World Heritage List 2017
Kujaata – a subarctic farming landscape in Greenland (Denmark)

Dear Sir,

ICOMOS is currently assessing the nomination of “Kujataa Subarctic Farming Landscape in Greenland” as a serial World Heritage property, and an ICOMOS evaluation mission has visited the property to consider matters related to protection, management, conservation and interpretation. ICOMOS is very grateful for the time, expertise and support given to the evaluation mission by the State Party, local experts and others involved in the nomination process.

In order to help with our overall evaluation process, we would be grateful to receive further information to clarify several points and to augment the material that has already been submitted in the nomination dossier.

We would be grateful if the State Party could consider the following points and kindly provide additional information on these matters:

Environmental Context
The text provided in the nomination dossier to describe the historical periods of settlement is extensive, but the specific environmental and climatic conditions that have supported subarctic farming are not easily distilled. It would be very useful to receive a concise outline of these factors, since they seem to underpin the primary argument made for justifying the OUV of the serial property.

Furthermore, the specific conditions and interactions of natural and cultural histories seem potentially important for this landscape and the justification of criterion (v). For this reason, the geological characteristics of the area are of interest, and it would be appreciated if a summary of the geology and geological significance of this part of Greenland could be provided.

Selection of Components
It is understood that the nominated components comprise a representative sample of landscape patterning and settlement histories that occur through a larger area of southern Greenland. While some dimensions of the five components are set out in the Table on p. 177, ICOMOS is interested to further understand the sampling strategy that has led to the nomination of the five components, and in particular how each component contributes to the proposed OUV in specific and necessary ways. It would be useful if this underlying selection strategy can be provided (in a succinct form).
Steering Group and Management Group

ICOMOS understands that the ‘Steering Group’ is an important structural component of the management system, and provides a coordinated management mechanism as required by the Operational Guidelines (particularly in relation to local/national coordination).

The nomination dossier suggests that the current Steering Group will become a ‘permanent Steering Group’ once the property is inscribed in the World Heritage List, so the intended functions and structures are not necessarily operating at this point. Given the centrality of this structure, can the State Party provide updated information about governance arrangements for the Steering Group (such as its terms of reference, roles and responsibilities, conflict resolution capacities)? Given that the Steering Group might meet only once per year (possibly more), how will its activities inform the decision making processes for development proposals within the World Heritage property components and in the larger region (including mining proposals)? For example, in Part 7 of the Management Plan it is suggested that the Steering Group will monitor impact from mining operations, but the means of meeting this responsibility are not clear. How will it perform various responsibilities of ‘continuous monitoring’ while meeting once per year?

It is also important for ICOMOS to better understand the formal relationships between the ‘Steering Group’ and the ‘Management Group’ that is described in the Management Plan; and the responsibilities (if any) that the ‘Management Group’ might take for assessing impacts of proposed developments outside the proposed boundaries on the potential Outstanding Universal Value of the property.

Update on Mining, Energy and Infrastructure Developments

ICOMOS is aware that a number of projects were discussed during the technical evaluation mission (including renewable energy, mining, roads and other infrastructure). To assist the ICOMOS World Heritage Panel, it would be helpful if a consolidated list of such projects located within the southern region of Greenland could be provided, together with a brief comment current approval/implementation status (including the Kvanefjeld and Kringlerne uranium and rare earth elements mines).

Because of the number and range of current and future projects in southern Greenland, it would also be helpful if the existing legal and other processes for assessing and mitigating heritage impacts could be provided in summary form.

It is understood that Greenland’s geology offers the potential for mining of rare mineral resources, including uranium and rare earth elements. ICOMOS understands that there is a ‘no mining’ provision in place for the nominated property (p. 37 of the Management Plan), but is interested to further understand the details of the extent of this provision, and any mechanisms that ensure that mining in areas outside the nominated property is nevertheless strictly assessed and monitored in relation to the impacts on the potential OUV of the nominated components (noting that impacts might be more varied than the usual consideration of visual impacts).

Planning for Tourism and Interpretation

ICOMOS notes that the current level of visitation is low, and that a Tourism Strategy has been devised (but not been translated in full in the nomination dossier). It would be appreciated if the State Party could provide more detailed information about the proposed measures to attract visitors, provide access and sustainably manage tourism to this area, and how the carrying capacity has been estimated.

Legal Protection

The nomination dossier refers to an Executive Order on Cultural Heritage Protection to be approved and signed in February 2016 and that it ‘enters into force in 2016’ (pp. 23; 206-207; pp. 20-21 of the Management Plan). Can the State Party please confirm the status of this Executive Order?

In addition to the information provided in the nomination dossier, ICOMOS would appreciate additional information on the specific legal protection mechanisms (if any) that are able to safeguard the identified intangible heritage dimensions of the serial property; and on the application (if any) of legislation for nature conservation to the attributes of the serial property.
We look forward to your responses to these points, which will be of great help in our evaluation process.

We would be grateful if you could provide ICOMOS and the World Heritage Centre with the above information by Monday 14 November 2016 at the latest.

We thank you in advance for your kind cooperation.

Yours faithfully,

[Signature]

Gwenaëlle Bourdin
Director
ICOMOS Evaluation Unit

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Copy to: Ministry of Education, Culture, Research and Church
UNESCO World Heritage Centre
15 November 2016
Jour.nr.: 16/00650

Nomination of Kujataa – a subarctic farming landscape in Greenland (Denmark) for inscription on the World Heritage list (C 1536) – Additional information

Sir,

I am pleased to submit the additional information to the nomination Kujataa – a subarctic farming landscape in Greenland (C1536).

We hope hereby to have provided ICOMOS with sufficient additional information to proceed the evaluation of the nomination on a solid basis.

Do not hesitate to contact us again if you require any further information.

Yours sincerely,

Bolette Lehn Petersen
Senior Adviser
Listed buildings, Ruins and World Heritage

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Nomination to UNESCO’s World Heritage List

Kujataa
— a subarctic farming landscape in Greenland

Additional information
Additional information
”Kujataa – a subarctic farming landscape in Greenland” (Denmark)

Environmental context

The text provided in the nomination dossier to describe the historical periods of settlement is extensive, but the specific environmental and climatic conditions that have supported subarctic farming are not easily distilled. It would be very useful to receive a concise outline of these factors, since they seem to underpin the primary argument made for justifying the OUV of the serial property.

A unique combination of fixed and dynamic geophysical factors creates the conditions for farming in Kujataa:

• A global position at 60°N places Kujataa well within the general Arctic zone. This is the reason why the world’s second largest ice sheet, the Greenland ice cap, literally licks the borders of the nominated area.
• Counteracting the cooling effects of the ice sheet are oceanic currents, which bring warm water from the south, and the North Atlantic pressure systems, which bring warm air from the south.

