



# How can exploitation of mineral resources in South Greenland be achieved in a sustainable way?



*Architect, Birger Lilja Kristoffersen,  
Chief Planner, Kujalleq Municipality*



# Agenda



- A brief introduction to South Greenland
- The opportunities in mining
- Sustainable development in general
- **The Case: Kvanefjeld Multi-Element Project in South Greenland**
- Summary of sustainability



# Greenland

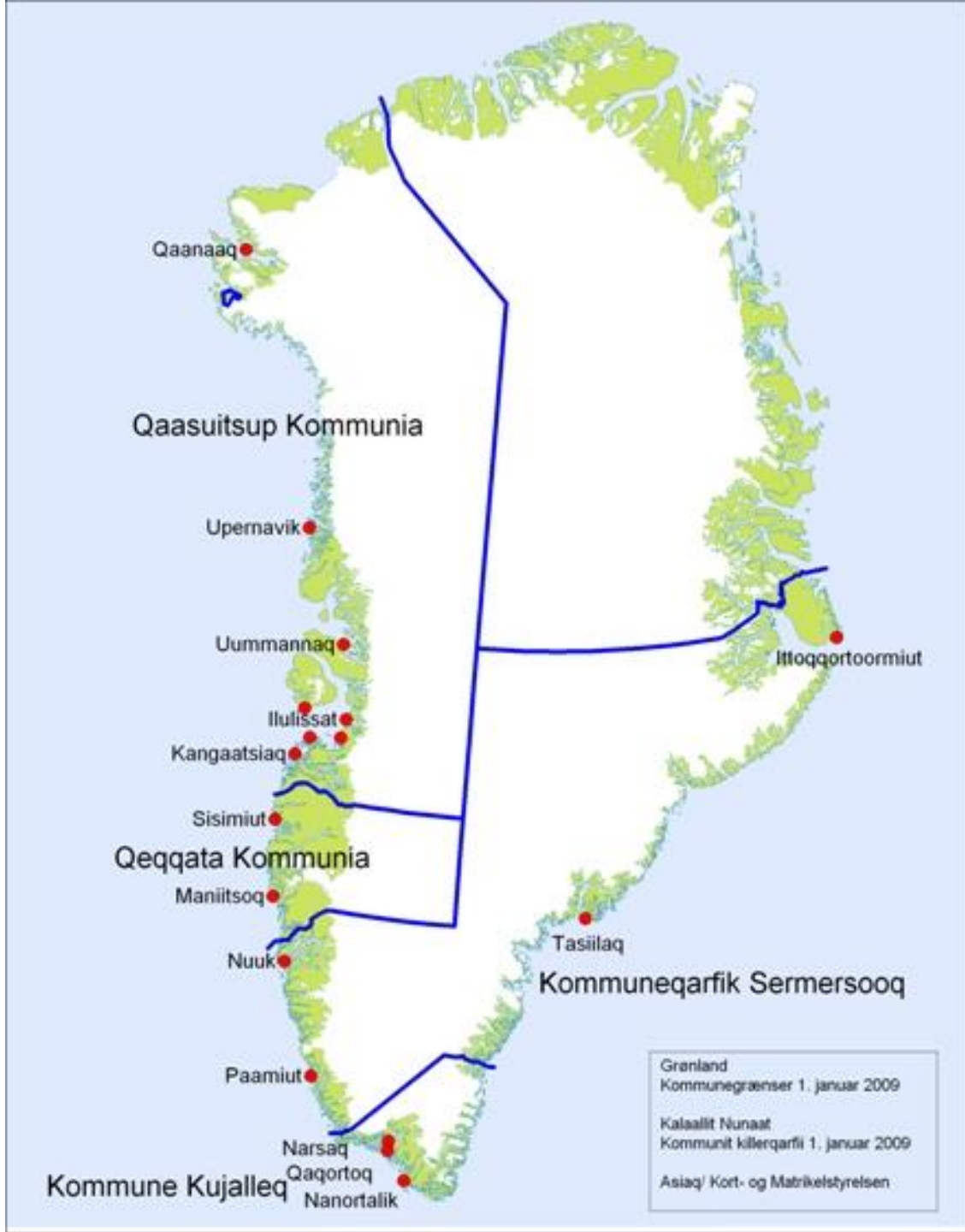
2.175.600 km<sup>2</sup> area  
1.833.900 km<sup>2</sup> ice  
...341.700 km<sup>2</sup> land

