.d).
[93] Kommuneqarfik Sermersooq (2016).

Figure 5-11: Number of cruise passengers in Sermersooq Municipality divided by district



Source: *Grønlands Statistik, Table [TUDKRH], 2015-2020.*

5.7.1 Socio-cultural values and cultural heritage sites

In Greenland, there are strong cultural values associated especially with access to nature, food, dance and music. The towns are more characterized by opportunities for sports and other leisure activities, whereas life in the outlying areas is more traditional. In many towns, choirs and folk dances are popular, where the traditional dances are European and originated from colonists in the 17th and 18th centuries. Drum dancing and singing are still popular and constitute the original Inuit music tradition. In addition, there is a strong socio-cultural value attached to the Greenlandic language.[94]

[94] Grønlands Statistik (2021).

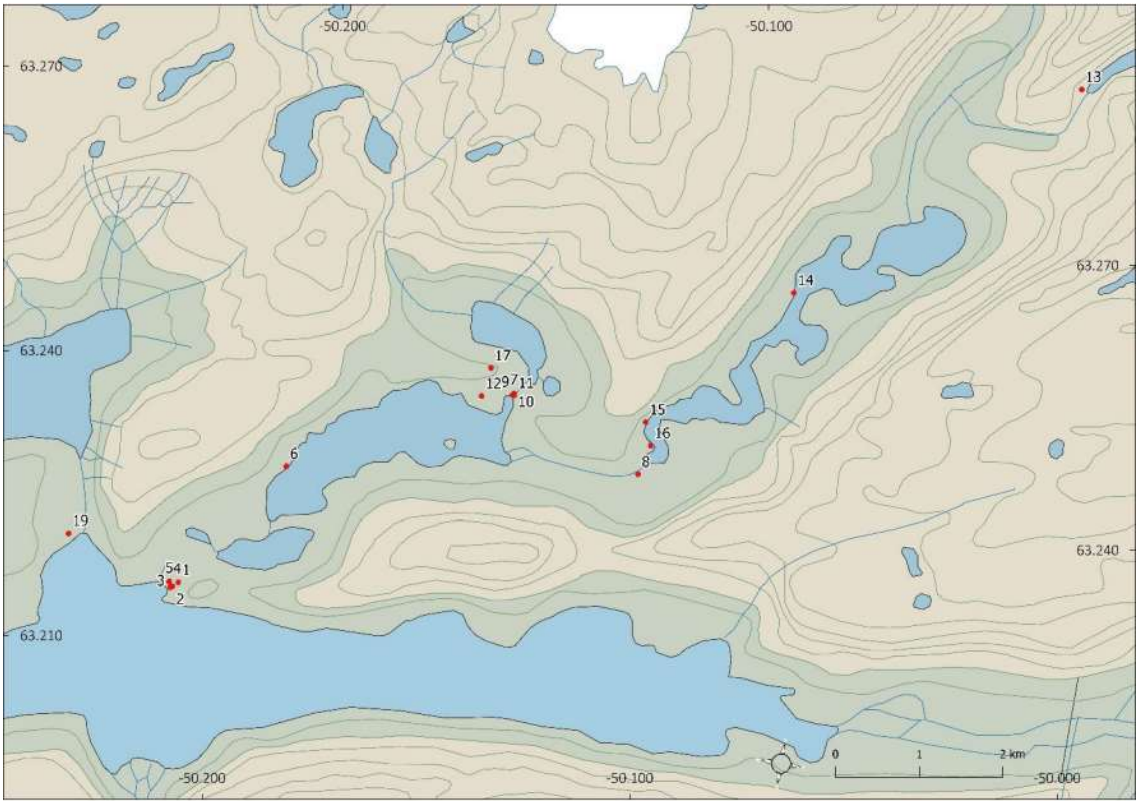


Figure 5-12: Archaeological observations associated with the area near Majoqqap Qaava

Source: *Larsen (2020).*

Areas in and around the fjord are widely used by the locals in Qeqertarsuatsiaat. In addition to hunting and fishing, many go on berry picking, stone collecting, hiking, outdoor cooking and gathering for winter supplies. People from other places in Greenland also visit the area to collect stones. Traditions related to nature in the area in and around the fjord are described as being of great importance to the inhabitants of Qeqertarsuatsiaat (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.8 Infrastructure

5.8.1 Housing

Homeowners in Greenland do not own the land on which the home was built. This is because there are no private property rights in Greenland. Homeowners can therefore only obtain a right of use over the land, which is achieved through an application for land allocation.[95]

The majority of the homes in Greenland are publicly owned. For many years, there has been a political goal of increasing the share of privately owned housing, but housing policy initiatives have not effectively changed significantly in that the public housing market is still the dominant form of housing. In 2018, 42 percent of citizens lived in rented housing and 34 percent in owned housing. The remaining 24 percent lived in a rented room, with the family or in an institution.[96]

[95] Statens Institut for Folkesundhed (2019).
[96] Ibid.

The housing company INI A/S manages most of the public housing stock, but there are also other housing companies that have housing stock in Nuuk, Paamiut, Ittoqqortoormiit and Tasiilaq.[97]

For several years, the Naalakkersuisut has pursued an active policy to increase the proportion of privately owned homes in Greenland in order to, among other things, create shorter waiting lists for public rental housing. This has been done by providing subsidies for the conversion of rental housing into cooperative and owner-occupied housing. In this connection, the Naalakkersuisut has developed a number of support schemes with a view to developing and expanding the private housing market.

In 2016, Kommuneqarfik Sermersooq designed a capital strategy for Nuuk. One of the goals of the strategy is for Nuuk to grow to 30,000 inhabitants by 2030. In this connection, 7,000 new homes must be built in the city by 2030. There is a great shortage of housing in the large cities, where there have been long waiting lists for the publicly owned homes. In Nuuk, for example, there is an average of approximately 7.5 years of waiting time for a rental home. Tenants with low incomes have the opportunity to apply for support for rent expenses, both for private rental and for rent in public housing. In recent years, however, there has been an increase in the number of families being evicted from their homes due to inability to pay.[98]

Some public housing units are empty because they are dilapidated and affected by mould. In June 2015, 399 of the self-governing homes were empty due to wear and tear and 300 due to mould. The total number of citizens in Greenland without permanent residence and housing was calculated by Naalakkersuisut in November 2017 to be a total of 878 people. However, the number is subject to some uncertainty, as there is no comprehensive inventory of persons without permanent residence.[99] In recent years, there has been a sharp increase in the number of citizens without permanent residence. The problem of homelessness is greatest in Kommuneqarfik Sermersooq, where according to the Naalakkersuisut's survey in the autumn of 2017, there were a total of 469 homeless people.[100]

There is expected to be a growing demand for other types of housing such as elderly-friendly housing, and there is a desire to build two-storey housing in Qeqertarsuatsiaat. The housing stock consists of 110 homes, of which five are empty, corresponding to approx. five pct. A new residential area has been laid out south of the settlement, which will only be taken into use when the existing residential areas are fully developed. The new residential area is maintained in the latest municipal plan.[101]

5.8.2 Information and communication technology

Tusass (formerly TELE Greenland) is owned by the Greenland Government and is responsible for all of Greenland's telecommunications, internet and delivery of mail.[102] Both internet and telephone connections are available in all settlements with a minimum of 70 inhabitants, but due to the large and impassable areas that the connections must be pulled over, the prices are significantly higher than in Denmark.

The number of both mobile and Internet subscriptions has been steadily increasing, and in 2020 there were 65,027 registered mobile subscriptions, 1,593 mobile broadband subscriptions and 15,700 broadband subscriptions via fixed network.[103] In 2011, there were 65 mobile subscriptions

[97] Nordisk Råd (u.å.d).
[98] Departementet for Finanser og Skatter – Grønlands Selvstyre (2017).
[99] Departementet for Sociale Anliggende, Familie, Ligestilling og Justitsvæsen – Grønlands Selvstyre (2017).
[100] Ibid.
[101] Kommuneqarfik Sermersooq (2019).
[102] TELE Greenland (2021).
[103] TELE Greenland (2021)

in Qeqertarsuatsiaat. If the number of subscriptions is compared with the adult population in Qeqertarsuatsiaat, this corresponds to almost 33 percent have a mobile subscription. The adult population is here defined as anyone over 15 years of age. In addition, there are 30 residents who have an ADSL connection.[104]

The internet connection in Qeqertarsuatsiaat is generally considered to be good but with fluctuations especially in connection with bad weather (Personal Communication, Qeqertarsuatsiaat, March 2022).

5.8.3 Water supply

Drinking water in Greenland is primarily produced by meltwater, which is either collected in drinking water lakes located outside towns and settlements or is taken directly from rivers. The land areas around the rivers and lakes used for water supply are designated as water barrier zones. In the water barrier zones, polluting activities are not allowed. It is not allowed to move motor vehicles, establish buildings, keep animals and run businesses.[105] As the fresh water comes mainly from meltwater, the annual melting and precipitation at the individual town or settlement is of great importance. The annual inflow to the drinking water lakes must be at least the same amount as the consumption to ensure a sustainable drinking water supply. In some towns and settlements, consumption is some years at a level or higher than the influx, which is why supply is vulnerable. As the winter in many places is very cold, and drinking water lakes and rivers can freeze completely or partially, it can be a challenge to ensure a stable drinking water supply during this period.[106]

The water supply in Qeqertarsuatsiaat is based on year-round water from a water reservoir south of the settlement. The water reservoir is supplied with water from a lake further south, and from a hydro front house, water is pumped in a frost-proof water line to a waterworks (former taphouse), which supplies the settlement through a ring connection to seven taphouses. Later expansions of the water supply will be based on the existing water distribution network. Institutions, the production plant and a few other consumers are directly connected to the water supply. A barrier zone has been established around the water reservoir.[107]

It happens that the local water supply freezes to ice during the winter months, but in addition, there are no challenges with the water supply (Personal Communication, Qeqertarsuatsiaat, March 2022).

[104] Kommunaqarfik Sermersooq (2016).
[105] Naalakkersuisut (u.å.e).
[106] Royal Greenland (u.å.).
[107] Kommuneqarfik Sermersooq (2019).

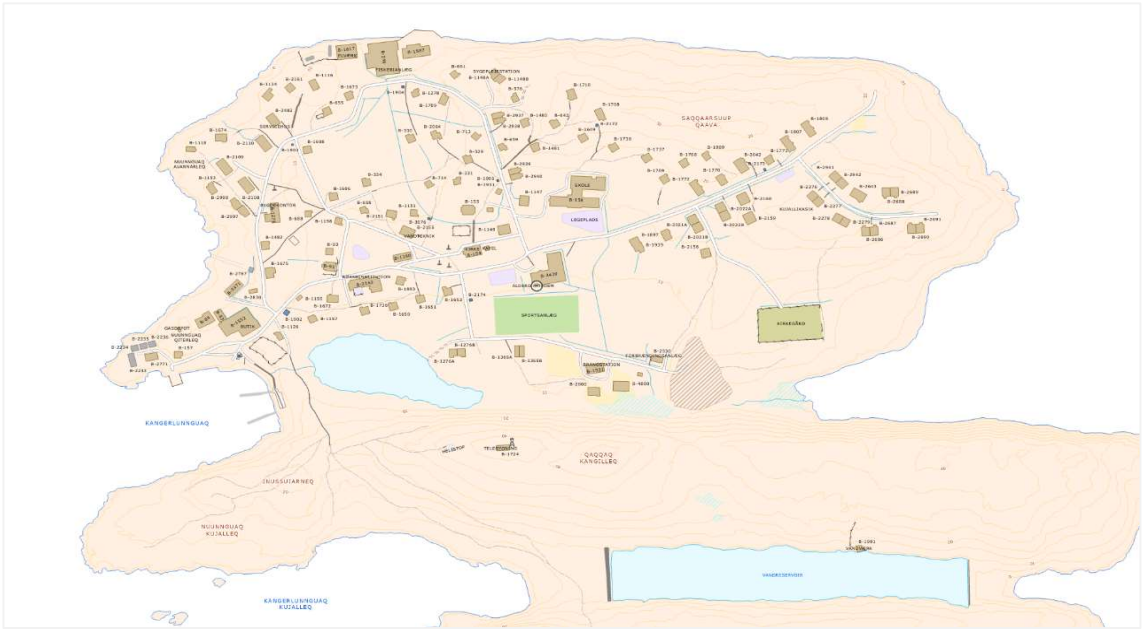


Figure 5-13: Technical base map of Qeqertarsuatsiaat

Source: *Afdeling for Landsplanlægning – Grønlands Selvstyre (2020).*

5.8.4 Electricity supply and heating

The majority of Greenland's energy supply is supplied by the national electricity, water and heat supply company Nukissiorfiit. It is difficult and expensive to run a supply business in Greenland. Partly because the customer base in the settlements in particular is very thin, but also because towns and settlements are spread over large distances, which is why it is not possible to establish networks between them. Despite the challenges associated with supply, a stable electricity supply is provided to virtually all settlements in Greenland all year round. However, the production of electricity in the smaller cities is not profitable and despite a high price per. kWh, it does not cover the production price. As shown in Table 5-23, the average production price for electricity in settlements is twice the average for towns. The production price for water is also significantly higher in the settlements compared to the towns. There are some homes where there is no power supply and electricity is instead supplied via a generator.[108]