These factors make Kujataa (July mean in Qaqortoq 7.2 °C) significantly colder than regions further north like Iceland (July mean 10.6 °C) (see Figure 1) and northern Norway (July mean 9.8 °C), but significantly warmer than other parts of Greenland (July mean in Nuuk 6.5 °C)

![Average daily temperature per month](image)

*Figure 1. Average daily (24h) temperature per month of Narsarsuaq, Qaqortoq, Raufarhöfn (NE Iceland) and Reykjavik (SW Iceland). The difference between the average daily temperature in the coldest and the warmest months is 17 degrees in Narsarsuaq and only 11 degrees in Reykjavik. The summer temperatures of Narsarsuaq are higher than in Raufarhöfn and closer to the summer temperature of Reykjavik. The climatic difference between a coastal location like Qaqortoq and a sub-continental location like Narsarsuaq is clear. (Source: [www.yr.no](http://www.yr.no) / WMO).*
They also mean that the annual temperature curve is significantly smoother than in regions further south like Labrador and Newfoundland where winter temperatures are much colder and summer temperatures much higher (annual swing more than 25 °C instead of 12 °C in Qaqortoq). The absolute minimum temperatures ever recorded in Kujalleq, with -30 Celsius in Qaqortoq (Jan. 1984) and -39.8 Celsius in Narsarsuaq (Jan. 1984), are rather moderate in a subarctic context, and these minimum temperatures are not a limiting factor for perennial crops such as grasses. Night frost has never been recorded in Narsarsuaq in July or August, although subzero temperatures can occur in any other month of the year. At outer coast locations, like Qaqortoq, frost can occur in all months, limiting the possibilities for growing more frost sensitive crops.

The location of Kujataa on the eastern side of the Greenland ice cap and in a transitional zone between oceanic and continental climate means that it has significantly less precipitation than e.g. Iceland (see Figure 2), but a greater part of this falls as rain in summer helping biomass production while resulting in less snow during winter, which aids winter grazing.

![Precipitation (mm and days)](image)

**Figure 2.** Precipitation shown as mm per month (lines) and as average amount of days (24h) with precipitation during a month (columns). When precipitation has surpassed 1 mm per day (24h) it is defined as a day with precipitation. Note the difference in the precipitation patterns of Iceland as opposed to Kujataa. Narsarsuaq has 42 percent fewer precipitation days yet receives only 14 percent less rain over the year. Data covers 1961-1990. (Data source: [www.yr.no](http://www.yr.no) / IMO)

In short, Kujataa is cold enough to be classified as subarctic—and to support the arctic fauna hunted by both Norse and Inuit—but still warm and wet enough to support farming.

The lay of the land—a result of geophysical processes, including the configuration of long and deep fjords, high mountains and the distance from the ice cap to the outer coast—also dictates that there are significant climatic differences **within** the region, with the mean July temperature in Narsarsuaq, only 40 km from Qaqortoq, fully 3 degrees warmer at 10.3 °C.
The generally steep and cut-up nature of the inner fjord landscape in Kujataa provides shelter for vegetation and contributes to the retention of water in otherwise generally porous subsoils. Water retention is a precondition for soil formation and significant vegetation growth.

The occurrence of a number of boreal taxa\(^1\) in Kujataa, including small trees and woodlands, reflects the milder climate of Kujataa compared to the rest of Greenland. Furthermore, mountain ash (*Sorbus decora ssp. groenlandica*), mountain birch (*Betula pubescens ssp. czerapanovii*) and American green alder (*Alnus crispa*) are to be considered as the main indicator species of a subarctic climate within Kujataa. Mountain birches, from krummholz size to 5-6 meter high trees, are present within all components.

Proximity to the downwind side of the ice cap has the counter-intuitive effect of reducing snow cover during winter on account of warm foehn-winds which melt snow and create conditions for extended winter-grazing. Even in outer-coast Qaqortoq, above-zero temperatures have been recorded in all months of the year.

Normally snow melting starts in mid-April and most snowdrifts are gone in the lowlands by mid-May. Furthermore, the growing season is relatively long, compared to subarctic areas in places like northern Labrador and Quebec, and normally runs from the end of May until mid-September, when e.g. frost sensitive potatoes can be grown.

Despite climatic fluctuations, the subarctic conditions in Kujataa have persisted throughout the last millennium, supporting farming both in warmer periods like the 11\(^{th}\) and 20\(^{th}\) centuries and cooler ones like the 14\(^{th}\) and 18\(^{th}\).

In the last decades the climate has warmed by a whole degree C on average (see table below with data from Qaqortoq). More days in the growing season have created possibilities for two cuts of silage rather than normal one cut. Commercial potato and vegetable production in Kujataa has developed mainly since 2000, being an indicator of a connection between a warmer climate and the development of new agricultural products.

**Table 1: Climate comparison, mean temperatures Qaqortoq, 1961-90 and 2000-2016:**

<table>
<thead>
<tr>
<th>Qaqortoq / °C</th>
<th>JAN</th>
<th>FEB</th>
<th>MAR</th>
<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>AUG</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>The normal climate (1961-90)</td>
<td>-5.5</td>
<td>-5.0</td>
<td>-4.4</td>
<td>-0.6</td>
<td>3.3</td>
<td>5.2</td>
<td>7.2</td>
<td>7.2</td>
<td>5.0</td>
<td>1.2</td>
<td>-1.9</td>
<td>-4.4</td>
<td>0.61</td>
</tr>
<tr>
<td>The climate since 2000</td>
<td>-4.2</td>
<td>-3.9</td>
<td>-3.0</td>
<td>0.4</td>
<td>3.7</td>
<td>6.4</td>
<td>8.2</td>
<td>8.5</td>
<td>6.1</td>
<td>2.5</td>
<td>-1.2</td>
<td>-3.5</td>
<td>1.67</td>
</tr>
<tr>
<td>Changes, mean temperature</td>
<td>1.3</td>
<td>1.1</td>
<td>1.4</td>
<td>1.0</td>
<td>0.4</td>
<td>1.2</td>
<td>1.0</td>
<td>1.3</td>
<td>1.1</td>
<td>1.3</td>
<td>0.7</td>
<td>0.9</td>
<td>1.06</td>
</tr>
</tbody>
</table>

https://www.dmi.dk/groenland/arkiver/vejrarkiv/


Furthermore, the specific conditions and interactions of natural and cultural histories seem potentially important for this landscape and the justification of criterion (v). For this reason, the geological characteristic of the area are of interest, and it would be appreciated if a summary of the geology and geological significance of this part of Greenland could be provided.

A visitor to South Greenland cannot fail to notice the fertility and colorfulness of the area, contrasting strongly with the ice-filled fjords and the surrounding glacial landscape. A couple of thousand square kilometers covering Narsaq peninsula, Qassiarusk, Narsarsuaq and Igaliku appear as an exotic, green island in the middle of a grey and icy landscape. The fertility and the rich colors of the area are primarily governed by the local geology.