56.000 inhabitants

18 towns

4 municipalities

Nuuk the Capitol (15.000)



# Municipality of Kujalleq

53.000 Km2 area

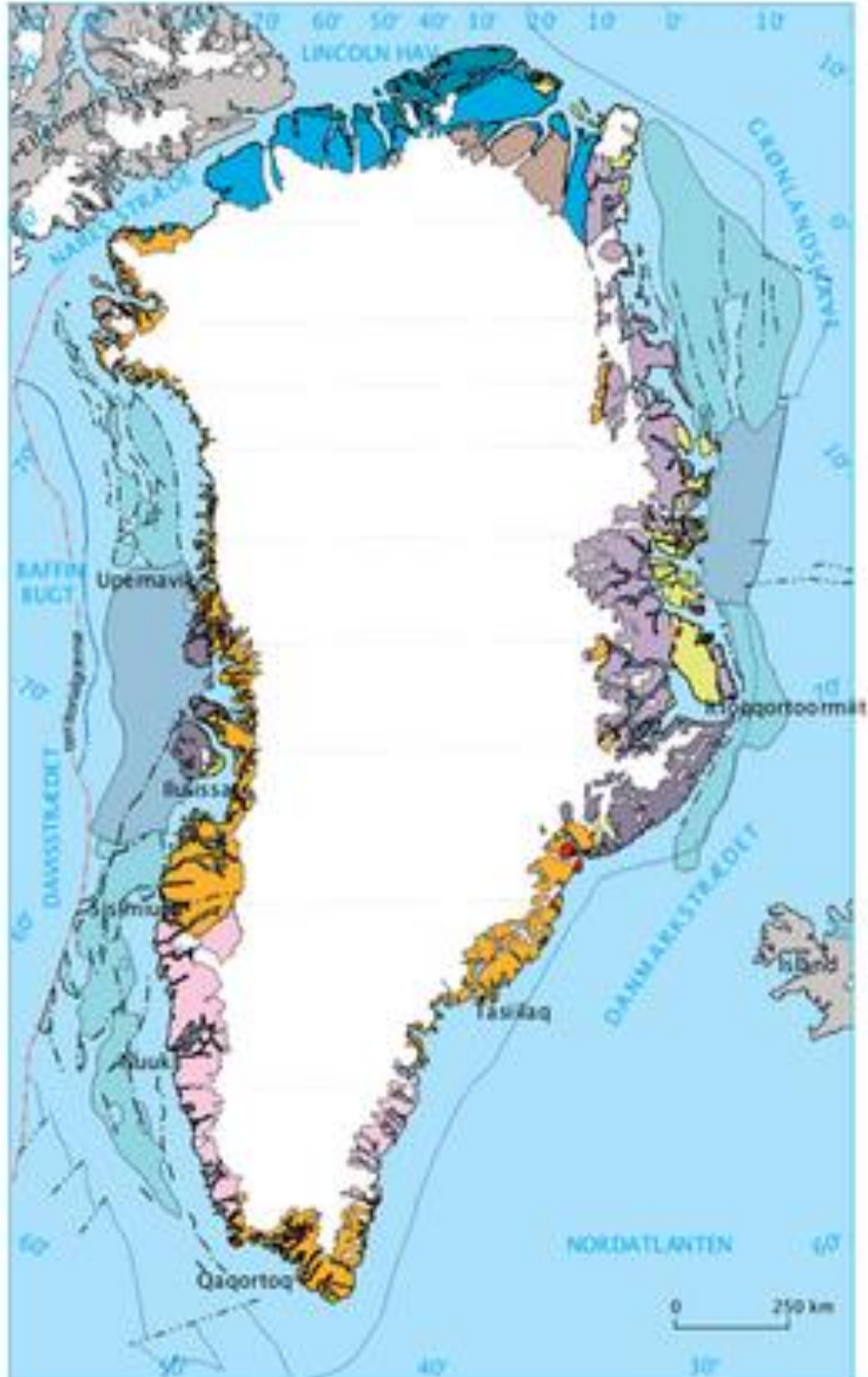
7.000 inhabitants

3 towns

11 villages



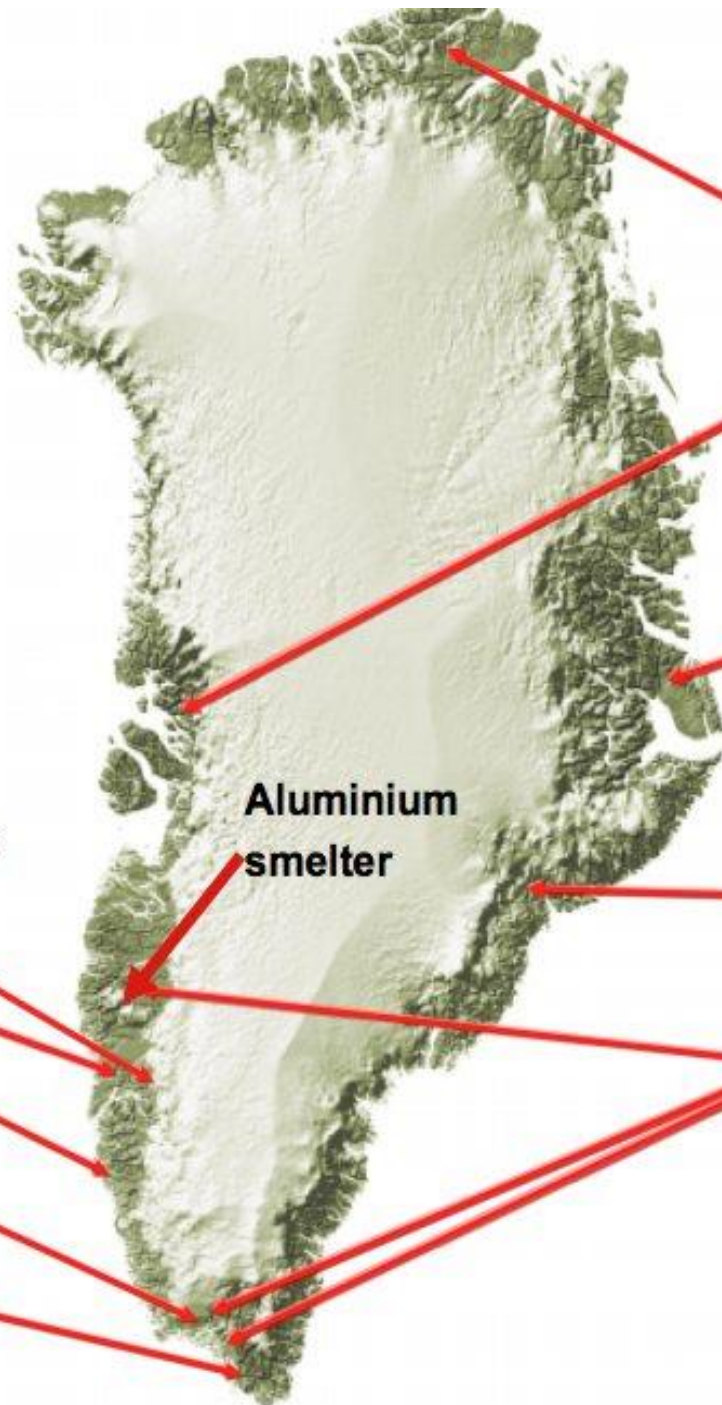




# Geology



# Advanced projects



**Zinc-lead**  
Citronen Fjord  
Black Angel

**Molybdenum**  
Malmbjerg

**Aluminium smelter**

**PGE/Gold**  
Skaergaard

**Olivine**  
Seqi

**Iron**  
Isua

**REE**  
Killavaat/Kringlerne  
Kuannersuit/Kvanefjeld  
Sarfartoq

**Rubies**  
Fiskenæsset

**Iron, titanium, vanadium**  
Isortoq

**Gold** Nalunaq Gold Mine





Arsuk

Ivittuut

Narsarsuaq

Qassiarsuk

Kommune Kujalleq

Narsaq

Igaliku

Qassimiut

Qaqortoq

Eqalugaarsuit

Saarloq

Ammassivik