In the large towns with more than 3,000 inhabitants such as Qaqortoq, Nuuk, Sisimiut and Ilulissat, modern hydropower plants have been taken into use within the last two decades, and here, despite a thin customer base, a low-cost electricity supply to customers can be operated. The electricity to Nuuk is produced at the hydroelectric power plant in Utoqqarmiut Kangerluarsunnguat. In addition, there are two oil-powered emergency facilities in Nuuk in the event of a supply breakdown. The raw water supply to Nuuk is supplied from two water reservoirs. The heat supply in Nuuk shall, as far as possible, take place through the utilization of the renewable energy from the hydropower plant in Utoqqarmiut Kangerluarsunnguat or other sustainable heat supply, including waste heat from the incineration plant. Part of the waste heat from the incineration plant is supplied to the district heating network in Nuussuaq.[109]

[108] Christoffersen (2014).

[109] Departementet for Kommuner, Bygder, Yderdistrikter, Infrastruktur og Boliger – Grønlands Selvstyre (2016).

	Elec. (kr./kWh)	Water (kr./m³)	Heat (kr./MWh)
Nuuk	0,61	16,31	268,64
Qeqertarsuatsiaat	2,79	235,64	57,87
Paamiut	3,13	63.59	667,40
Tasiilaq	2,05	56,34	1.011,87
Avg. price, settlement	**6,22**	**607,68**	-
Avg. price, town	**2,98**	**122,94**	-

Table 5-23: Production costs for electricity, water and heating 2020 - divided by district.

Source: *Nukissiorfiit (2021).*

Qeqertarsuatsiaat has an oil-based power plant with associated tank facilities. Heating is mainly conducted by individual oil boilers in connection with the individual homes. However, the fishing facility and two accommodations owned by the municipality are supplied with waste heat from the power plant combined with an oil boiler at the power plant for the periods when the waste heat is not sufficient. Nukissiorfiit sets up solar cells in Ittoqqortoormiit, Qeqertarsuatsiaat and Qeqertat.[110]

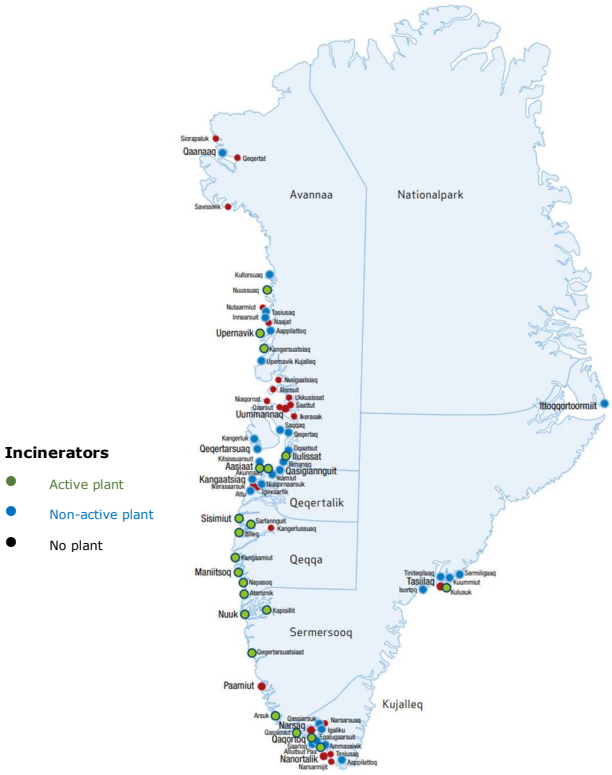
5.8.5 Waste management

In 2020, an agreement was made for the joint municipal waste company ESANI to establish and operate two nationwide, modern incineration plants in Sisimiut and Nuuk. The plants must handle waste from all over the country. Reception stations will be established in each town and settlement, so that all waste is handled in the best possible way, and so that waste suitable for incineration is transported to the new facilities. In the long term, it is the intention that all other incinerators will be shut down, which is why the incinerator in Qeqertarsuatsiaat will also be affected.[111]

[110] Nukissiorfiit (2021).

[111] Departementet for Natur og Miljø – Grønlands Selvstyre (2020).

Figure 5-14: Incineration plants in Greenland in 2020



Source *Departementet for Natur og Miljø (2020). (2024: Departementet for Landbrug, Selvforsyning, Energi og Miljø)*

In Qeqertarsuatsiaat, a renovation scheme has been established for day and night renovation. Disposal of household waste, scrap iron, hazardous waste and other combustibles is shipped to Nuuk. Night renovation is discharged into the sea in the north-eastern part of the settlement, and some is deposited at the 'dump' in the settlement (some types of bulky rubbish, hunting leftovers and dead animals, non-combustible commercial waste).[112] Of the settlement's approx. 100 inhabited houses, approx. 90 have inlaid pressurized water, while only 14 have established a sludge tank. There is capacity at the landfill for non-combustible waste such as slag, scrap iron, etc.

5.8.6 Transport network

Climate and geography in Greenland mean that there are no railways or roads between towns and settlements. Freight and passenger transport takes place by either plane, helicopter or ship. The same applies in Qeqertarsuatsiaat, where all transport takes place on foot, in four-wheeled scooters or by snowmobiles. Greenland's largest airline is Air Greenland and Royal Arctic Line operates freight routes by ship between towns and settlements. The passenger ship Sarfaq Ittuk, operated by Arctic Umiaq Lines, also has passenger routes on the west coast most of the year. However, the north-eastern Greenland is cut off from sea voyages during the winter due to sea ice. There are no international passenger routes by ship, but Greenland is a destination for cruise ships from Europe, Canada and the United States.[113]

5.8.6.1 Air transport

There are several airports located on the west coast of Greenland, where the northernmost is located in Qaanaaq and the southernmost is in Narsarsuaq. On the east coast there are airports in Ittoqqortoormiit and Tasiilaq. There are a total of 14 airports in Greenland. There are 46 helicopter

[112] Kommuneqarfik Sermersooq (2016).
[113] Grønlands statistik (2021).

airfields, which are located in the smaller towns and settlements between the country's airports. There are six helicopter airfields located on the east coast, and the remaining 40 are located between the southernmost part of Greenland and along the west coast to the northernmost site in Siorapaluk north of Qaanaaq. A large part of the nearest helicopter sites is located in the Municipality of Kujalleq, while there are four airports in an approximately mobile distance from Qeqertarsuatsiaat. One of these helicopter airfields is located in Qeqertarsuatsiaat south of the settlement.[114]

In recent years, there has been an increasing trend for domestic as well as foreign flights in Greenland. Conversely, the proportion of passengers by helicopter has decreased during the period. These trends are presented in the table below.

Table 5-24: Development in the number of air passengers in Greenland from 2015-2020

	2015	2016	2017	2018	2019	2020*
Airports	166.688	184.307	184.133	192.905	197.038	87.672
Atlantic airports	198.921	212.540	214.103	218.590	217.173	124.762
Helicopter airfields	41.239	41.239	27.064	32.040	28.790	20.189

Source*: Grønlands statistik (2021). Note: *preliminary numbers.*

5.8.6.2 Sea transport

Arctic Umiaq Line sails in 11 ports on Greenland's west coast, including Qeqertarsuatsiaat. There are ship calls with passenger ship and settlement boat in Qeqertarsuatsiaat all year round. Only the settlement of Arsuk also has ship calls all year round in Kommuneqarfik Sermersooq. The settlement ships, which carry both passengers and supplies, arrive at Qeqertarsuatsiaat approx. three times a month.

With Sarfaq Ittuk (Arctic Umiaq Line A/S) it is possible to travel both to the north and to the south once a week. During the winter months, however, reservations must be made for ice in the sailing plans.[115]

[114] Mittarfeqarfiit (u.å.).

[115] Kommuneqarfik Sermersooq (2016).

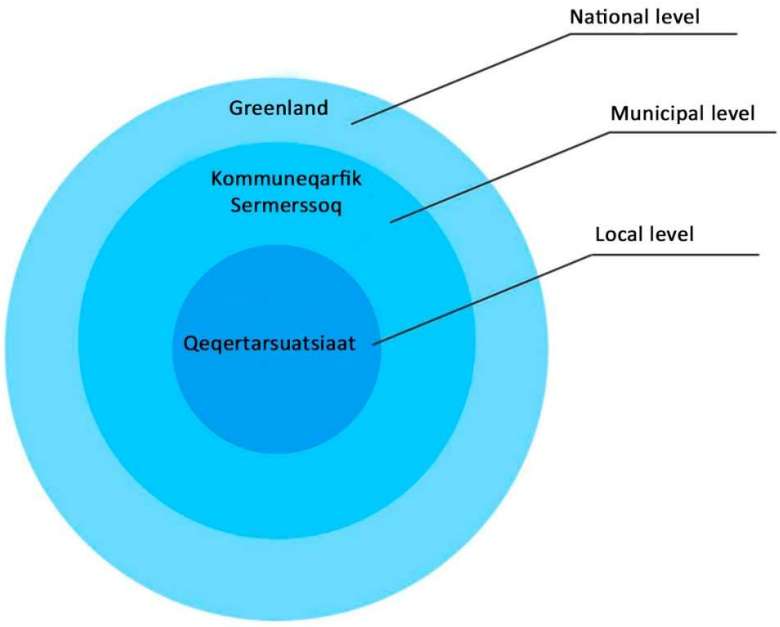
6. POTENTIAL SOCIAL AND SOCIETAL IMPACTS OF THE PROJECT

This chapter presents the potential social and societal impacts of GAM's mining project at Majoqqap Qaava.

For each individual impact, the expected societal impacts at local and municipal/national level are described, respectively. Local level is understood as the settlement Qeqertarsuatsiaat; municipal level as Kommuneqarfik Sermersooq and in particular the two closest major towns Paamiut and Nuuk; and national level as the whole of Greenland. It is expected that most regional impacts will to a large extent also apply at national level, which is why these two levels are treated together.

The division into levels is illustrated in the figure below.

Figure 6-1: Local, municipal and national level



The potential impacts are described for both scenario A and scenario B (see section 4.3 for a more detailed description of the two scenarios).

Table 6-1: Over summarizes the impacts described in the following sections.

Table 6-1: Overview of potential impacts

Category	Impacts
Employment (section 6.2)	Employment of Greenlandic workers (6.2.1) Indirect and induced employment effects (6.2.2) Cumulative influences and conflict with other sectors (6.2.3) Personal income tax (6.2.4) Working conditions (6.2.5)
Education (section 6.3)	Competence development (6.3.1)
Economic Impact - Not Employment (Section 6.4)	Business Opportunities (6.4.1) Corporation tax/royalties (6.4.2)
Public sector and infrastructure (section 6.5)	Infrastructure (6.5.1) Pressure on the public sector (6.5.2) Public health and emergency preparedness (6.5.3) Vulnerable groups, crime and abuse (6.5.4) Migration (migration and migration patterns) (6.5.5) Cumulative effects (excluding labour market effects) (6.5.6)
Residual impacts (section 6.6)	Cultural heritage, socio-cultural values and entertainment activities (6.6.1)

6.1 Method for assessing societal sustainability

The potential impacts of the project are assessed for all three phases of the project; construction, operation, and closure phase. The assessment is based on existing data and information about the Greenlandic community as well as interviews conducted with relevant stakeholders. Interviews have been held in the period February-March 2022 both virtually, by telephone and physically in Qeqertarsuatsiaat. An overview of interviews is given in Chapter 8.