![Figure 3. The fertility and colorfulness of Kujataa contrasts strongly with the ice filled fjords and the surrounding glacial landscape. (Photo: International Appalachian Trail).](image)

Key parts of the nominated area are dominated by volcanic, sedimentary and magmatic rocks that were emplaced and deposited during the early to mid-proterozoic, generally in granitic host rock. The darker and more mafic rocks generally disintegrate easier than the pale granitic rocks, yielding better and more chemically basic soils contrary to the granites that generally weather slowly and produce acid soils. Some rocks contain phosphate minerals and potassium, which increases soil fertility.
Repeated glaciations have eroded, shaped and exposed the landscape, including isostatic lifting giving rise to marine sediments up to approximately 50 meters above current sea level. The deep fjords and the topographical relief give an excellent, three-dimensional insight into geological history.

During early to mid-Proterozoic times, 2,500–1,600 million years ago, all of the continents formed a supercontinent (Columbia – see fig. 5). During this period, Greenland grew substantially in size due to global scale plate tectonic processes.

*Figure 4. Simplified geological map of South Greenland showing the four zones of the c. 1800 million year old Ketilidian mountain range as well as the c. 1100 million year old Gardar Province. (Source: GEUS).*
Figure 5. A schematic interpretation showing the Columbia Supercontinent and the mountain ranges, including the Ketilidian orogeny. The Supercontinent existed approximately 2,500–1,600 million years ago. (source: dinopedia.wkia.com).

The Ketilidian geology exposed today is the root zone of the northeast-southwest oriented mountain range that was created by the subduction of an oceanic plate below the Archaean craton of Greenland. This process took place approximately 1,850 to 1,725 million years ago and created four distinct zones of the mountain chain. At the 50 km wide (a) Border Zone, Ketilidian sediments and volcanic rocks were deposited on the Archaean craton. The subduction of the oceanic plate created partial melting of the upper part of the mantle which eventually created the up to 150 km wide (b) Julianehaab Batholith, which is composed of a series of granitic intrusions. This created an island arc similar to those well known in the Pacific region, e.g. Japan, Taiwan and the Philippines. The (c) Psammite Zone is a 30-40 km wide sandstone zone where sediments created by the erosion of the Batholith zone were deposited close to a coast, while the (d) Pelite Zone represents the finer grained sediments that were deposited further away from a coast (fig. 4).

The mountain range was subsequently strongly deformed and metamorphosed and some of the rock re-melted. During the last phase of the formation of the Ketilidian mountain range, rapakivi granites intruded in the southern part of the range.
By approximately 1,300 million years ago, the Columbia Supercontinent was in the process of breaking up (fig. 5). It was at about this time that the Gardar Period of South Greenland was initiated (fig. 6). Shearing and extensional stresses took place and tended to pull apart the continental crust, initiating a rift structure. East-west trending graben structures formed, creating down-faulted lowlands. Melting of the underlying mantle accompanied the rifting processes. Magma formed, ascended and either reached the surface to produce volcanic eruptions or solidified at depth to form intrusive bodies.

Weathering caused the now 500-million-year-old Ketilidian mountain range to erode. Sediments accumulated down-slope into the lowland basins accompanied by lava flows from volcanoes. Some of the sandstones have been red-colored by the iron-oxide mineral hematite. The red sandstones are locally known as Sillisit sandstone. Sillisit is the Greenlandic word for grinding stone in pluralis. The frequently used Danish nomenclature is Igaliku Sandstone. Some of these red sandstones have white reduction spots which indicate the presence of organic matter that prevented oxidation during the sedimentation. Flow or wave ribs also indicate sedimentation by water. The Sillisit or Igaliku Sandstone was highly popular with the Norse and Thule culture, being a favored material for whetstones that was transported all the way to northernmost Greenland.

Uplift and erosion have stripped off much of the sedimentary strata as well as the products of the Gardar volcanoes. Some of the sub-volcanic intrusive bodies as well as magma in dykes that solidified well below the ancient surface have been exposed. However, the sediments and lavas in the Eriksfjord formation reach a thickness of some 3,400 meters. Geological evidence suggests that the original thickness may have been between 4,500 meters and 8,000 meters.

Geological interpretation indicates that the huge volumes of magma that have been exposed are nonetheless very small in relation to the volume of magma that was retained at depth. The extraordinarily rich diversity of rare elements in the Ilimmassaq intrusion indicates that an enormous magma chamber
Fractional crystallization persisted over millions of years as the chamber cooled and solidified. In order to achieve such an astounding concentration of elements as diverse as e.g. chlorine, lithium, uranium and zinc, more than 99 percent of the initial magma volume would have had to be processed by this highly selective crystallization process. Eventually it yielded the minute percentage of magma that ultimately crystallized to form the mineralogical treasure trove that is seen in the Ilimmaasaq Complex.

The Qassiarsuk Complex is located in the northeastern part of the Gardar Province between Qassiarsuk and the Tasiusaq branch of the Sermilik Fjord. All of the mapped parts of the complex except a very minor part in Narsarsuaq are contained within component part 1 (Qassiarsuk) of the nominated area.

The complex comprises a sequence of alkaline and carbonatite volcanic rocks. The rocks are co-magmatic derived from a common source, a depleted mantle source, contaminated with crustal material equivalent to the local basement granites, gneisses and sediments.

The soils in this area are more fertile than elsewhere in Kujataa, most likely due to the presence of phosphate minerals belonging to the complex. The Qassiarsuk volcanic tuffs and lavas are the oldest known of their kind. Such rocks are seldom preserved because carbonate minerals dissolve easily under weathering conditions, making examples of such rocks exceptionally rare. Similar active volcanism is only known from the Oldoinyo Langai volcano in Tanzania.

The soils of this area are chemically more basic and more fertile than in other parts of Kujataa. At the same time, the area has the best climatic conditions for farming in Kujataa.

The Igaliku intrusive complex is situated to the east of Igaliku and Narsarsuaq and extends many kilometers inland. Component part 2 (Igaliku) of the nominated area includes the southwestern corner of the complex. The major portion of the component part is underlain by sandstone and volcanic flows which disintegrate more easily than the regional granites. The area is locally covered by marine sediments. Overall, the soils here are easy to cultivate but are considered generally less fertile than in Qassiarsuk, component part 1.

Exploration for niobium, tantalum and rare earth elements is focused on the Motzfeldt complex approximately 30 km northeast of the component part. The main part of the component part is underlain by sandstone, dyke rocks and granite belonging to the Julianehaab Batholith.