Alluitsup Paa

Nanortalik

Tasiusaq

Aappilattoq

Narsaq Kujalleq



# Authorities



## Responsibility of the Self – Government of Greenland

- **The Ministry of Industry and Mineral Resources (MIM)**
- ... is responsible for **strategy-making, policy-making, legal issues, marketing** of mineral resources in Greenland and **socioeconomic issues** related to mineral resources activities, such as Social Impact Assessments, Impact Benefit Agreements and royalty schemes. The Ministry deals with geological issues through the Department of Geology.
- **The Mineral Licence and Safety Authority (MLSA)**
- ... is the one-door authority. Licensees and other parties covered by the Mineral Resources Act communicate with the MLSA and receive all notifications, documents and decisions from the MLSA. The MLSA is the overall administrative authority for **licences** and mineral resources activities, and is the authority for **safety** matters including supervision and inspections.
- **Environment Agency for the Mineral Resources Activities (EAMRA)**
- ... is the administrative authority for environmental matters relating to mineral resources activities, including **protection of the environment and nature**, environmental liability and environmental impact assessments.





# Sustainability in general



- Economy
- Social
- Environmental



# Tools



- **EIA – Environmental Impact Assessment**
- **SIA – Social Impact Assessment**
- **IBA – IBA – Impact Benefit Agreement**