For each impact, an assessment has been made of the probability and consequence of the impact. Assessment of the effects of the impacts (negative and positive, respectively) is assessed according to the content of Table 6-2:

Table 6-2: Criteria for assessing societal sustainability

	Positive (advantages and opportunities)	Negative (risks and impacts)
Insignificant	The effect will be without social significance/relevance.	The effect will be without social significance/relevance.
Low	There is an effect, but not an effect, that materializes in significant benefits and opportunities socially.	There is an effect, but not an effect, that materializes in significant negative societal influences.
Medium	Moderately noticeable effect of increased opportunities and benefits in society.	Moderately noticeable and harmful effect on society.

Hight	The effect is of significant social significance in relation to the increased benefits and opportunities that are provided.	The effect is of significant negative societal impact, which to a large extent has an impact on social and societal conditions.

The four defined impact levels are further assessed from a time perspective, as well as the expected extent of the impact. The impact assessment for the individual impacts is linked to an assessment of probability. Probability is assessed on the basis of the content in Table 6-3.

Table 6-3: Classification of probability

Probability of occurrence of the potential impact	Description
Largely unlikely	Influence is rare and is considered virtually impossible in practice. Will be able to occur under unusual circumstances.
Unlikely	No expectation that the impact will occur, but a certain risk for this cannot be ruled out.
Likely	Expectation that the impact will occur, possibly based on past experience.
Largely likely	Experiences that influence arises under similar circumstances and/or is expected to arise in the project.

Finally, the probability and consequence of the impacts are combined in an assessment matrix, which is shown in Table 6-4 below. Section 6.7 contains a summary of all included impacts, cf. the evaluation matrix below. Section 6.7 will also list relevant mitigating measures.

Table 6-4: Assessment matrix of impacts

	Consequence				
		Insignificant	**Low**	**Medium**	**High**
Probability	**Largely unlikely**	Assessed low grade of positive/negative impact			
	Unlikely				
	Likely				
	Largely likely				Assessed high grade of positive/negative impact

6.2 Employment

Section 6-2 deals with the five different influences identified in relation to employment.

6.2.1 Employment of Greenlandic workers

As described in Chapter 5, the construction phase is expected to start in the second half of 2023 and is expected to require the employment of 30-40 people. The operational phase for scenario A is expected to require approx. 60 employees and scenario B approx. 85 employees. The closure phase is estimated to require a workforce of approx. 10-15 people. The expectations for the workforce in the three phases will apply for a minimum of nine months per year. The remaining

months will be approx. 25-30 people will be busy with maintenance and preparation of product capacity for the coming shipping season.

It is expected that approx. 30 pct. of the job functions are occupied by unskilled workers, approx. 60 pct. of skilled workers and the last 10 pct. of managers and academics. A comprehensive overview of job functions and expected number of employees can be found in section 4-2.2.
GAM will employ Greenlandic labour to the extent that there are applicants with the right qualifications. Experience from previous mining projects indicates that employment of up to 40-50 percent Greenlandic labour force is a realistic estimate, primarily in unskilled positions, but also partly in skilled positions. A number of general factors affect the assessment of expected employment effects as well as the probability of this. These are reviewed in the following.

Expectations for the employment of Greenlandic labour must first and foremost be seen in connection with a structural shortage of skilled labour in the raw materials sector. An analysis from 2021 prepared by the Greenland Chamber of Commerce concludes a shortage of labour, especially in the raw materials sector. [116] In addition, the mine project's planned start-up coincides with a number of major construction projects in Kommuneqarfik Sermersooq, where the Aappaluttoq ruby mine project is also located. Therefore, there may be a risk that a large part of the potential workforce is already employed when the construction phase is started.

Section 5-3.2.1 describes the declining unemployment since 2015 and also the seasonal nature of unemployment. The seasonal unemployment indicated in the statistics is confirmed through dialogue with locals in Qeqertarsuatsiaat, and it is also pointed out that the decrease in local unemployment is largely due to the fact that many young people have applied for education in the towns.

The shifting and seasonal nature of the mining work may have an impact on whether employment opportunities 9-11 months a year will be sufficient to attract Greenlandic labour. However, for a small part of the workforce, it will be possible to work all season, as certain functions are necessary regardless of the maintenance period (e.g. catering, cleaning, truck driving, maintenance).

Impact on employment when employing Greenlandic labour in the mine depends on whether the employees are deducted from current employment or unemployment. If employees are drawn to the mine from other employment, the actual employment effect will lapse. Therefore, the impact on employment should be assessed in view of the above factors, and in particular the decline in unemployment since 2015.

Expectations of employment effects from the mining project, both locally and municipally, are dealt with in the following on the basis of the above-mentioned general conditions.

Scenario A

Local impact

The project creates jobs and thus opportunities for employment in the local area over the life of the project. The direct local employment generated by the project will depend on the possibility of matching the local competencies with positions in the mine.

At an information meeting held by GAM in 2020, it was stated that several of those present could be interested in the jobs that the project would create. Through interviews with locals in Qeqertarsuatsiaat in March 2022, it was also mentioned that there are individuals both completely and partially unemployed who could have an interest and qualifications to carry out work in the

[116] Grønlands Erhverv (2021).

mine. As the majority of the workforce in Qeqertarsuatsiaat is unskilled, it will in principle primarily be employment in unskilled positions.

Involvement of residents of Qeqertarsuatsiaat in connection with the SIA report has not helped to uncover experiences or concerns that the working conditions with shifts at the mine will deter locals from seeking work. In connection with this, it should be mentioned that GAM is open to the fact that locals can be employed in a job scheme other than shift work, since they have other conditions for traveling to and from the mine.

Based on the fact that unemployment in Qeqertarsuatsiaat is currently at a low level and that only a few unemployed people with an interest in carrying out work in the mine have been identified in the involvement process, the employment effects will be limited locally. Further local anchoring of employment in the mine will thus require employees to be deducted from their current employment in the settlement, thereby eliminating real positive employment effects. Local employment effects are therefore assessed as probable but with a low degree of impact on the local community.

Municipal/national impact

The mining project offers municipal jobs, and if the required level of qualification is found among the unemployed in the municipality, there will be a positive employment effect. As the Greenlandic workforce is characterized by being very mobile (cf. section 5-2.2), it is possible that workers from other parts of Greenland will seek work at the mine.

Based on the fact that an experience-based estimate of the proportion of Greenlandic workers is around 40-50 percent, this will mean a total number of employees of approx. 15-20 employees in the construction phase, 25-30 in the operational phase and 5-7 employees in the decommissioning phase. However, this is provided that the necessary competencies are actually present and available for the project.

The above-mentioned experience-based assessment must be seen in connection with the current conditions for employment. The possibility of a municipal/national employment effect will to a large extent depend on the structural conditions that apply in the labour market within the raw materials sector, as outlined initially in the section. The coincidence with other mining and construction projects, general shortage of qualified labour in the sector, as well as a current low unemployment may affect the possibility of employing Greenlandic labour especially in the construction phase.

Impact in the event of a coincidence with other mining and construction projects will, however, probably be limited to the first year of the mining project, which is why over time this should not be an obstacle to employing Greenlandic labour. Potential positive employment effects by attracting labour to the project from completed mining or construction projects are dealt with separately in section 6-2.3.

The project is assessed to be able to provide moderately noticeable employment effects municipally and nationally, which is considered to be largely likely. It is noted that the assessment is based on a time perspective, which extends into the project's operational phase, which is why special coincidence with other mining and construction projects will not be a factor.

Scenario B

In the operational phase, GAM expects to employ approx. 85-90 people in scenario B at full operation, but it is not expected that there will be a difference in the need for labour between the two

scenarios in the project's construction and decommissioning phase. The expected employment effects will thus be marginally greater for scenario B, but will not change the assessment of impact at both local and municipal/national level.

Identified measures for managing impacts

- Preparation of a description of the requirements for jobs in the different job categories for the three phases of the project.
- Development of job advertisements for both local and national advertising.
- Recruitment campaign aimed directly at municipal employment in particular; Qeqertarsuatsiaat, Paamiut and Nuuk.
- GAM is open to the fact that employees from Qeqertarsuatsiaat will be able to be employed in a job scheme other than shift work, as they do not have long travel times home to the same extent as other employees.
- Contact and possible collaboration with the Greenland Chamber of Commerce, Majoriaq, SIK and the municipal employment service on job opportunities.
- Contact and possible collaboration with KTI Råstofskolen regarding opportunities for upgrading qualifications as well as internships and apprenticeships.
- Hiring an HR employee.

6.2.2 Indirect and induced employment effects

It is expected that a project such as Majoqqap Qaava will have indirect and induced employment effects. Indirect employment effects are the jobs created by subcontractors for the mining work as they experience increasing demand for their services/goods offered. This can be, for example, catering, cleaning, transport of goods or people, managing the camp/accommodation, craftsman assistance, IT services and delivery of fuel.[117]

Induced employment effects are the jobs that are created as a result of increased economic activity in the area when the employees at the mine and local suppliers use their income in the local area. The size of the effect depends partly on several of the factors mentioned in section 6-2.1, especially unemployment, skills and structural conditions in the labour market for the sectors in question, and partly on the extent to which the mining project will use Greenlandic suppliers of goods and services - even by However, the use of foreign suppliers is expected to increase local consumption. This of course depends to a large extent on whether there is a skills match in the local workforce.

To calculate the indirect and induced employment effects, a multiplication factor is used. In a report prepared by Copenhagen Economics[118], an economic assessment has been made with a view to determining an appropriate multiplier for employment. The determination of this is calculated as partly an indirect and induced employment effect and is shown in Table 6-5. The multiplier is expected to decrease towards the year 2030.

[117] It is currently not clear which of these services will be outsourced and which will be provided by the company itself. Given the geographic location of the mine, on-site competencies are expected to be needed.

[118] Copenhagen Economics (2012).

Table 6-5: Employment Multiplier

	2012	2030
Indirect	1,39	1,33
Induced	1,13	1,16
Total	**1,52**	**1,49**

Source: *Copenhagen Economics (2012).*

Using the multiplier to calculate derivative effects will of course be associated with some uncertainty. Experience from other mining projects in Greenland indicates that the multiplication factor for similar projects is between 1.2 and 1.39.[119] In projects conducted in Canada and Alaska, the multiplier has been set higher at around 1.6-1.8. The lower setting of the multiplier in Greenland is due both to the fact that Greenland makes greater use of imports and to the limited size of the manufacturing sector. In addition, it plays a role that several Greenlandic mining projects are located remote.[120]

The induced employment effect also depends on the consumption patterns among those employed in the mine. In particular, foreign labour is expected to have a lower consumption (in Greenland) than national labour. The total multiplier therefore depends on the proportion of the employees in the mine who are resp. foreign and Greenlandic labour.[121]

The use of a factor of 1.3 is considered to be a reasonable estimate and is in the same order of magnitude as the factor used in previous SIA reports for Greenlandic mining projects. Specifically, derived employment effects are calculated by using an employment multiplier of resp. 1,2 and 1,3. The spread on the estimates for indirect / induced jobs shown in Table 6-6 reflects this spread for the employment multiplier. It is noted that in the calculations of the indirect/induced employment effects, no distinction is made between local and municipal/national effects.

Scenario A

As shown in Table 6-6, there are a small number of direct employment effects. The indirect/induced employment effects are therefore assessed as a low degree of societal impact. The impact is considered to be largely likely.