Figure 7. The settlement of Igaliku (component part 2) at the head of the Igaliku fjord. The farming area covers the lower ground between the two fjords with sandstone and volcanic flows giving rise to excellent soil. The grey, sandy mountain to the right is the Igaliku syenite intrusion, which is the westernmost part of the huge Igaliku Complex that
continues many kilometers to the east. The settlement of Qassiarsuk (component part 1) is visible close to the head of the next fjord, about 10 km north of Igaliku. The width of the fjord is 2-3 km.

Component parts 5 (Qaqortukulooq), 4 (Tasikuluulik) and 3 (Sissarluttoq) are situated within the Julianehaab Batholith senso lato. Inclusions of dark, mafic lenses and dykes occur locally within the granite. The rock disintegrates relatively slowly and soil development is relatively limited, making it sandy and gravelly. The soil is usually siliceous and chemically acid, with acidity rising towards the west due to more acidic bedrock and higher rainfall, and the most acidic soils in component 5 (pH<5). However, raised seabeds can increase the fertility locally.

Component part 4 is situated in a gently rolling mountain terrain with striking valleys that run northeast-southwest. The area is well known for its strong foehn storms that shift the sand from the nearby glacial-alluvial plains, resulting in soil formation in sheltered areas. The soil is therefore sandy and vulnerable to wind erosion. The light soils in component 4 are easy to cultivate, moderately acidic and fertile, but the exposure to erosion limits the possibility for repeated cultivation and perennial grasses for hay or silage on permanent grass fields are therefore the dominating crops.

Component 5 is situated in a climatically well protected area. Two mountain chains to the north, each with peaks above 1000 meters protects the area from northerly storms. The curved shape of the fjord and the islands at its mouth also protect the farming areas from the dominant south-westerly winds. The micro-climate in this south-west facing area is therefore likely to be relatively mild, although meteorological observations are lacking to confirm this. The geology is dominated by granitic rocks with lenses of mafic rocks. The soil is relatively poorly developed and consists of coarse grained sandy to gravelly material.

Component part 3 (Sissarluttoq) is situated along a lineament or fault zone that apparently spans from the Ilimmaasaq intrusion to Igaliku fjord and about 3 km south of the known Puisattaq uranium occurrence. Component part 3 is close to the coast facing southeast. The geology is dominated by granitic rocks, but red to brown mafic dykes and inclusions occur. Marine sediments (raised seafloor) support the relatively large fields, which helps explain this relatively large settlement in an apparently awkward location.

The southern edge of the Ilimmaasaq Complex is situated about 5 km north of component part 5 (Hvalsey) of the nominated area. Two mountain chains, each with peaks higher than 1000 meters, separate the intrusion from the nominated area.

The Ilimmaasaq complex is one of the world’s most fascinating and famous igneous complexes because of its extreme enrichment in rare elements expressed in more than two hundred and twenty-five different minerals and in unique multi-colored rocks. Thirty minerals were first discovered and described in the complex and twelve are unique to it.

The complex is made up of the group of syenitic rocks which constitute the Igaliku complex and is classified as nepheline syenites. They were formed from basalt magmas which, during ascent from the mantle, were strongly modified through fractional crystallization processes and enriched not only in sodium but also in fluorine, chlorine and sulfur, together with a wide range of rare elements such as lithium, beryllium, niobium, zirconium, the rare-earth elements (REE), yttrium, uranium and thorium.
Selection of components

*It is understood that the nominated components comprise a representative sample of landscape patterning and settlements histories that occur through a larger area of southern Greenland. While some dimensions of the five components are set out in the Table on p. 177, ICOMOS is interested to further understand the sampling strategy that has led to the nomination of the five components,*

The more than 550 recorded heritage sites that constitute the remains of the Norse Eastern Settlement are found across the entire region of South Greenland. The Norse Eastern Settlement geographically overlaps with the most densely populated part of the Kujalleq Municipality, which before 2009 was divided into four municipalities; Ivittuut, Qaqortoq, Narsaq and Nanortalik. Before 2009 when the extent of the nominated properties was initially being discussed, not all the then existing municipalities were interested in participating, partly because a nomination was considered to be conflicting with economic development in some areas. This concern and decision was of course accepted by the then constituted UNESCO world heritage nomination working group and explains the supra-regional scale delineation of the nominated properties.

Subsequently, the working group set about drawing up a regional scale delineation of properties that would include all elements, ensure the integrity of, and protect essential and unique values of Norse and later Inuit settlement, farming and cultural landscapes, while at the same time respecting long-term economic development plans of the involved municipalities (Qaqortoq and Narsaq).

Acknowledging that a nomination of the entire Norse Eastern Settlement was both unrealistic and unwanted by local stakeholders, the working group sought to ensure that the above essential and unique aspects of Norse and Inuit farming traditions were included in the nominated properties, the delineations of which were then negotiated with municipality and government parties. Acceptance of the property boundaries involved that the Greenland Government Ministry of Mineral Resources had to relinquish mining concessions overlapping with the nominated properties, which they did through open dialogue and negotiation. However, this process accounts for the nominated properties being surrounded by some existing mining concessions that were established subsequently.

*(...) and in particular how each component contributes to the proposed OUV in specific and necessary ways. It would be useful if this underlying selection strategy can be provided (in a succinct form).*

Component 1, Qassiarsuk: This property was the first to be settled by the Norse. It contains the homestead of the renowned Erik the Red and presents the most extensively developed pastoral landscape in Greenland, both in terms of Norse settlement and, later, Inuit farming. Not only is the density of both Norse and Inuit farms the greatest in Greenland, but the property also displays an unusual selection of especially rich and large cattle-based Norse farms that chronologically span the entire settlement period. The Norse societal wealth of the region is also attested by the churches in the region, at least two of which were later type parish churches that existed side by side, i.e. serving sizable congregations.

Also represented in the property, in the Qorlortup Itinnera, one finds the clearest known example from Greenland of vertical transhumance or shieling, the movement of people and domestic animals from lowland farms to highland pastures and seasonal production sites. However, despite the agricultural richness of the land, excavations of well-preserved Norse refuse layers at Qassiarsuk-Norse Brattahlid have demonstrated that the inhabitants were also very dependent on marine mammals, especially seals. Archaeological remains of Thule culture turf houses at Qassiarsuk reflect rare inner fjord Thule Culture winter settlement and attest to the former hunting potential of the property, a subsistence economic aspect of central importance to all the pre-modern cultures of Greenland.
Component 2, Igaliku: This property presents the single largest and most fertile agricultural location in Greenland, as testified by it also being the setting of both Garðar—the seat of the Norse bishop of Greenland—and historic Igaliku, the first site of reintroduced farming by the Inuit. In terms of the number and size of structural features, Norse Gardar was unparalleled and could also boast the most complex irrigation system ever documented in the Norse settlements. Gardar was an unrivalled powerhouse occupying a geographical nexus of the Norse core settlement area and the most extant example of a manorial farm with subsidiary sites located throughout the rest of the property.