# Kvanefjeld Multi-Element Project Narsaq - South Greenland







Arsuk

Ivittuut

Narsarsuaq

Qassiarsuk

Kommune Kujalleq

Narsaq

Igaliku

Qassimiut

Qaqortoq

Eqalugaarsuit

Saarloq

Ammassivik

Alluitsup Paa

Nanortalik

Tasiusaq

Aappilattoq

Narsaq Kujalleq









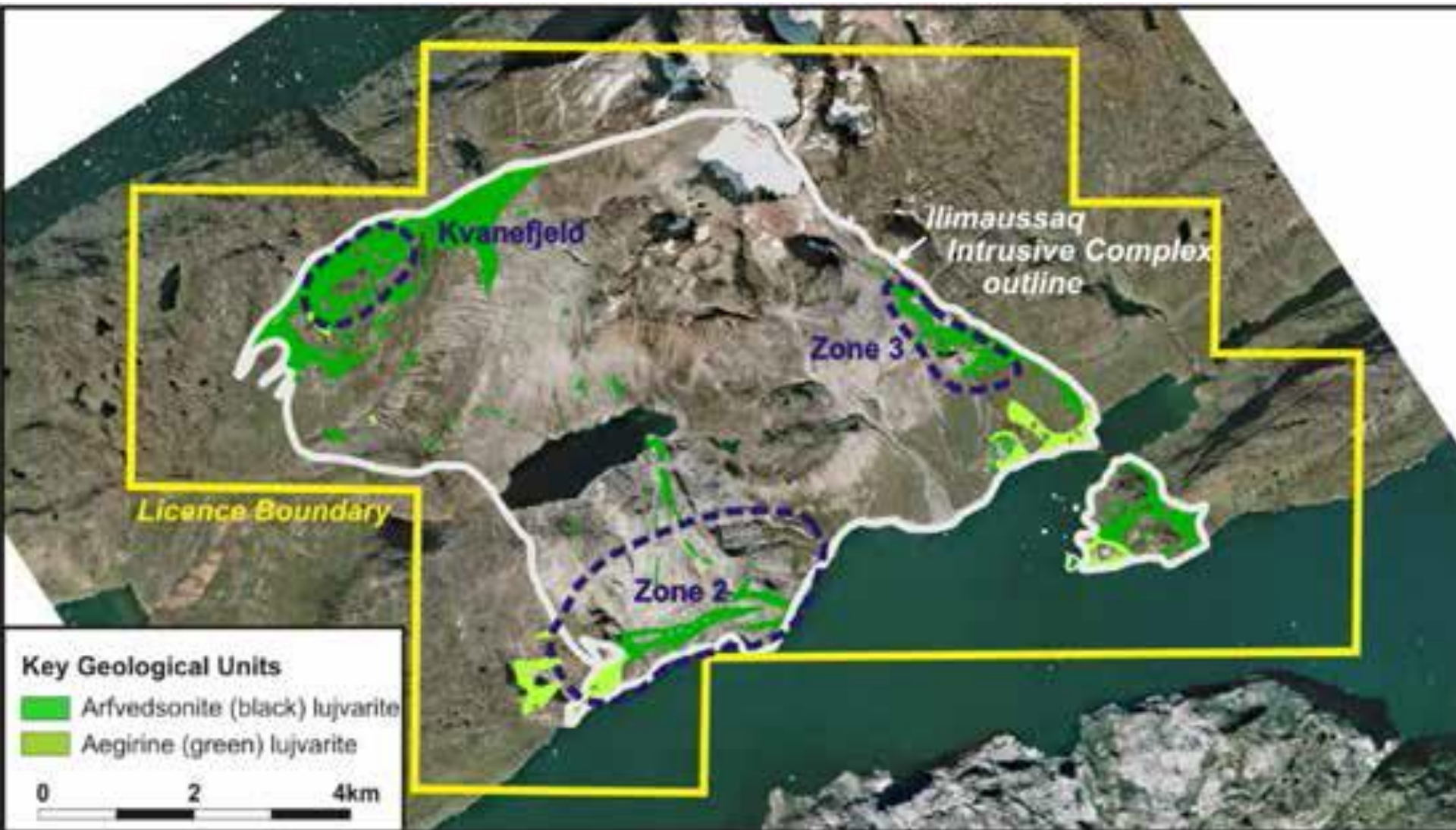








# Lujvarite







# Lujvarite



- Rear Earth Elements (REE)
  - lanthanum, cerium, praseodymium, neodymium, samarium, europium, gadolinium, terbium, dysprosium, holmium, erbium, thulium, ytterbium og lutetium
- Uranium
- Thorium
- Granite, quartz, etc