Table 6-6: Estimated number of indirect/induced jobs

Phase	Anticipated no. of direct jobs	Estimated no. of indirect/induced jobs
Construction	30-40	6-12
Operational	60	12-18
Closure	10-15	2-9

Scenario B

As GAM expects to employ more employees in the operational phase in scenario B, the indirect and induced employment effects for this phase are likely to be marginally higher than in scenario A. With an expectation of approx. 85 workplaces, it is estimated that between **17** and **25**

[119] Copenhagen Economics (2012), NIRAS (2010) & Angus & Ross (2009).
[120] Copenhagen Economics (2012).
[121] Ibid.

indirect/induced workplaces using a multiplier effect of between 1.2-1.3. However, the effect is still considered low but predominantly likely.

Identified measures for managing impacts

- Goods and services will be purchased on market terms, but preferably from Greenlandic suppliers if these are competitive.
- It will be assessed whether GAM can solve sub-tasks itself rather than having these put out to tender. If GAM can solve sub-tasks itself, the starting point for this will be that it can help to create more local jobs.

6.2.3 Cumulative impacts and conflict with other sectors

The potential impacts of the anorthosite project must be seen in the context of other mining and construction projects in Greenland. It is referred to here as the cumulative influences. This section focuses on the cumulative effects on employment. The remaining cumulative effects are described in section 6-5.6.

Both the construction of the airport in Ilulissat and Nuuk is expected to be completed in 2024. Thus, the planned start-up for the construction phase of GAM's mining project will overlap with these two projects.

According to the plan, the Aappaluttoq ruby mine is expected to close in 2023 if there is no business basis to continue. The mine employs approx. 26 people in total, divided into 20 people in the mine and six people in Nuuk. In addition, the Anorthosite Project (White Mountain Project) employs approx. 47 employees in the ongoing operational phase according to the available SIA report for the project.[122]

As mentioned in section 6-2.1, the above conditions can lead to challenges in employing a large proportion of Greenlandic workers, especially during the construction phase. As there is a large proportion of unskilled labour in Greenland, it is also possible that the mining project will increase competition for unskilled labour and thereby affect sectors that employ a large number of unskilled workers.

The probable coincidence between the construction and possibly the operational phase means that there is a possibility of positive cumulative effects on employment. Workers who have been - or are - employed in one of the current construction or mining projects will thus be able to find employment through GAM.

Scenario A

Local impacts

Through interviews with locals from Qeqertarsuatsiaat, no local residents have been identified who are employed outside the settlement in construction or mining projects other than two locals who are employed in the canteen at the Aappaluttoq ruby mine. Cumulative effects on local employment due to positive overlaps between employments are thus considered unlikely.

[122] Hudson Resources Inc. 2015.

The mining project's employment of especially unskilled labour and to a limited extent also skilled workers may in particular compete with the fish factory in Qeqertarsuatsiaat, especially in the summer. In the event that the mining project offers working conditions and wages that are more favourable than the current ones at the fish factory, it is likely that workers here will shift to carry out work in the mine. Through interviews with local residents of Qeqertarsuatsiaat, it has been expressed that it is difficult to attract and retain local labour. Therefore, it will be of great importance to the local community if local labour is pulled out of the settlement.

Experience from the ruby mine, however, indicates that the above problem is not necessarily relevant. Prior to the opening of the ruby mine, concerns had been expressed that it would remove jobs from the settlement, particularly from the fish factory. However, this has not been the case after the mine opened. It is pointed out by the locals that this type of influence will largely depend on what working conditions and wages GAM will offer.

Based on the above, local cumulative employment effects are assessed to be of significant importance to the local community, but as no experience with the impact in question has been identified, this is assessed as unlikely.

Municipal/national impact

It was initially described in this section that due to the mining project, both positive and negative cumulative employment impacts could occur; partly positive by virtue of job retention in the construction and raw materials sector, and partly negative in the form of competition for unskilled labour with other sectors.

The cumulative effects that are likely to occur due to coincidences with ongoing construction and mining projects will in the construction phase most likely make it difficult to attract Greenlandic employment to the Majoqqap Qaava project. However, this effect is expected to be limited to the first years of the project's lifetime, as ongoing construction and mining projects are being phased out. The municipal/national cumulative impact will in the long run be positive, as it enables the maintenance of Greenlandic employment in the raw materials and construction sector, and thus not only retention, but also continued upgrading and opportunities for competence development of the Greenlandic workforce.

These positive cumulative impacts will partly be limited in scope to the size of the project, as well as uncertainty about the size of the transfer of labour from ongoing projects to the anorthosite project. The impact is therefore considered to be low and likely.

In relation to the negative consequences that may result from the anorthosite project competing with other sectors (including especially unskilled labour), no experiences or concrete examples of this have been identified through interviews. The impact must be seen in the same way as above in connection with the size of the project. The societal impact at municipal/national level is therefore considered to be partly insignificant but also unlikely.

Scenario B

In scenario B, the project will hire more employees, which is why there will be marginally greater effects, positive as well as negative. However, this does not change the assessment from the previous section.

Identified measures for managing impacts

- Dialogue and possible collaboration with both local and municipal authorities based on identifying and coordinating existing competencies.
- Employment of HR employee to support recruitment of Greenlandic and other labour, respectively. to be part of competence development projects and other facilitation of employees.

6.2.4 Personal income tax

In Kommuneqarfik Sermersooq, 42 percent are paid in personal income tax.[123] In addition, the local population can make use of a personal deduction of DKK 48,000 and a standard deduction of DKK 10,000.[124] The calculation of the total annual tax is thus not based on other types of deductions, as the individual deductions are not known in the final annual statement.

Foreign labour pays 35 percent in personal tax in Greenland, but on the other hand has no personal deduction to make use of.[125] In addition, foreign labour is often subject to "top up" tax from the home country, which i.a. depends on time away from the country in question, total income etc.

Calculation of personal taxation is based on the expected number of employees and the budgeted annual earnings per. employee.

It is expected that there will be a need for 30-40 employees in the construction phase and 10-15 employees in the closure phase. In the operational phase, for scenario A, there is an expectation of employment of approx. 60 employees and in scenario B 85-90 employees, if the assumed production targets are achieved.

Table 6-7 indicates a possible distribution of the workforce's division between Greenlandic and foreign labour, provided that the necessary competencies are present locally. This is based on the preliminary assessment of the required workforce. Here, it is assumed that managers and academics who are part of the workforce are predominantly foreign, while the two remaining groups are handled by both Greenlandic and foreign labour. GAM has provided a draft for the distribution of labour during the operational phase. The relative distribution of functions in this phase is also assumed to be reflected in the other phases.

Table 6-7: Grouping of labour by function at the three phases of the project

Function	Employment	Scenario A	Scenario B
Construction phase			
Managers/academics	Greenlandic	0	0
	Foreign	3-4	3-4
Skilled	Greenlandic	8-9	8-9
	Foreign	10-13	10-13
Unskilled	Greenlandic	5-7	5-7

[123] National tax of 10 percent to the Greenlandic government, municipal tax of 26 percent. to Kommuneqarfik Sermersooq and a joint municipal tax of 6 percent.

[124] Grønlands Mineral Myndighed (2020a) og Skattestyrelsen (2018).

[125] Grønlands Mineral Myndighed (2020a).

	Foreign	5-7	5-7
Total	-	**30-40**	**30-40**
Operational phase			
Managers/academic	Greenlandic	0	0
	Foreign	6-7	8-9
Skilled	Greenlandic	14-15	20-21
	Foreign	21-22	31-32
Unskilled	Greenlandic	9-10	13-14
	Foreign	9-10	13-14
Total	-	**61**	**87**
Closure phase			
Managers/academic	Greenlandic	0	0
	Foreign	1	1
Skilled	Greenlandic	3-4	3-4
	Foreign	4-5	4-5
Unskilled	Greenlandic	1-3	1-3
	Foreign	1-3	1-3
Total	-	**10-15**	**10-15**

Note: *Managers and academics are assumed to hold the following positions: mine manager, geologist, factory manager, technical manager, warehouse manager and engineer. Professionals are assumed to be drillers, shift foremen, miners, laboratory technicians, machine operators, operators, maintenance work, mechanics, electricians, environmental technicians, nurses and IT technicians. Unskilled workers are assigned to the truck driver, workers, chef and kitchen assistants, cleaning assistants and janitor/caretaker.*

GAM's Preliminary Economic Assessment provides, among other things, information on expected annual salary levels for the various positions. GAM expects to follow the agreement levels that exist in the areas of work in question, such as agreed between SIK and the Greenland Employers' Association. Based on these figures, an average for the three function types is estimated, which appears from the division above. Based on this estimate, the annual salary incl. holiday pay, pension and AMA for unskilled labour is approx. DKK 358,000, for skilled labour, the annual salary will be approx. DKK 388,000, while the average annual salary for academics and managers is expected to be DKK 766,000.[126]

Table 6-8 shows the personal tax base and income tax calculated for resp. scenarios A and B. It is expected that the construction phase will take place over 1.5–2 years. Based on the current mineral resource, the mine will be able to operate for at least 25-30 years (the area is expected to have undefined resources for another 50-100 years of production). The closure of the mine is expected to take up to a year from the time the mine closes.

The calculations of the estimated personal income tax for both scenarios A and B appear from the following sections. As scenario B will involve more employees, the impacts will be greater for this scenario.

[126] Based on salary information from GAM and Rambøll's operationalization of the three function groups.

Scenario A and B

Local impact

There is no direct impact on personal income tax for the locals who may be employed at the mine. The personal income tax is a derivative effect of the employment, which is described in section 6-2-1.

Municipal/national impact

The table below shows the estimated personal tax bases and their income tax distributed for the three defined professional groups in scenario A and scenario B, respectively.

Table 6-8: Personal tax base and income tax, scenarios A and B

	Scenario A		Scenario B	
Function	**Tax base (DKK million)**	**Income tax (DKK million)**	**Tax base (DKK million)**	**Income tax (DKK million)**
Construction phase				
Managers/academics	5,4	1,9	5,4	1,9
Skilled	16,3	6,2	16,3	6,2
Unskilled	7,5	2,9	7,5	2,9
Total	**29,2**	**10,9**	**29,2**	**10,9**
Operational phase				
Managers/academics	166,6	58,3	116,8	58,3
Skilled	355,0	134,2	506,3	191,4
Unskilled	163,8	63,1	233,6	89,9
Total	**685,4**	**255,6**	**906,5**	**339,6**
Closure phase				
Managers/academics	1,0	0,3	1,0	0,3
Skilled	2,9	1,1	2,9	1,1
Unskilled	1,3	0,5	1,3	0,5
Total	**5,2**	**2,0**	**5,2**	**2,0**
Total	**719,8**	**268,4**	**940,9**	**352,5**

Note: *During the construction phase, it is assumed that 16 unskilled workers, 16 skilled workers and three managers/academics are employed. In the operational phase, the same number of workers is used as presented in Table 6-7: For the closure phase, it is assumed that five unskilled workers, six skilled workers and one manager/academic will be employed.*

Since the main part of the life of the mining project is during the operational phase, the majority of the tax base and income tax derives from this phase. As can be seen from the table above, for scenario A there will be a total tax base of DKK 719.8 million with an expected income tax of DKK 268.4 million. For scenario B, the corresponding amounts are DKK 940.9 million DKK for the tax base and 352.5 for income tax, respectively.

In the same way as described in section 6-2.2, there will be a multiplier effect on employment in the mine insofar as the employees spend their earnings on consumption in Greenland, thereby creating new jobs and earnings. Based on the same argumentation as made in section 6-2.2, this multiplier is set to 1.3.

The total annual tax base has been calculated for a factor of 1.3 and is shown in Table 6-9 below.

Table 6-9: Total tax base generated by the project based on a multiplier effect of 1.3

Tax base (DKK million)	Scenario A	Scenario B
Construction phase	37,9	37,9
Operational phase	891,0	1.178,5
Closure phase	6,8	6,8
Total	935,7	1223,2

The mining project is estimated to generate a total tax base of between DKK 936 million and DKK 1,223 million in the operational phase. It should be emphasized that the above calculations of the tax base and income tax do not take into account which alternative occupations the employees come from. Thus, the actual effect of the calculated income tax will largely depend on whether the (Greenlandic) employees come from unemployment or work, and in that case the remuneration of this work. As mentioned in section 6.3, there are large differences in the wage level in Greenland.