Reusing the home fields and structural features of old Gardar, Igaliku is where new settlers some three hundred years later first proved that Inuit farming in Greenland was viable and the site is thus a central historic foundation for the present farming culture and tradition. However, as at Qassiarsuk, the environs of present day Igaliku display several different hunting and drying features that relate to the continued reliance on wild resources, again primarily marine mammals and fish.

Component 3, Sissarluttoq: This property presents the single most well-preserved farm in all of Greenland. Occupying a completely unspoiled cultural landscape, the structural features are preserved to a remarkable extent. Furthermore, the sheer number and layout of these ruins suggests that a special function was served by the farm at Sissarluttoq, which was probably the Norse Dalr that is mentioned in medieval written records and which supplied the bishop’s farm. The site is unique and has no known parallel in Greenland.

Component 4, Tasikuluulik: This property presents the best example of a both Norse and Inuit pastoral landscape that encompasses both fjord near and inland areas of agricultural settlement and land use. The Norse farms of the property are dominated by medium-sized farms, which is a reflection of the fact that they occupy a transitional environmental zone from inner to outer fjord. These were the types of regular Norse farms that heavily relied on exploiting natural shrub land resources, for instance by keeping more sheep and goats. At the same time, the property also displays one of the clearest examples of a presumed Norse settlement centralization process, during which the modest farms of Tasikuluulik probably increasingly fell under the rule or influence of the property’s major farming and manorial site of Norse undir Höfða, today’s Igaliku Kujalleq, which was also the first site of reintroduced farming to the region, and whose fields still serve two thriving Inuit sheep farms. Again, features spread throughout the inland and along the fjords testify to the continued importance of hunting all available wildlife.

Component 5, Qaqortokuuloq: This property presents a rich example of Norse settlement in the middle to outer fjord environmental zones, and in that capacity completes the nominated properties’ set of Norse and Inuit settlement layouts and farming practices spanning from inner to outer fjord. The middle to outer fjord environmental setting of this property is reflected in the Norse settlement evidence by examples of horizontal transhumance or shieling, i.e. people and domestic animals moving along the fjords to neighboring pastures and seasonal production sites. The property is also home to the Hvalsey church ruin, Greenland’s single largest and best preserved Norse ruin, which is also the subject of the last extant written account of the Norse settlements. At the same time, this rich church farm in the middle fjord also brilliantly exemplifies how the Norse were increasingly orienting towards the resources of the marine biosphere, which allowed for the building of prestigious architecture—a hall and a church—even in a relatively poor farming environment.

Still, the agricultural setting is sufficient to house within the property the sheep farming station of Upernaviarsuk, which has been, and still is, fundamental to the expansion of Inuit sheep farming and the teaching of new generations of farmers. At Upernaviarsuk are also unique remains of early modern farming in the region and the meeting of Western and Inuit traditions. One finds here the house remains of Anders Olsen’s first attempt at establishing a farming settlement and, directly adjacent to this, house remains of Inuit design belonging to those family members who accompanied him.
Steering Group and Management Group

The nomination dossier suggests that the current Steering Group will become a ‘permanent Steering Group’ once the property is inscribed in the World Heritage List, so the intended functions and structures are not necessarily operating at this point. Given the centrality of this structure, can the State Party provide updated information about governance arrangements for the Steering Group (such as its terms of reference, roles and responsibilities, conflict resolution capacities)?

A Steering Group was set up for the preparation of the nomination to the UNESCO World Heritage List and this group reports directly to the Mayor of Kujalleq Municipality and the Minister of Culture. The permanent Steering Group is expected to have the same references. This reflects the shared responsibility between the central and local authorities involved.

The permanent Steering Group makes decisions regarding the structure of the management system, its goals and procedures, and it considers a wide range of different matters related to the area. The Steering Group does not have any conflict resolution capacities as such. But the Steering Group can provide recommendations and advice on matters concerning the nominated area and its boundaries. The Steering Group will also serve as a forum for the exchange of information and opinions among the individual members of the group. Each of the members of the Steering Group represents different authorities, and these authorities themselves have formal competences in specific legal areas. By discussing matters in the Steering Group, the authorities will be able to develop coordinated appropriate responses to specific matters that fall within their respective areas of expertise.

Given that the Steering Group might meet only once per year (possibly more), how will its activities inform the decision making processes for development proposals within the World Heritage property components and in the larger region (including mining proposals)? For example, in Part 7 of the Management Plan it is suggested that the Steering Group will monitor impact from mining operations, but the means of meeting this responsibility are not clear. How will it perform various responsibilities of ‘continuous monitoring’ while meeting once per year?

The Steering Group has one annual general meeting and an extraordinary (electronic) meeting may be requested by any member at any time. This means that one physical meeting will take place on location annually but more meetings can be arranged upon request, and these meetings can be physical as well as electronic. Due to the geographical and infrastructural circumstances, physical meetings are very expensive.

One of the main responsibilities of the Chair of the Steering Group is to prepare meetings and decisions of the Steering Group. This includes the obligation to present the Steering Group with specific matters relevant to the mandate of the Group as they arise. Depending on the urgency and the substance of the issue at hand, an extraordinary meeting can be called when needed or the matter can be discussed and decided by electronic procedure.

The Steering Group is responsible for evaluating and updating the monitoring plan. The Management Group with the Site Manager and the Park Ranger(s) are responsible for continuous monitoring and reporting to the Steering Group.
It is also important for ICOMOS to better understand the formal relationships between the ‘Steering Group’ and the ‘Management Group’ that is described in the Management Plan; and the responsibilities (if any) that the ‘Management Group’ might take for assessing impacts of proposed developments outside the boundaries on the potential Outstanding Universal Value of the property.

The Park Ranger and the Site Manager register activities inside and outside the boundaries that might have an impact on the potential UNESCO area. Each case will be discussed in the Management Group, which reports to the Steering Group. If deemed necessary, the Steering Group take action related to concrete activities or incidents.

The Chair of the Steering Group will be one of the members appointed by Kujalleq Municipality and the Site Manager will act as Secretary for the Group. This is intended to establish a close and continuing cooperation between the steering and operational elements of the organization.
Update on Mining, Energy and Infrastructure Developments

ICOMOS is aware that a number of projects were discussed during the technical evaluation mission (including renewable energy, mining, roads and other infrastructure). To assist the ICOMOS World Heritage Panel, it would be helpful of a consolidated list of such projects located within the southern region of Greenland could be provided, together with a brief comment current approval/implementation status (including the Kvanefjeld and Kringlerne uranium and rare earth element mines).

The following is a list of current projects in and outside the nominated areas in Kujataa and a brief explanation of the status and management of these projects with regard to World Heritage protection.