**Baseline study**



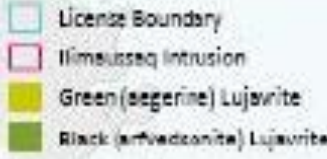
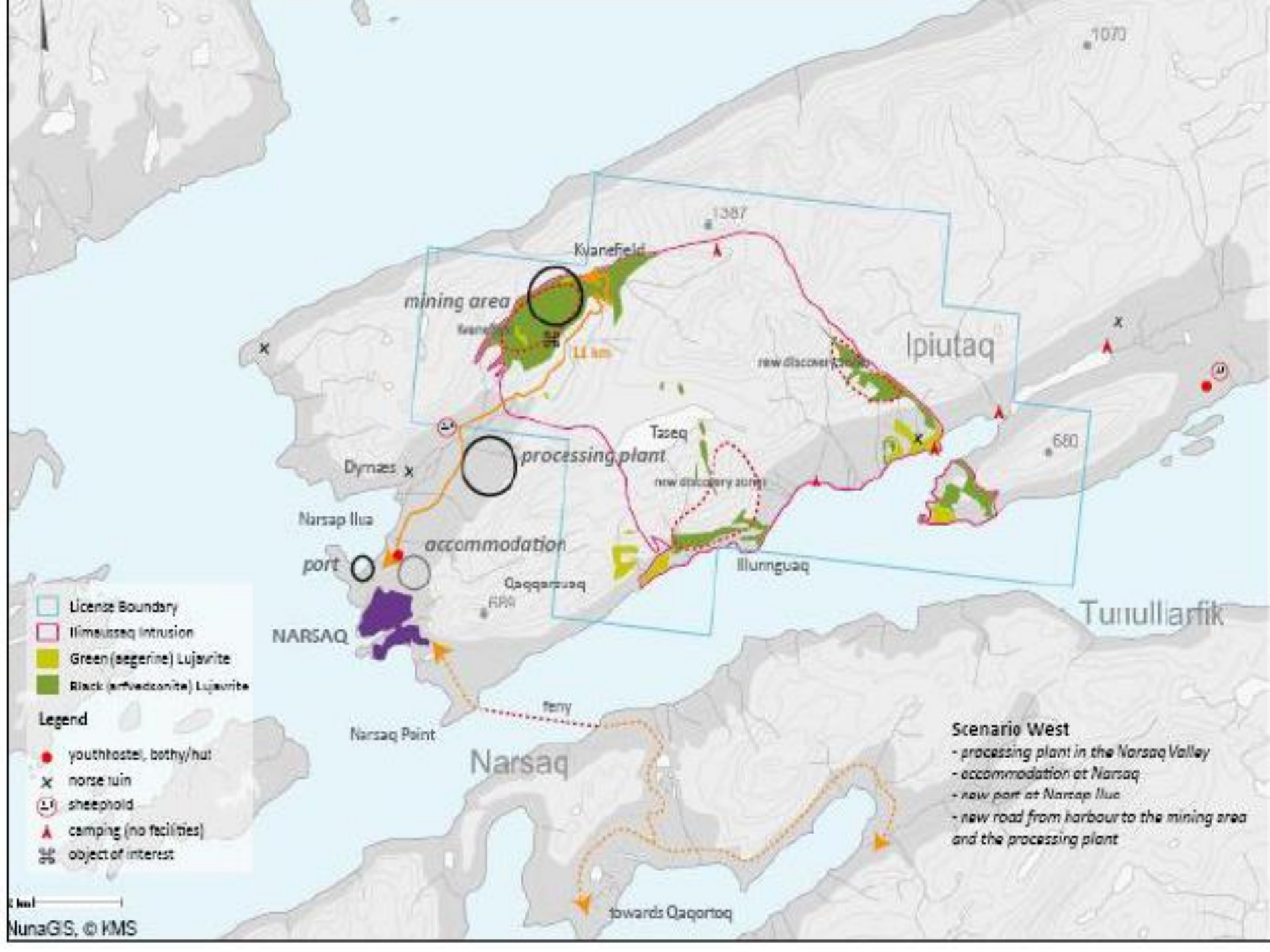