Identified measures for managing impacts

- No measures have been identified for dealing with impacts regarding taxation, as this is determined by legal basis as well as collectively agreed salaries. Impacts with indirect influence on the generated income tax are dealt with in other sections.

6.2.5 Working conditions

The workforce in Greenland is mainly organized and represented by SIK (Sulinermik Inuussutissarsiuteqartut Kattuffiat). Private employers are organized under GE (Greenland Business) and NUSUKA (Nunaqavissut Suliffiutillit Kattuffiat). The ILO conventions describe the required working conditions for all workers.[127] In addition, national occupational health and safety legislation provides for special regulation in relation to the extractive industries.[128]

Through interviews with municipal and educational actors, it has been pointed out that it can be of great importance, especially for Greenlandic workers, that despite shift work, it is possible to maintain a good connection to family and traditional lifestyle. In addition, it has been noted that conflicts may arise in connection with the multicultural environment, which may arise in connection with the mining projects in connection with the employment of both Greenlandic and foreign labour.

Scenario A

Based on the size of the project and compliance with legislation in the area, there is no evidence to expect that the project will affect working conditions either locally, municipally or nationally, to a significant degree. Below, however, are a number of identified measures for managing impacts, so that good working conditions in the mine are ensured.

[127] Bekendtgørelse af ILO-konventionen (1989).
[128] Arbejdstilsynets bekendtgørelse (2015).

Scenario B
In the same way as in scenario A, there is no basis to expect that the project will affect working conditions either locally, municipally or nationally to a significant degree in scenario B.

Identified measures for managing impacts

- Working conditions are established in accordance with the guidelines of SIK and other Greenlandic trade unions and the ILO conventions. The conditions are intended to ensure that the Greenlandic requirements are met and also to help avoid a distortion of the local labour market.
- Adoption of rotation plans for the workforce so that family-friendly employment is promoted and the opportunities to maintain family relationships and traditional lifestyles are improved. Individual appointments may have been exempt from rotation if the transport distance to the home is short.
- It is proposed that introductory courses be prepared on intercultural understanding as well as a policy to combat bullying in the workplace.
- Ongoing workplace assessment and possible preparation of training programs in connection therewith.
- Requirements for contractors on safety and regulations.

6.3 Education
Influence of education level relates to the opportunities for competence development for the Greenlandic population.

6.3.1 Competence development
As described in Chapter 5, a wide range of different job functions are included in the construction and operational phase of the project in particular. Chapter 5 also states that the job functions described partly constitute a need for specialized qualifications and partly qualifications that can be acquired through courses and more short-term training courses.

GAM intends to use Greenlandic labour to the extent that there is a qualified competence match within a financial, appropriate framework. Through the employment of Greenlandic labour, opportunities are created for upskilling and competence development through the job functions that are handled at the mine. Both for skilled workers but especially also for unskilled workers, this will be possible. In addition, the availability of more jobs in the mining sector can help make it more attractive for young people to pursue an educational path in the profession. This may in the long run make it easier to match qualifications with positions in the sector with Greenlandic workers.

The operational phase will be the most extensive in relation to the need to occupy various job functions. The construction and decommissioning phase will also require a range of competencies. It is estimated that out of the total number of jobs, approx. 30 percent unskilled labour, 60 percent skilled labour and approx. 10 percent academics.

In order to target the upskilling of the Greenlandic workforce, as part of the activities around mining, it will be possible to create apprenticeships, training and the opportunity for upskilling to hold higher positions. In addition, a relocation program is planned after the closure of the mine, as well as considerations regarding the employment of an HR manager on the project. The HR manager must be responsible for recruiting both Greenlandic and foreign labour, cultural integration and other facilitation of employees.

Scenario A

Local impact

To the extent that the necessary qualifications are found locally, which have the opportunity to take up work in the mine, there will be an opportunity for long-term development of local competencies. This both through workplaces and the opportunity for training as well as apprenticeships and apprenticeships.

As mentioned in section 6-2.1, there are currently only a few locals that are considered to be possible workers at the mine. The competence level locally is described in interviews as low/predominantly unskilled. There is thus a starting point for local retraining, but this is limited to a few potential workers in the settlement. The impact is therefore assessed as low/without great significance and likely.

Municipal/national impact

The availability of more jobs, where there will be opportunities for ongoing training and skills development, can make a positive contribution to upgrading and developing skills for the Greenlandic workers. The same applies to the creation of apprenticeships, whereby a positive contribution is made to training courses within the raw materials sector. In particular, there will be a great positive effect if the unemployed are activated through employment and possible participation in training and retraining courses.

As the Greenlandic workforce is characterized by a high degree of mobility (which is assumed to be enhanced by work in shifts), it is expected that positions can also be filled by Greenlandic workers outside Kommuneqarfik Sermersooq. Upskilling through employment in the mine can thus contribute to the development of competence profiles nationally both within mining, but also in sectors with overlapping work profiles.

The assessment of the impact on the opportunities for competence development through the mining project is made on the basis of the same conditions that apply to employment, as employment and the opportunity for competence development and upskilling are considered dependent. Of course, provided that Greenlandic workers are retained in employment at the mine over a time horizon that enables skills development and upskilling. The impact is assessed to have a low/moderate municipal/national effect. It is considered highly likely that the effect will occur, based on the prerequisites for the employment of Greenlandic labour in section 6-2.1.

Scenario B

It is expected that the impact on education and retraining will be the same for scenario B, which applies to scenario A. However, the effect for scenario B will probably be marginally greater, as this scenario will require the employment of more employees.

Identified measures for managing impacts

- Opportunity to collaborate with educational institutions, including the KTI Råstofskolen, on education and training.
- Opportunity for collaboration with the municipality on required courses and continuing education, so that activation of the unskilled and unemployed is targeted.
- HR employee, possibly based in Nuuk. To ensure both a good recruitment process and also subsequent training and career development for employees.
- Creation of a relocation program after mine closure.

6.4 Economic impact (non-employment)

This section presents the potential economic impacts of business opportunities and corporation tax.

6.4.1 Business opportunities

The mining project can help create business opportunities for both local and municipal actors through the delivery of goods and services. In particular, sailing and shipping is expected to be carried out by Greenlandic providers, as well as communication services and fuel deliveries. More specialized solutions for the development of infrastructure at the mine are expected to be handled by foreign contractors.

In interviews with municipal/national actors, it has been pointed out that there is good experience from previous mining projects that services such as supply and transport can be provided by Greenlandic suppliers. The possibility of business connections will depend on both the necessary needs on the part of the mining project and the capacity on the supplier side in Greenland (Personal communication, Naalakkersuisut and Kommuneqarfik Sermersooq, February 2022).

As previously mentioned, there are several ongoing construction and mining projects that also need to deliver goods and services. This can create challenges for Greenlandic companies in relation to bidding for contracts. In addition, it can be a challenge in general for Greenlandic companies to bid for larger contracts due to the size of the supply and manufacturing sector.

Scenario A

Local impact

The mining project can help create local business opportunities through the delivery of goods and services.

The impact also depends on the extent to which the local companies can provide the goods/services that are demanded by the mining project. In the Qeqertarsuatsiaat, carpentry and plumbing companies have been identified that could be commercially interested in the mining project. Local fishermen and catchers will probably be able to deliver fish and meat to the mine canteen. However, the experience from the Appaluttoq mining project is that this has not led to business opportunities locally (Personal Communication, Qeqertarsuatsiaat, March 2022).

There is also a risk that local businesses will be negatively affected if larger or smaller parts of the local workforce are employed at the mine and are therefore accommodated 30 km away from Qeqertarsuatsiaat. This risk is addressed in section 6-2.3.

Delivery of meat and fish from local fishermen and hunters to the mine canteen is considered to be a likely business opportunity. Business opportunities for fishermen and hunters will also be of

noticeable local importance, as activities related to hunting and fishing are emphasized as central to settlement life. Additional business opportunities are considered to be of limited importance due to the size of the remaining local businesses.

Municipal/national influence
The mining project can help to create business opportunities for municipal companies by, for example, using suppliers from Nuuk or Paamiut. However, this impact will depend on the extent to which municipal companies can provide the goods/services that are demanded by the mining project on market terms.

As mentioned in the introduction to the section, there is experience from previous projects with opportunities for business connections linked in particular to specific services. The possibility of business opportunities associated with the anorthosite project is therefore considered likely, but due to the size of the project, the impact will be of low/moderate significance at municipal/national level.

Scenario B
The differences in operations between scenarios A and B are not expected to have significant effects on business opportunities. The assessment of impact is therefore as described above.

Possible/identified measures for managing influences

- Contracts for deliveries and services are operated on market terms but on the basis of priority for Greenlandic suppliers.
- Contracts are broken up into smaller parts where it does not have negative financial, managerial or temporal negative effects for GAM, in order to improve the opportunities for Greenlandic suppliers to bid.
- Cooperation with RAL and Air Greenland. In connection with tenders for catering, the starting point is that local and traditional food can be delivered. Including any possibility of agreement with local fishermen and hunters on delivery of fish and meat to the canteen.

6.4.2 Corporation tax and royalties

Corporation tax and royalties are paid in accordance with the rules described in section 3-2.

The mine produces the same product as the White Mountain Anorthosite project. However, anorthosite from Majoqqap Qaava has a chemical composition with lower alkali content than the aforementioned. It must be clarified whether the increased supply of the product has an impact on the profitability of both the current and the ongoing mining project. The material anorthosite has a wide range of application possibilities, and one of the great advantages of the material is that it can be used in the right quality for far more environmentally friendly production of fiberglass and aluminium than the usual production methods. The market for anorthosite is therefore far from being saturated.

The calculations are based on 25 years of mining incl. two years ramp up to full production.

Scenario A

Local impact

No direct local impact.

Municipal/national influence

The taxable income from 25 years of mining with two years of ramp up amounts to an estimated USD 321 million. The total corporation and dividend tax thus amounts to USD 117 million. Paid royalties over the life of the project are estimated at USD 20.5 million.

Scenario B

Local impact

No direct local impact.

The taxable income from 25 years of mining with two years of ramp up amounts to an estimated USD 414.6 million. The total corporation and dividend tax thus amounts to USD 155.6 million. Of this, paid royalties over the life of the project are estimated at USD 31.1 million.

Identified measures for managing impacts

- The tax payments received for the project are a derivative effect of the project's profitability, which is why there are no identified measures for managing the impact. Further analyses and market coverage will be carried out to qualify the choice of production scenario.

6.5 The public sector and infrastructure

The public sector and infrastructure may be affected by the project. In this section, the focus is on the infrastructure, pressure on the public sector, public health and preparedness, vulnerable groups, crime and abuse, migration (movement patterns) and cumulative impacts (labour market effects excluded).

6.5.1 Infrastructure

In the following, possible impacts for transport, housing, supply and communication are reviewed.

A description of the project's layout and elements can be found in section 4.2.1. The biggest infrastructural changes in the local area will be the construction of a jetty consisting of a permanent floating barge, as well as the establishment of a 17 km road from the mine to the processing plant at the port. Today, there is neither a jetty nor a road between the mine and the processing plant in the projected area.

In connection with the project, permanent accommodation will be established for the employees. Accommodation will not be placed in the immediate vicinity of the port and the process facilities. The accommodation area consists partly of buildings with rooms, partly of a number of common areas, including TV and living rooms, kitchen and dining room. In the long term, GAM wishes for employees to be able to establish themselves in the area to a greater extent and will therefore work to improve housing conditions as well as recreational opportunities, family stays, etc. in order to better retain employees and create good, attractive working conditions.

In addition, the project's impact on the public infrastructure will largely depend on how the mine personnel get to/from the mine and whether personnel changes must be handled in Qeqertarsuatsiaat.

Scenario A

Local impact

Transport to and from the mine will primarily take place by boat/ship from Nuuk of both personnel according to the turn-around scheme and goods. In special situations where necessary, transport will take place by helicopter.

Through interviews with local inhabitants of Qeqertarsuatsiaat, it has been expressed that it would be important if the constructed road at the mine could be used by the local population in connection with recreational activities such as reindeer hunting. The possibility that the locals can use the development of the infrastructure in connection with the mine will thus be of positive importance for traditional leisure activities in the settlement.