List of current infrastructure projects near the nominated area

<table>
<thead>
<tr>
<th>Title</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Renewable energy production in Igaliku</td>
<td>initiated</td>
</tr>
<tr>
<td>2. Waterworks in Igaliku</td>
<td>under preparation</td>
</tr>
<tr>
<td>3. Waterworks in Qassiarsuk</td>
<td>under preparation</td>
</tr>
<tr>
<td>4. Road connection between Narsarsuaq and Qassiarsuk</td>
<td>under preparation</td>
</tr>
<tr>
<td>5. Road connection between Igaliku and Sissarluttoq</td>
<td>under preparation</td>
</tr>
<tr>
<td>6. Extension of the Qorlotorsuaq hydropower plant</td>
<td>initiated</td>
</tr>
<tr>
<td>8. List of mineral exploration licenses near the nominated area</td>
<td>see list under no. 8</td>
</tr>
</tbody>
</table>

1 Renewable energy production in Igaliku

The national energy provider, Nukissiorfiit, launched a pilot project in the summer 2016 as a pilot project to experiment with sun and wind power in Igaliku. The aim of the project is to reduce the use of fossil fuel in the small settlements, to reduce CO$_2$ emissions, pollution and noise from diesel-powered generators. The installation consists of solar panels and small horizontal wind turbines and covers approximately 1600 m$^2$ (40x40m) and the height will be approximately 4 meters.

Initially Nukissiorfiit wanted to set up the facility in the center of Igaliku, close to the existing power generator. Due to the 2016 Management Plan for the nominated area, and the 2011 Municipal Plan, the municipality asked Nukissiorfiit to move the project out of the vulnerable center of Igaliku to the northern outskirts of the settlement. The municipality also asked Nukissiorfiit to replace two 15-meter vertical wind turbines with smaller horizontal wind turbines. All conduits will be underground and they will be placed according to instructions from the National Museum to avoid damaging ruins and other historical elements.

In a process that involves the National Museum, the municipality and the local board, the permits were granted in a way that no historical sites were adversely affected or any visual damage was done to the landscape. The execution of the project started in October 2016 and it will be completed in the spring of 2017.

2 Waterworks in Igaliku

Because of bacterial problems with the water supply in Igaliku, the national public works company Nukissiorfiit is planning to establish a new water supply. A new well, a new supply pipe and new
waterworks are under consideration. Nukissiorfiit is at an early stage of dialogue with the municipality to devise a solution that complies with the protection of the nominated area. Before the project can be executed, it requires a permit from the municipality. The Steering Group and Greenland National Museum and Archives will be consulted during this process.

The project is planned to be completed in 2017.

3 Waterworks in Qassiarsuk

The waterworks in Qassiarsuk are outdated and a renewal is planned for 2017. Work on designing the project has just started in 2016. The project could include a new building, new (underground) pipes and new water treatment facilities. The design and localization of the project will be established in close cooperation between Nukissiorfiit (the national energy provider), Greenland National Museum and Archives and the municipality to ensure that no protected monuments will be affected and that the visual impact will be minimized.

The project is planned to be completed in 2017.

4 Road connection between Narsarsuaq and Qassiarsuk

The connection between Narsarsuaq (the airport) and Qassiarsuk is by boat on the fjord. Since storms and winter ice can impede travel, the municipality is planning to connect the two settlements with a road and a bridge across the Narsarsuaq River. The road will be an upgrading of the existing dirt road, situated both within and outside component 1. The bridge is planned to be a composite bridge, outside the proposed sites, with a 60-meter span and a low construction that will have a minimal visual impact on the landscape.

The project is still in a preliminary stage.

5 Road connection between Igaliku and Sissarluttoq

The sheep farmers in Igaliku have used Sissarluttoq as a grazing area for centuries. Today, there are only dirt roads on a small section of the route between Igaliku and the proposed component site. To make Sissarluttoq accessible for visitors, a road from Igaliku will be necessary. The road could be constructed by the local sheep farmers in cooperation with the municipality. The Greenland National Museum and Archives will take part in the surveying of the route to ensure that no protected monuments will be affected.

The project is still in a preliminary stage.

6 Extension of the Qorlotorsuaq hydroelectric power plant

To increase power production in South Greenland, more water is needed to drive the turbines at the local hydroelectric power plant, Qorlortorsuaq, situated approximately 12 km east of the nominated area, Component part 4, Tasikuluulik (Vatnahverfi). To achieve this, Nukissiorfiit, the national energy provider, has planned a dam 12 km northeast of Igaliku Kujalleq to create a water reservoir near the glacier.
The dam will not be visible from the nominated area. The only impact on the nominated area, Component part 4, will be a widening of the existing road at the northern periphery of Component 4, to establish the required connection to the construction site, and a small harbor to supply the building site. The Greenland National Museum and Archives has been and is supervising the project development to secure that no ruins or other historic elements will be affected.

As part of the construction facilities, a small harbor will be established near Igaliku Kujalleq. After completion of the construction of the dam, the harbor and the road will be used as transport facilities for tourists and local inhabitants in the area, making component 4 more accessible for guests. The local sheep farmers will also benefit from a better road and a small harbor, thereby increasing the overall infrastructure and general resilience of the farming community. The design and location of the road and the harbor will be established in close cooperation between Nukissiorfiit, the Greenland National Museum and Archives and the municipality to ensure that no protected monuments are affected and that the visual impact is minimized.

The project has been assessed in an Environmental Impact Assessment (EIA) process and has this summer been in competitive tendering. The contracts will be confirmed at the end of 2016. Construction is expected to start in 2017 and be completed in 2018.

7 A new airport near Qaqortoq

Today, the only airport in South Greenland is located in Narsarsuaq. To improve connections to and from the two biggest cities in South Greenland, Narsaq and Qaqortoq have decided to establish a new airport 6 km north of Qaqortoq. It will be a 1,500-meter runway and will be able to serve regional airlines with connections inside and outside Greenland. It will improve the service for tourists coming to the region and visitors to the nominated World Heritage area. The runway will extend from east to west, and this means that the influence on the nominated areas will be minimized. There are plans to locate a tourist visitor center near the airport to promote the World Heritage area.

The project has been approved politically, and is part of a new airport infrastructure to be built in Greenland within the coming decade. The airport project in Qaqortoq is presently at a planning stage, with construction expected to begin in 2018 and a planned inauguration in 2020. The Steering Group of the “Kujataa” WH project will be included in hearings about the project to ensure that the impact on the nominated area will be minimized.
8. List of mineral exploration licenses near the nominated area (see map p. 19 for reference)

The following is a short status report on the current exploration activities around the nominated areas.