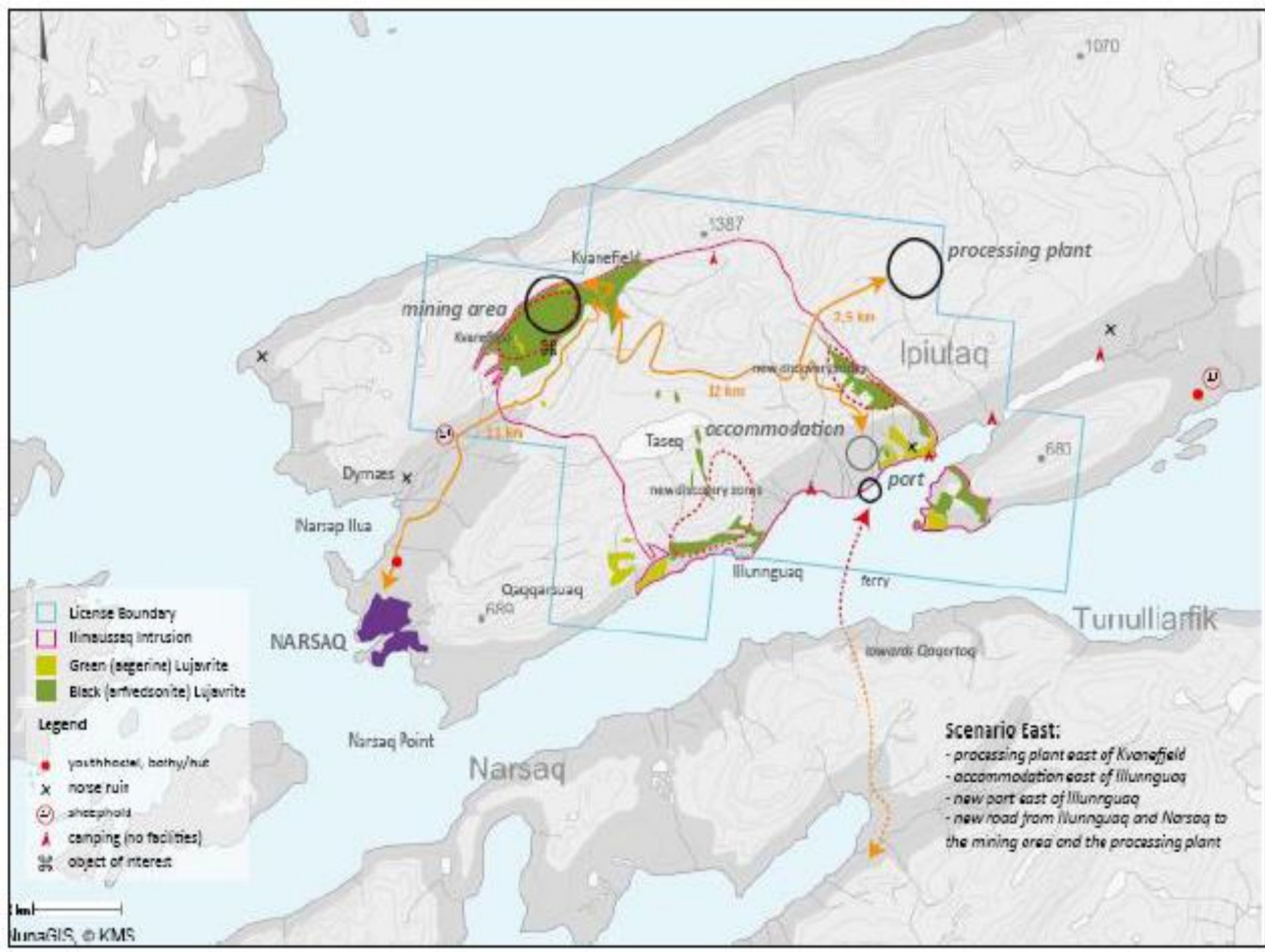




- Legend**
- youth hostel, bothy/hut
  - x Norse ruin
  - ⌘ sheepfold
  - ▲ camping (no facilities)
  - ⊗ object of interest

**Scenario West**

- processing plant in the Narsaq Valley
- accommodation at Narsaq
- new port at Narsap Ilua
- new road from harbour to the mining area and the processing plant







**Brusen**















# Summery of sustainability



- **The total impact – on the globe!**
  - Climate change
  - Enegi Sink
  - Security
- **The national interests**
  - Economy
  - Independence
  - Development
- **The local interests**
  - Health
  - Environment
  - Economy (local employment)



# Qujanaq – Tak – Thank's

A wide-angle landscape photograph showing a large glacier flowing through a valley. The glacier is a mix of white and grey, with dark sediment lines. It is flanked by steep, rocky mountains with patches of snow. In the foreground, there is a calm body of water reflecting the sky. The sky is a clear, pale blue.

**Kujalleq Municipality**

**Biks@kujalleq.gl**

**Birger Lilja Kristoffersen**