No impacts on the local housing situation are expected, as accommodation will take place at the mine, and there is also no immediate reason for accommodation in Qeqertarsuatsiaat to occur.

All impacts which relate to the expansion of infrastructure for supply and communication linked to the mining operation will take place in direct connection with the mine and are therefore not expected to cause local impacts.

The only identified, likely impact on the infrastructure is thus the possibility that the locals can use the constructed road adjacent to the mine. Impact on local infrastructure is therefore assessed overall as low and this as likely, as it has otherwise not been possible to identify either very positive or very negative experiences from early years.

Municipal/national impact

Transport with personnel and goods will take place primarily with departure from Nuuk, which is why the port in Nuuk will be used. Impact in the form of potential pressure on the public infrastructure for ship traffic must be seen in the light of the project's relatively limited size, which is why the impact is assessed as low/negligible.

It is expected that the project will require a certain number of flights annually for international employees employed at the mine. At present and in the coming years, there will be a number of activities associated with both construction work and raw material activities. It is therefore likely that the required flights associated with the mine project activities will affect the availability of air transport services. However, this will only be the case if Air Greenland does not expand its services in line with an increase in demand. Therefore, the impact is assessed as low/insignificant, especially when compared to the size of the project.

It is likely that it will occasionally be necessary to use accommodation in Nuuk either by employees or business partners. As this will be partly temporary and of a small magnitude, the impact is assessed as negligible/low for the accommodation options in Nuuk.

The necessary expansion of the supply and communication network in connection with the mine will be carried out in direct connection with the mine, which is why no municipal or national impacts are expected to take place.

Overall, the municipal/national impact on infrastructure is assessed as being low/insignificant and this with overwhelming probability.

Scenario B
As Scenario B involves more employees, the identified impacts are likely to be marginally higher for this scenario. However, this is not assessed to be to a degree that is expected to affect the above assessment for scenario A.

Identified measures for handling impacts

- Possibility that the inhabitants of Qeqertarsuatsiaat can use the road in connection with recreational purposes and especially in connection with reindeer hunting.
- Cooperation with Air Greenland on the need for air transport.
- Cooperation with RAL on possibilities for sailing. If the mining town gets settlement status, that will be possible.

6.5.2 Pressure on the public sector and services

Pressure on the public sector and services is addressed, as there is currently a great deal of pressure on public services in Greenland. The pressure is due to a decrease in public revenue and an increase in public expenditure due to increasing demand.[129]

Health and rapid alert are addressed separately in section 6-5.3.

Scenario A
Local impact
The local impact will depend on the extent to which the mine and mining activities will make use of public services located in Qeqertarsuatsiaat, including whether RAL will be able to sail to the mine, or whether Qeqertarsuatsiaat will have to handle crew changes. This has not yet been clarified.

Influence of the public sector and services locally is assessed to be low and unlikely. The assessment has been made on the basis that the settlement may have to deal with crew changes, but that it is hoped that RAL will sail directly to the mine. In addition, neither positive nor negative impacts on the local public services in Qeqertarsuatsiaat have been identified.

Municipal/national impact
The project will make use of certain public services, for example access to police and customs, as well as general services such as approval and monitoring of the project's activities. Based on the size of the project, its impact on the public sector is expected to be very limited both at municipal and national level, which is why the impact is assessed as insignificant.

[129] Folketingstidende 2019-2020, tillæg G, Redegørelse nr. R 12 (2/4/2020).

Scenario B
Based on the low degree of expected impact described for scenario A, it is considered unlikely that this will differ for scenario B.

Identified measures for handling impacts

- Any increased pressure on the public sector and municipal/national services is assessed partly as being of limited scope, and partly as both temporary and not possible to remedy.

6.5.3 Public health and rapid alert

GAM plans to establish a nursing station at the mine that can handle medical challenges and emergency situations. A qualified nurse or other HSE (health, safety and environment) person must be employed here. In addition, there will be an all-terrain combined ambulance and fire truck at the mine. A contingency plan is implemented in relation to accidents on site.

Work in the mine will be associated with the risk of accidents at the workplace. This is due to, among other things:

- Fatigue (long working days)
- Heavy lifts
- Impact of noise
- Impact of dust

The above-mentioned accident risks are common risks associated with mining work and are thus sought to be minimized through the implementation of health checks, securing the working environment and emergency plans in accordance with national legislation and best practice guidelines.

Health checks are carried out for all workers at the mine as well as annual checks prior to the working season. Simple health problems that may arise on an ongoing basis are dealt with by consultations at the mine's health station. More serious health problems requiring medical facilities will be handled in Nuuk. Accident insurance and labour market occupational insurance are taken out for all employees.

As a workplace, the mine will be a "dry camp" without permission to consume drugs and narcotics of any kind. Consumption of drugs or narcotic substances will result in expulsion. GAM will have an increased focus on the area, but the expectation is that the workplace will not be exposed to drugs to a greater extent than the rest of society.

Scenario A
<u>Local impact</u>
For local workers, it can have a health impact if they obtain a higher income through employment in the mine. Higher income can, among other things, lead to better housing conditions and better food for both the employee and his family. However, the risks mentioned at the beginning of the section will also apply to any local workers.

Experience has previously shown that helicopter landings in and near Qeqertarsuatsiaat caused unwanted noise to the detriment of the local population. [130] However, helicopter visits are only expected to be necessary to a very limited extent. As soon as a road has been established from the mine to the coast, flying by helicopter will only be necessary in connection with search and rescue and evacuation.

As described in section 6-5.2, there have been challenges in recruiting staff to the health station in Qeqertarsuatsiaat, which has affected the quality of health services. Therefore, among the locals it has been expressed that it would be of great importance for the level of health services locally if the local population could use the mine's health station to an extent that must be agreed with the authorities in Nuuk.

As the expectation of local workers at the mine is limited to a few currently unemployed, both negative and positive direct impacts on health for these will be limited to this and are thus assessed as insignificant. The importance of the fact that local residents will be able to use the mine's health station to a certain extent is assessed to be of considerable importance to the local people, as the availability of health services is improved. The possibility that this can be done is assessed as likely.

Municipal/national impact
When employing municipal workers, the same direct health factors will apply as those mentioned above for the local population. Due to the project's size and location, no municipal or national impact on public health is expected, which is why the impact is assessed as insignificant.

Scenario B
Same as scenario A.

Identified measures for handling impacts

- Preparation of HSE manual and guidelines for the work place.
- Establishment of a working environment organisation.
- Possibility that residents of Qeqertarsuatsiaat will be able to use the mine's health station.
- Minimizing helicopter flights in the vicinity of Qeqertarsuatsiaat, and possibly dialogue with the settlement board about the possibilities of minimizing the nuisance associated with this.

6.5.4 Vulnerable groups, crime and abuse

Foreign experience indicates that mining projects have led to increased crime, prostitution and abuse in the local areas. [131] However, it has not been possible to identify examples of this being the case in relation to former Greenland mining projects.

However, it has been mentioned by some of the locals in Qeqertarsuatsiaat that transport networks to both the south and the north are important for the distribution of drugs in the local area.

[130] True North Gems Inc. (2014).
[131] Oxfam Community Aid Abroad (2002) & The Asia Foundation (2008).

Therefore, despite the mine's total ban on drugs, it cannot be ruled out that increased transport from and to Nuuk will contribute to increasing the distribution of drugs locally.

Scenario A

Local impact

The import and spread of new substances locally through the increased amount of traffic, especially from Nuuk, cannot be ruled out. However, the likelihood of this will depend on whether crew changes have to be handled in Qeqertarsuatsiaat, or sailing can take place directly to the mine, for example by RAL. If the increased traffic to/from the mine is handled outside the settlement, the probability is minimized.

Interviews with the inhabitants of Qeqertarsuatsiaat have sought to uncover whether there are particularly vulnerable population groups in the settlement as well as any concerns linked to the impact on them in connection with the planned mine. In the process, neither experiences nor concerns related to vulnerable groups in the settlement, which the mining activities are expected to affect, have been identified.

As no Greenlandic experience has been found that mining projects have affected the amount of crime and distribution of drugs in local areas, the impact is assessed as low and unlikely.

Municipal/national impact

It cannot be ruled out that the project will lead to increased crime and abuse, perhaps especially in Nuuk. As no experiences with this have been identified and based on the relatively limited size of the project in a municipal context, the impact is assessed to be insignificant and also unlikely.

Scenario B

Same as in scenario A.

Identified measures for handling impacts

- There will be zero tolerance for alcohol and other drugs in the mine camp. There will also be ongoing dialogue with municipal health authorities.
- GAM intends to have an ongoing dialogue with the settlement foreman in Qeqertarsuatsiaat to address any problems with both vulnerable groups, crime and abuse that the settlement may experience.

6.5.5 Migration (movement and departure patterns)

As described in section 5.2, there is a major migration from settlement to town in Greenland, mainly due to education and working conditions. Through interviews with both local and municipal actors, a general tendency has been expressed to move from the settlements to larger cities if people experience significant wage increases (Personal communication, February-March 2022).

Likewise, among the locals in Qeqertarsuatsiaat, it has been expressed that when there is a move from the settlement due to education or work, this is most often a permanent decision.

Scenario A

Local impact

If the project attracts people to Qeqertarsuatsiaat, it can have an impact on social conditions and the cohesion of the local community. However, it is currently unclear whether people will move permanently to Qeqertarsuatsiaat when the mine is located approx. 30 km. from Qeqertarsuatsiaat, and accommodation is established in connection with the mine.

It is likely that locals who are employed at the mine and thereby experience a wage increase will vacate Qeqertarsuatsiaat. However, this possible impact must be seen in conjunction with the fact that there is a general tendency to move away, especially among young people and adults of working age, and that the impact depends on locals being employed at the mine. The local impact is thus assessed as insignificant and unlikely.

Municipal/national impact

No expectations of significant municipal impact on migration due to the project's size and location.

Scenario B

Same as in scenario A, but with a possible marginally greater impact due to more employees.

Identified measures for handling impacts

- As described above, the expected possible impacts form part of a general trend around moving from settlements to cities after education and work. No measures have been identified to deal with the impact.

6.5.6 Cumulative impacts (labour market effects excluded)

Cumulative impacts are defined as "the impacts that result from the gradual and/or combined impact/impact of an activity/project, as a result of other existing, planned or reasonably defined events".[132]

Note that the cumulative impacts regarding direct employment have already been addressed in section 6-5.3.

This section covers:

- Increase in the consumer price index (inflation – local, municipal and national)
- Investments in the economy (ancillary industries to mining)
- Better public service/better citizen services
- Maritime traffic.

Scenario A

Local impact

If the average income increases in Qeqertarsuatsiaat, it can lead to price increases of goods and services (inflation). As described in previous sections, however, the project is expected to have a limited effect on employment in Qeqertarsuatsiaat. Thus, it is not expected that there will be

[132] International Finance Corporation (2013).

changes in the income of the local population, which will be of an order of magnitude that could potentially affect inflation locally.

The presence of several mining projects in the area can lead to follow-on investments in Qeqertarsuatsiaat, where a business environment is built, the primary purpose of which is to supply the mining projects and the employees. As noted in section 6-4.1, the primary identified local business opportunities are limited to a few small businesses within carpentry and supply. Since experience from previous projects for building local business environments linked to the mining project has also not been identified, there are no signs that there will be significant impacts. However, it cannot be ruled out that local businesses will achieve a positive impact due to the business opportunities the mine creates (cf. section 6-4.1).

Increased tax payments – both income, corporation tax and royalties – can, especially when seen together with tax payments from other mining projects, eventually lead to a strengthened public sector locally, municipally and nationally, potentially creating positive derivative effects locally. The degree of impact is assessed as low and likely.

It has been pointed out by local residents of Qeqertarsuatsiaat that blasting in the Aappaluttoq ruby mine have caused disruptions to trout fishing in particular. It is therefore to be expected that nuisance from GAM's mining project may cause disruption to local commercial fishing. As fishing is of central importance to the local population in Qeqertarsuatsiaat, an impact on this will be of significant importance locally.