**License no.** | **Brief description**
--- | ---
2006/04: | “TaNbREEZ Project”: The company Tanbreez Mining Greenland A/S submitted an application for exploitation in August 2013, which was turned down in its current form by the Government of Greenland in fall 2015. The Mineral Resources Authority is in dialogue with Tanbreez about submittal of an updated or new application. Tanbreez Mining Greenland A/S has exploration concession no. 2006/04, which expires in December 2016. The company has applied for a time extension for three years. The concession covers an area of 18 km² in the mountain area around Killavaat Alannguat north of Qaqortoq. The total mineral resources in the area amount to approximately 4.7 billion tons of ore, with a percentage composition of approximately 0.6% TREO (Total Rare Earth Oxides), approximately 1.9% zirconium ZrO₂, approximately 0.2 % niobium Nb₂O₅ and approximately 0.02 % tantalum. The plan is to mine
1.5 million tons of ore per year using open-cut methods. The project is about 5 km from the nearest part of the nominated area (Component 5) and the preliminary investigations tells that there will be no impact within that radius, neither visually nor in terms of noise and dust. The Steering Group of the “Kujataa” World Heritage project will examine the EIA when it is released to ensure that the World Heritage area will not be affected.

2010/02: “Kvanefjeldet”: The company Greenland Minerals and Energy Limited (GMEL) has completed draft documentation of the maritime study and social impact assessment (SIA), with updates nearing completion. Sections of the Environmental Impact Assessment (EIA) have been sent to independent expert groups for review and this process is nearing completion. Following this, it is expected that GMEL will submit a full exploitation license application in the near future, which will be followed by a public hearing process. The current exploration license covers an area of 80 km² and includes the Ilimmaasaq intrusion north of Tunulliarfik Fjord with the mountain Kuannersuit (Kvanefjeldet) north of Narsaq. The total mineral resources in the area amount to about 1 billion tons with a percentage composition of approximately 1.1% TREO (Total Rare Earth Oxides), approximately 250 grams per ton uranium U₃O₈ and approximately 0.23 % zinc Zn. The plan is to mine 3 million tons of ore per year using open cut methods with a chemical plant on site. GMEL is preparing an Environmental Impact Assessment (EIA) for the project. In this assessment the impact of the nearby areas will be examined. The mine is about 20 km from the nearest part of the nominated area (Component 5) and the preliminary investigation tells us that there will be no impact within that radius, neither visually nor in terms of noise and dust. GMEL is now in the process of applying for an exploitation license. In the “Terms of Reference” for the EIA a monitoring of the impact is required. The Steering Group of the “Kujataa” World Heritage project will examine the EIA when it is released to ensure that the World Heritage area will not be affected.

2010/24: Rimbal Pty Ltd. have not conducted any activities in 2016. Generally they conduct preliminary exploration activities with the aim of mapping out potential mineral deposits within the license area.

2012/14: Rare Earth Resources Ltd have not conducted any activities in 2016. Generally they conduct preliminary exploration activities with the aim of mapping out potential mineral deposits within the license area.

2012/15: Rare Earth Resources Ltd have not conducted any activities in 2016. Generally they conduct preliminary exploration activities with the aim of mapping out potential mineral deposits within the license area.

2013/15: CGRG A/S have conducted geological field work in 2016. Generally they conduct preliminary exploration activities with the aim of mapping out potential mineral deposits within the license area.

2013/20: Rare Earth Resources Ltd have not conducted any activities in 2016. Generally they conduct preliminary exploration activities with the aim of mapping out potential mineral deposits within the license area.
2014/01: Regency Mines Plc have not conducted any activities in 2016. Generally they conduct preliminary exploration activities with the aim of mapping out potential mineral deposits within the license area.

Map showing the exploration licenses around the nominated areas as of 2016.

The Ministry of Mineral Resources is publishing a status report on all activities related to exploration and exploitation licenses throughout Greenland. These are available on the Government of Greenland homepage, www.naalakkersuisut.gl.

*Because of the number and range of current and future projects in southern Greenland, it would also be helpful if the existing legal and other processes for assessing and mitigating heritage impacts could be provided in summary form.*

The Heritage Protection Act (Act no.11 of 19 May 2010 on Cultural Heritage Protection and Conservation) requires developers involved in major earthworks to involve the Greenland National Museum and Archives in the planning process relating to such products. If deemed necessary, the Greenland National Museum and Archives can demand archaeological investigation, which shall be granted by the developer.
In addition, activities related to mineral resource exploration and extraction in Greenland are regulated by Greenland Parliament Act of 7th December 2009 on mineral resources activities (the Mineral Resources Act). Hence, § 2 of the Mineral Resources Act aims to ensure that activities under the Act are performed in a sound manner as regards safety, health, the environment, resource exploitation and social sustainability and appropriately and according to acknowledged best international practices under similar conditions.

If a company wishes to apply for an exploitation license, it has to submit an Environmental Impact Assessment report (EIA) and a Social Impact Assessment report (SIA). Furthermore, the company has to prepare an impact mitigation plan, where it has to describe mitigation measures related to possible negative impacts on the environment. Between 2-3 years prior to any EIA there has to be collected baseline data on extant flora and fauna. This documents the environmental conditions prior to any mining activity and serves as a point of reference for possible future impacts. It also allows for better planning of effective mitigation measures. Based on the baseline data, Terms of Reference are prepared for the EIA, which specify the framework for the EIA study. The baseline study and the EIA report have to follow the guidelines that have been established by the scientific advisors to the Environmental Agency for Mineral Resources Activities (EAMRA) at the Greenland Institute of Natural Resources and the Danish Centre for Environment and Energy (DCE), an independent institution under Aarhus University with experts on environment and nature.

Currently, the administration of the Mineral Resources Act is conducted by three different ministries to ensure international best practices on governing mineral resources. The Ministry of Mineral Resources (MLSA) assesses licensing applications, grants exploitation licenses, issues construction and technical permits, assesses response capability plans and assesses field works activities. The Environmental Agency for Mineral Resource Activities (EAMRA) under the Ministry of Independence, Nature, Environment and Agriculture administers the EIA applications. Independent experts at the Danish Centre for Environment and Energy (DCE) and the Greenland Institute of Natural Resources assess the EIA content. The Ministry of Industry, Labor, Trade and Energy (MILTE) assesses the SIA reports and coordinates public hearings in towns and settlements together with the other ministries, the EAMRA, DCE, Greenland Institute of Natural Resources and municipalities. Furthermore, the MILTE negotiates Impact Benefit Agreements with the companies and municipalities with the aim of maximizing Greenlandic benefits from mining activities. MILTE is also responsible for export control and safeguards in relation to radioactive elements. Specifically with regard to the mitigation of possible effects on the nomination site, § 51 in the Mineral Resources Act (2009) states the following:

§ 51 “The rules of this Greenland Parliament Act on environmental protection aim to help protect nature and the environment so that society can develop on a sustainable basis respecting human conditions of life and respecting preservation of animal and plant life.”