Local experience from the Aappaluttoq ruby mine shows that the caribou in the mine area were short-term affected. When the mine was opened, the animals immediately disappeared, but returned after a short time. Thus, no great concern has been expressed that the fishing opportunities in the area will be affected in the long term by the mining project. It is emphasized, however, that if a long-term impact on the populations occurs, it will be of central importance for the locals, but also for people who travel to the area from other places in Greenland to catch reindeer (Personal communication, Qeqertarsuatsiaat, March 2022).

Due to past experiences of fishing and hunting activities being disrupted by mining activities and thus affecting businesses linked to this, the impact is assessed as both likely and noticeable for the local community.

Municipal/national impact

The risk of inflation at municipal or national level is considered unlikely due to the size of the project. It has not been possible to identify experience with similar impacts in connection with other mining projects.

The presence of several mining projects in the municipality can lead to subsequent investments in the larger cities, for example Nuuk and Paamiut, where a business environment is built up, the primary purpose of which is to supply the mining projects and the employees. However, due to the size of the project, this possible impact is expected to be marginal. However, it should be emphasized that the project contributes positively to the development of the raw materials sector (both municipally and nationally) and thus also a general development of the business opportunities this creates.

Based on the above, the cumulative impacts at municipal/national level are assessed as being low/insignificant and likely.

Scenario B
Same as in scenario A, but with expected marginally greater impacts due to greater employment and greater maritime traffic due to greater quantities of produced material.

Identified measures for handling impacts

- Ongoing dialogue and contact with the settlement board and possibly the local branch of KNAPK about possible disturbances to fishing and hunting due to traffic and noise nuisance. Particular attention will be paid to the impact on reindeer in the area, and if so, whether this is temporary or permanent.

6.6 Residual impacts

This section examines the potential residual impacts of the project. Including cultural heritage, socio-cultural values and maintenance activities and other derived economic consequences.

6.6.1 Cultural heritage, socio-cultural values and entertainment activities

Greenland's National Museum keeps a register of all protected cultural monuments. The National Museum is the only institution that has both access to the register and professional competence to assess the register's information. All permanent monuments of the past, which can be dated before the year 1900, are automatically protected. This is called de facto conservation. No activities may be carried out within a distance of two meters from a fixed historical monument. [133] In the autumn of 2020, the Greenland National Museum prepared an archaeological preliminary survey (inspection) in connection with preparations for the mining project, where its archaeologists searched the area for prehistoric cultural memories. The inspected area extends from the harbour to the construction area for the mine, where construction activities are planned.[134]

During the inspection, 18 smaller structures were identified and registered, representing activities and traffic in the landscape in connection with reindeer hunting, as well as a single grave from the Thule culture, which was, however, outside the area affected by the construction activities. The construction tracks were judged not to require excavation. It was concluded in the inspection that there are no conflicts between past monuments and the current construction plans for mining.

There are strong socio-cultural values linked to leisure activities and use of nature in the area around the planned mining project. Any kind of influence from this will thus be of significant importance.

Eating Greenlandic food is considered to be an important prerequisite for maintaining Greenlandic identity. Hunting, fishing, gathering berries and preserving food have similar importance. It has also been pointed out through interviews that a large part of the local population covers a significant part of their consumption of Greenlandic food products by their own hunting and fishing.

[133] Grønlands Nationalmuseum & Arkiv (u.å.).
[134] Larsen (2020) & material from GAM's citizen meeting in Qeqertarsuatsiaat (19.09.2020).

Scenario A

Local impact

No significant impact is expected in relation to the cultural heritage that Greenland's National Museum has located, since it is a less identified facility that the mining operation is not expected to affect.

It is possible that some or more locals from Qeqertarsuatsiaat will find employment in the mine instead of local jobs linked to traditional Greenlandic occupations. Through this, tradition and culture linked to business in the local rural environment can be influenced. This must be seen in connection with the expectations for local employment effects, which is why the impact is expected to be low.

Experience from previous projects also indicates that seasonal and shift work can be difficult to reconcile with family relationships linked to settlements (Personal communication, Kommuneqarfik Sermersooq, March 2022). Despite the fact that concerns have not been specifically expressed among the local population in Qeqertarsuatsiaat, it cannot be ruled out that the way of working in the mine will affect traditional family relationships (Personal communication, Qeqertarsuatsiaat, March 2022).

In accordance with the Mineral Resources Act (2009), employees are generally not permitted to fish and hunt in the mining concession area. However, fishing and hunting are permitted if separate permits have been granted for this from the relevant department. However, GAM wants to create good opportunities for recreational activities for the project's employees and is therefore positively disposed towards such an initiative.

It has been pointed out by locals through interviews that entry to the bottom of the fjord is narrow in several places and also characterized by strong current conditions, which is why concerns have been expressed linked to the risk of accidents and thus the environment in and around the fjord (Personal communication, Qeqertarsuatsiaat, March 2022). However, it has not been possible to identify previous experiences with accidents in connection with transport by boat in the fjord. GAM expects that bulk transport in and out of the fjord will be supported by tugboat assistance to increase safety. The probability of accidents cannot therefore be ruled out, but is assessed as very low.

Negative impacts on socio-cultural values and entertainment activities are thus constituted by risks of accidents and environmental impact in and around the fjord, as well as disturbances and to a certain extent limitation of areas that can be hunted and fished. As fishing and hunting constitute a fundamental element of Qeqertarsuatsiaat's basis of existence and identity, any kind of impact on this has great significance for the local community. Since no experiences have been found with large and significant impacts on local communities' socio-cultural values and maintenance activities from previous projects, the probability of impact is assessed as low.

Municipal/national impact

It is expected that there will be very little or no impact on cultural heritage, entertainment activities and socio-cultural values at municipal and national level.

Scenario B

Same as scenario A.

Identified measures for handling impacts

- Areas in the license area located outside the inspected section have not been archaeologically examined, which is why the area must be kept free of activities, including construction activities, unless the Greenland National Museum and Archives are involved.
- Possibility that local employees at the mine can be employed in a different job arrangement than shift work, as they have different prerequisites for getting to/from work.
- Possibility for locals to use the established road at the mine in connection with fishing activities.
- Possible use of a tugboat for entering the fjord in difficult conditions to minimize the risk of accidents.

6.7 Summary

Table 6-10 contains a summary of this section's assessment of the project's identified social and societal impacts based on the methodology described in section 6-1 for assessing societal sustainability. The colour codes indicate the assessment of each individual impact according to the assessment matrix included initially in section 6, Table 6-4. Assessment of negative and positive impacts, respectively, is based on the same method. Positive impacts are indicated with a (+) in Table 6-10, and negative impacts are indicated with a (-). In addition, the possible measures for handling impacts identified for each impact are summarized in the table.

Table 6-10: Summary of impact assessment and identified mitigation measures

Impact	Evaluation of impact	Identified measures for handling impacts
Employment (section 6.2)		
Employment of Greenlandic workers (6.2.1)	**+Local** **+Municipal/national**	Preparation of a description of the requirements for jobs in the various job categories for the project's three phases. Development of job advertisements for both local and national advertising. Recruitment campaign aimed directly at municipal employment in particular; Qeqertarsuatsiaat, Paamiut and Nuuk. GAM is open to the fact that employees from Qeqertarsuatsiaat will be able to be employed in a different job arrangement than shift work, as they do not have long journey times home to the same extent as other employees. Contact and possibly collaborate with Greenland's Business, Majoriaq, SIK and the municipal employment service about job opportunities. Contact and possibly collaborate with KTI Råstofskolen regarding opportunities for upskilling as well as internship and apprenticeship places. Employment of HR manager.
Indirect and induced employment effects (6.2.2)	**+Local** **+ Municipal/national**	Goods and services will be purchased on market terms, but preferably from Greenlandic suppliers if these are competitive. It will be assessed whether GAM can solve partial tasks itself rather than letting these go out to tender. If GAM can solve partial tasks itself, the starting point for this will be that it can contribute to creating more local jobs.
Cumulative impacts and conflict with other sectors (6.2.3)	**- Local** **+ Municipal/national** **- Municipal/national**	Dialogue and possible cooperation with both local and municipal authorities based on identifying and coordinating existing competencies. Employment of an HR manager to support the recruitment of Greenlandic and other labour or to participate in competence development projects and other facilitation of employees.

Personal income tax (6.2.4)	-	
Work conditions (6.2.5)	-	Working conditions are established in accordance with the guidelines of SIK and other Greenlandic trade unions as well as the ILO conventions. The terms are intended to ensure that the Greenlandic requirements are met and also help to avoid a distortion of the local labour market. Adoption of workforce rotation plans to promote family-friendly employment and improve opportunities to maintain family relationships and traditional lifestyles. It is proposed that an introductory course on intercultural understanding and a policy to combat bullying in the workplace be drawn up. Ongoing workplace assessment and possibly preparation of training programs in connection therewith. Requirements for contractors regarding safety and regulations.
Education (section 6.3)		
Competence development (6.3.1)	**+ Local** **+ Municipal/national**	Possibility to collaborate with educational institutions, including KTI råstofskolen, on training and education. Possibility of collaboration with the municipality on required courses and further training, so that the activation of the unskilled and unemployed is targeted. HR employee possibly based in Nuuk. To ensure both a good recruitment process and also subsequent training and career development for employees. Creation of a resettlement program after mine closure.
Economic impacts – non-employment (sections 6.4)		
Business opportunities (6.4.1)	**+ Local** **+ Municipal**	Contracts for deliveries and services are operated on market terms, but based on preferential rights for Greenlandic suppliers. Businesses may be broken. up into smaller parts, where it does not have negative financial, management or time negative effects for GAM, in order to improve the possibilities for Greenlandic suppliers to bid. Cooperation with RAL, Air Greenland and requirements related to tender for catering, that local and traditional food can be delivered. Including possibly agreement with local fishermen and trappers on the delivery of fish and meat to the canteen.
Corporate tax/royalties (6.4.2)	-	
The public sector and infrastructure (section 6.5)		
Infrastructure (6.5.1)	**+ Local** **Municipal**	Possibility that the inhabitants of Qeqertarsuatsiaat can use the road in connection with recreational purposes and especially in connection with reindeer hunting. Cooperation with Air Greenland on the need for air transport. Cooperation with RAL on possibilities for sailing. If the mining town gets settlement status, this will be possible.

Pressure on the public sector (6.5.2)	**Local** **Municipal**	Any increased pressure on the public sector and municipal/national services is assessed partly as being of limited scope, and partly as both temporary and not possible to remedy.
Public health and rapid alert (6.5.3)	**+ Local** **Municipal**	Preparation of HSE manual and guidelines for the workplace. Establishment of a working environment organisation. Possibility that residents of Qeqertarsuatsiaat will be able to use the mine's health station. Minimizing helicopter flights in the vicinity of Qeqertarsuatsiaat, and possibly dialogue with the settlement board about the possibilities to minimize the nuisance associated with this.
Vulnerable groups, crime and abuse (6.5.4)	**- Local** **- Municipal**	In the mining camp, there will be zero tolerance for alcohol and other drugs. There will also be ongoing dialogue with municipal health authorities. Ongoing dialogue with the settlement chairman in Qeqertarsuatsiaat about any employees from here regarding any problems related to crime and/or abuse.
Migration (movement and departure patterns) (6.5.5)	**Local** **Municipal**	As described in section 6-5.5, the expected possible impacts form part of a general trend around moving from settlements to cities after education and work. No measures have been identified to manage the impact.
Cumulative impacts (labour market effects excluded) (6.5.6)	**+/- Local** **+ Municipal**	Contact with the settlement board and possibly the local branch of KNAPK about possible disturbances to fishing and hunting due to traffic and noise nuisance. Especially with attention to any impact on reindeer in the area, and if so, whether this is temporary or permanent.
Residual impacts (section 6.6)		
Cultural heritage, socio-cultural values and entertainment activities (6.6.1)	**- Local**	Areas in the license area located outside the inspected section have not been archaeologically investigated, which is why the area must be kept free of activities, including construction activities, unless the Greenland National Museum and Archives are involved. Possibility that local employees at the mine can be employed in a different job arrangement than shift work, as they have different prerequisites for getting to/from work. Possibility for local residents to use the constructed road at the mine in connection with fishing activities. Possible use of a tugboat for entering the fjord in difficult conditions to minimize the risk of accidents.

7. PLAN FOR HANDLING POSITIVE AND NEGATIVE IMPACTS

Section 7 contains draft indicators for monitoring and evaluating the identified positive and negative impacts. The content in Table 7-1 is thus intended to function as a draft plan for evaluation and monitoring, which will form part of the following collaboration agreement. For each of those in sections 6.2 to 6.6. identified impacts, an indicator has been formulated so that the impacts can be monitored. The aim is to continuously evaluate the degree of impact for the individual impacts after the initiation of the anorthosite project. N/A (not applicable) is indicated for individual impacts, as no negative and positive impacts have been identified, which will be possible either to promote and reduce through identified measures. This is also evident from the respective subsections in section 6.

Table 7-1: Draft plan for monitoring impacts

Impact	Desired output	Indicator for monitoring
Employment (section 6.2)		
Employment of Greenlandic workers (6.2.1)	Increased proportion of Greenlandic employment at the project both locally and municipally, if the right skills are found among potential Greenlandic workers.	Number of employees with a Greenlandic background and the right skills profile.
Indirect and induced employment impacts (6.2.2)	Increased share of Greenlandic suppliers of goods and services for the project on tendered market terms, if Greenlandic suppliers can supply the desired goods and services.	Number of Greenlandic suppliers who bid on tendered contracts.
Cumulative impacts and conflict with other sectors (6.2.3)	Increase the likelihood that there will be a positive overlap between ongoing construction and mining projects.	The proportion of labour that is brought in from ongoing construction and mining projects
Personal income tax (6.2.4)	- *N/A*	
Work conditions (6.2.5)	- *N/A*	
Education (section 6.3)		
Competence development (6.3.1)	Increase the degree of competence development among the employed employees as a result of the implementation of the project.	Proportion of Greenlandic employees on the specific project who carry out upskilling, training or further education during their employment.
Economic impacts – non employment (section 6.4)		
Business opportunities (6.4.1)	Contribute to creating business opportunities for both local, municipal and national businesses, if Greenlandic suppliers can deliver the desired goods and services.	Number of Greenlandic suppliers who bid on tendered contracts.
Corporate tax/royalties (6.4.2)	- *N/A*	
The public sector and infrastructure (section 6.5)		

Infrastructure (6.5.1)	Small/negligible impacts on infrastructure associated with activities linked to the mine are expected. This is to be ensured within the framework that GAM has the opportunity to take remedial measures.	Annual dialogue meetings with the village board regarding possible impacts on infrastructure.
Pressure on the public sector (6.5.2)	Small/negligible effects of pressure on the public sector are expected. This is to be ensured within the framework that GAM has the opportunity to take remedial measures.	Annual dialogue meetings with the settlement council regarding possible effects of pressure on the public sector.
Public health and rapid alert (6.5.3)	Accommodate the possibility of reducing noise nuisance for the locals from e.g., helicopter flight. Facilitate the possibility of improving local health services by allowing local residents to use the mine's health station.	Annual dialogue meetings with the settlement board regarding any inconvenience associated with the mine's activities. Log of the health station's activities, including the number of visits by local residents.
Vulnerable groups, crime and abuse (6.5.4)	Ensure that the mine does not contribute to increasing the abuse of alcohol and narcotic drugs or other forms of crime.	Presence of alcohol/drug policy in the mining company's license area. Number of reports, if any, received from the local community regarding suspected abuse problems locally as a result of the mine's activities.
Migration (movement- and departure patterns) (6.5.5)	- *N/A*	-
Cumulative impacts (labour market effects excepted) (6.5.6)	To the greatest extent possible, ensure that catching and fishing in the areas in and around the fjord can continue undisturbed.	Annual dialogue meetings with the settlement board around interaction with existing fishing and hunting.
Residual impacts (section 6.6)		
Cultural heritage, socio-cultural values and entertainment activities (6.6.1)	As far as possible, ensure that cultural heritage, socio-cultural values and entertainment activities are kept undisturbed.	Annual dialogue meetings with settlement board regarding disturbance of cultural heritage, socio-cultural values and entertainment activities.

It is proposed that GAM regularly reports internally for the selected indicators by one/several appointed persons responsible for the monitoring. Monitoring and reporting are initiated at the start of the project, i.e., in the construction phase of the project. The internal reporting is determined to take place with an ongoing annual frequency, so that a report can be prepared annually for the included indicators. Thus, ongoing monitoring and reporting will take place with a view to promoting the defined desired outputs for the identified impacts. An annual report on the monitoring of the selected indicators will thus be able to be sent to relevant authorities and stakeholders, including the Minerals Authority.

8. STAKEHOLDER INVOLVEMENT

8.1 Identification of stakeholders

Stakeholders are defined here as organisations, institutions or individuals who are expected to be affected by or have an interest in the project. Prior to the preparation of this SIA report, an involvement process of relevant stakeholders took place.

GAM has already held an information meeting in Qeqertarsuatsiaat regarding the company's activities MEL 2019-162 Majoqqap Qaava project. The meeting was held on 19-09-2020. Furthermore, the company is in the process of involving locals to inspect weather stations and investigate ice conditions in winter 2021/spring 2022.

The preliminary involvement of stakeholders was then carried out in the hearing of the prepared TOR for the SIA for 35 days. The consultation responses have been collected and published on the self-government's consultation portal, and are included in the white paper, which aims to respond to relevant consultation responses and comments on the project. The white paper also refers to where corrections have been made in the final version.

For the preparation of the current SIA report draft, a number of stakeholders have been involved through interviews and workshops. This is to ensure that the SIA is based on the latest knowledge and addresses the concerns, challenges or similar that the project's main stakeholders may have. In connection with the 8-week consultation for the SIA, a white paper is also prepared. Activities linked to the involvement of stakeholders in connection with the SIA report can be seen from Table 8.1. Please note that the names of the stakeholders are given based on their current designation. The stakeholders in Greenland's Government may have changed names as a result of changes in jurisdiction in the intervening period.

Table 8-1: Overview of activities associated with stakeholder involvement in the preparation of the SIA

Organisation	Invitation	Follow-up	Interview	Type of meeting	Note
Forvaltning for Velfærd og Arbejdsmarked	31/01/2022	04/02/2022	09/02/2022	Interview	
Forvaltning for Børn og Familie	31/01/2022	04/02/2022	-	-	
Forvaltning for Anlæg og Miljø, Kommuneqarfik Sermersooq	31/01/2022	04/02/2022	10/02/2022	Interview	
KTI Råstofskolen	31/01/2022	04/02/2022	01/03/2022	Interview	
Grønlands Politi	31/01/2022	04/02/2022	07/02/2022	Interview	
Departementet for Sundhed	09/02/2022	11/02/2022	-	-	
Departementet for Fiskeri og Fangst	09/02/2022	11/02/2022	-	-	
Departementet for Erhverv og Handel. (2024: Departementet for Erhverv, Handel, Råstoffer, Justitsområdet og Ligestilling)	14/02/2022	-	-	Interview	
Departement for Uddannelse, Kultur, Idræt og Kirke	09/02/2022	11/02/2022	-	-	
Departement for Råstoffer og Råstofstyrelsen. (2024: now, part of the Departementet for Erhverv, Handel, Råstoffer, Justitsområdet og Ligestilling)	09/02/2022	11/02/2022	04/03/2022	Interview	
Departement for Sociale Anliggende og Arbejdsmarked. Arbejdsmarked (2024: Departementet for Sociale Anliggender, Familier, Arbejdsmarked og Indenrigsanliggender)	17/02/2022	08/03/2022	09/3/2022	-	Written comment
Greenland Ruby	14/02/2022	16/03/2022	-	-	
Hudson Resources	14/02/2022	16/03/2022	-	-	
Grønlands Nationalmuseum	09/02/2022	11/02/2022	17/02/2022	Interview	
Arbejdstilsynet i Grønland	-	-	07/02/2022	Interview	
Grønlands Erhverv	-	-	10/02/2022	Interview	
SIK	09/02/2022	11/02/202	18/02/2022	-	Phone conversation
Interview by Rambøll Greenland in Qeqertarsuatsiaat					
KNAPK (deltagelse af formand og fem foreningsmedlemmer)	-	-	14/03/2022	Miniworkshop	
Workshop med deltagelse fra bygdebestyrelse og lokale borgere	-	-	13/03/2022	Workshop	
Ansat ved den lokale købmand	-	-	08-14/03/2022	Interview	
Repræsentant fra filialkontoret			08-14/03/2022	Interview	

Repræsentant fra skolen		08-14/03/2022	Interview

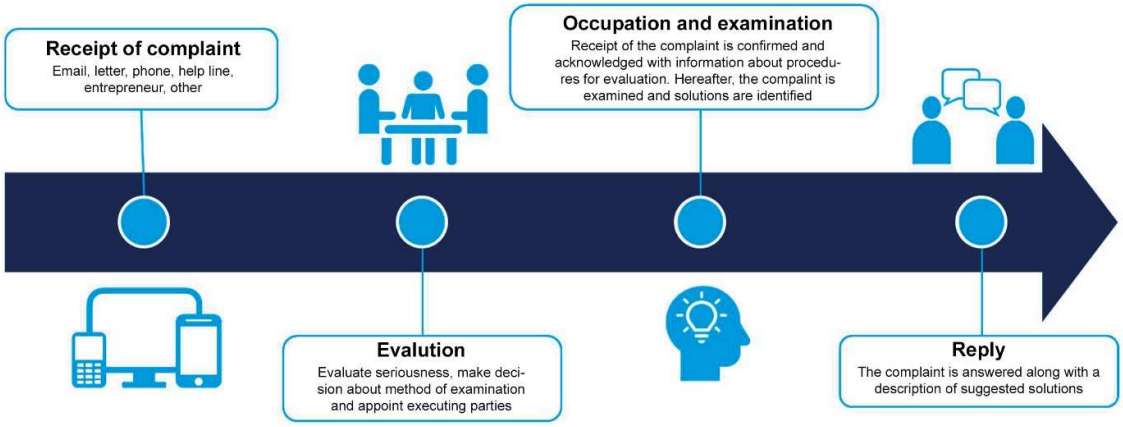
8.2 Complaint mechanism

In order to address and deal with complaints and concerns from citizens and other stakeholders, section 8.2 contains a proposal for a complaint mechanism to be established by GAM. The purpose is that the complaints procedure must be open, structured and ensure a local anchoring of how procedures for registering, processing and resolving complaints are handled.

It will be possible to submit complaints anonymously, and there will be opportunities to submit concerns or complaints in both Greenlandic, Danish and English. Implementation of the mechanism is carried out prior to the start of the construction work.

Procedure for complaint mechanism is outlined in Figure 8-1: Proposed procedure for complaint mechanism.

Figure 8-1: Procedure for complaint mechanism



9. FRAMEWORK FOR COOPERATION AGREEMENT

Content of the collaboration agreement (Impact Benefit Agreement) and negotiations thereof will be able to begin when the eight-week public consultation phase for the SIA is over. The cooperation agreement is a signed agreement between the rights holder, the municipality and the Government of Greenland and aims to secure Greenlandic interests and social obligations from the parties involved throughout the life of the project. The SIA forms the starting point for the negotiations for the content of the cooperation agreement. After the signature is documented, the cooperation agreement is published on www.naalakkersuisut.gl. Table 9.1 is intended as a link between the contents of the SIA and relevant annexes in the cooperation agreement and thus as a support for the preparation of the cooperation agreement.

Annex #	Suggested content of the cooperation agreement	Reference to location in SIA report
Annex 1	Project description	Section 4
Annex 2	Plan for handling positive and negative impacts incl. monitoring and evaluation	Section 7
Annex 3	Greenlandic workers and employment	Section 5.3 and 6.2
Annex 4	Education	Section 5.4 and 6.3
Annex 5	Business opportunities for Greenlandic companies and professions	Section 5.3 and 6.4
Annex 6	Health	Section 5.5 and 6.5
Annex 7	Local communities and activities linked to culture and socio-cultural values.	Section 5.6-5.8. 6.5 and 6.6

Table 9-1: Overview of appendixes.

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