(2) The environmental protection rules aim to prevent, limit and combat pollution of and other impact on nature and the environment caused by activities that may: (i) Endanger human health. (ii) Damage animal or plant life or natural or cultural values on or in the soil, in the sea or in the subsoil. (iii) Obstruct the rightful utilization of the soil, the sea, the subsoil or natural resources. (iv) Impair recreational values or activities.
(3) In connection with the contents of subsection (2) above, the aim is specifically to: (i) Prevent, limit and combat pollution of the soil, the sea, the sea floor, the subsoil, water, air, adverse effects on the climate as well as vibration and noise nuisance. (ii) Limit the use and waste of raw materials and other resources. (iii) Promote the use of cleaner technology. (iv) Promote recycling and limit problems in relation to the disposal of waste.

The detailed approval process stipulated in the EIA guidelines for Greenland is illustrated in the figure below.

Figure: Illustration of the EIA approval process when applying for an exploitation license.

<table>
<thead>
<tr>
<th>Step</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scoping phase. After preliminary consultations between the company, MRA and MRA's scientific advisors (DCE/GINR) the company prepares a scoping report and forwards the report to MRA.</td>
</tr>
<tr>
<td>2</td>
<td>MRA publishes the company's scoping report and terms of reference (ToR) for public pre-consultation for 35 days.</td>
</tr>
<tr>
<td>3</td>
<td>The company evaluates the comments received during the public pre-consultation and considers revision of the project.</td>
</tr>
<tr>
<td>4</td>
<td>The company prepares a final scoping report and terms of reference for approval by MRA.</td>
</tr>
<tr>
<td>5</td>
<td>The company prepares an environmental study programme including a programme for environmental baseline studies, project-related studies and other studies in consultation with MRA and MRA's scientific advisors. This programme shall be prepared and kept updated to secure data necessary to produce the final EIA. The programme shall be approved by MRA involving consultations on a regular basis.</td>
</tr>
<tr>
<td>6</td>
<td>The company proposes a table of contents for the EIA to MRA.</td>
</tr>
<tr>
<td>7</td>
<td>MRA and MRA's scientific advisors review the proposed table of contents for the EIA and provide feedback.</td>
</tr>
<tr>
<td>8</td>
<td>The company forwards an EIA draft to MRA.</td>
</tr>
<tr>
<td>9</td>
<td>MRA and MRA's scientific advisors review the EIA draft and provide feedback.</td>
</tr>
<tr>
<td>10</td>
<td>The company forwards a revised EIA draft including appropriate revisions to MRA as part of the application for the exploration and the exploitation.</td>
</tr>
<tr>
<td>11</td>
<td>MRA publishes the revised EIA draft for public consultation for minimum 8 weeks in accordance with the Mineral Resources Act. During the consultation period, public hearings shall be organized in towns and villages which are particularly affected by the activities.</td>
</tr>
<tr>
<td>12</td>
<td>The company prepares a white paper which addresses the questions and comments raised during the public consultation and hearing meetings.</td>
</tr>
<tr>
<td>13</td>
<td>MRA and MRA's scientific advisors review and give feedback on the white paper to the company.</td>
</tr>
<tr>
<td>14</td>
<td>The company submits a final EIA draft including the white paper to MRA for Naalakkersuisut's approval.</td>
</tr>
<tr>
<td>15</td>
<td>If Naalakkersuisut decides to grant an exploitation license, MRA will use the EIA as a basis document for defining terms and requirements for approval of the company's exploitation and closure plans.</td>
</tr>
</tbody>
</table>


Relevant in this regard is that the authority concerning archaeological findings is the Greenland National Museum and Archives (NKA). Often mining activities take place at locations that have previously not been examined by archeologists or described by traditional users of the area. NKA shall therefore be contacted in the project’s scoping phase to arrange for them to visit the location and thoroughly inspect and review the areas expected to be affected by the project. If archeological features are present, these shall be described in the EIA and the protective measures shall be described by the NKA.
The Ministry of Industry, Labor, Trade and Energy (MILTE) assesses the SIA reports and coordinates public hearings in towns and settlements together with the other ministries, the EAMRA, DCE, the Greenland Institutes of Natural Resources and municipalities. Furthermore, the MILTE negotiates Impact Benefit Agreements with the companies and municipalities with the aim of maximizing Greenlandic benefits from mining activities. MILTE is also responsible for export control and safeguards in relation to radioactive elements.

Figure: Illustration of the SIA approval process when applying for an exploitation license.

As illustrated above (and in no. 11 in the EIA figure), the EIA and the SIA area submitted for public hearing for a minimum of 8 weeks. This includes public hearing meetings in the towns and villages that are within close proximity of the proposed project. After the hearing, the company has to prepare a so-called white paper that deals with all questions and comments from the public on the project. The white paper is a document containing the public consultation responses or a summary thereof, comments from the company to these responses, a description of how these comments will be addressed in the final EIA and SIA, or a reason why they will not be addressed. The EAMRA, scientific advisors and MILTE shall be given an opportunity to incorporate their comments in the white paper as well.

As all licenses close to the nominated area are exploration and not exploitation licenses, there are of course no mining activities. Strict rules apply during the exploring phase. These can be found at www.govmin.gl under “Rules for fieldwork”. With regard to archaeological sites, artifacts etc. it states that these have to be preserved and shall not be damaged, changed or moved. Digging, making fires, camping or establishing installations is not permitted and artifacts shall be left untouched. Furthermore, there must be a buffer of
at least 20 meters to the archaeological site when carrying out activities that can potentially damage the site. If archaeological sites are discovered during field work, all work shall be stopped and the NKA shall be notified.

*It is understood that Greenland’s geology offers the potential for mining of rare mineral resources, including uranium and rare elements. ICOMOS understands that there is a ‘no mining’ provision in place for the nominated property (p. 37 of the Management Plan), but it is interested to further understand the details of the extent of this provision, and any mechanism that ensure that mining in areas outside the nominated property is nevertheless strictly assessed and monitored in relation to the impacts on the potential OUV of the nominated components (noting that impacts might be more varied that the usual consideration of visual impacts).*

ICOMOS requested further information regarding a no mining provision for the nominated area. In this regard we have summarized key decisions made by the Government of Greenland in 2007 and 2010 related to mineral exploration activities and the nominated site that specifies these provisions.

**Summary of Greenland Home Rule April 19th 2007:**
Regarding the nomination of a cultural landscape in South Greenland for UNESCO World Heritage site, the Greenland Home Rule decided:

- To approve the delineation of the nominated area by a steering group, including the exception mentioned in the proposal regarding Sissarluttoq, and discuss the decision in public hearings in the municipalities of Narsaq and Qaqortoq and with other interested parties
- That pursuant to the approval of the nominated areas, and until further notice, it will not be possible to grant applications for exploration and exploitation licenses within the nominated World Heritage properties
- That applications for exploration and exploitation licenses in areas in proximity to the nominated area will be accepted

**Summary of Government decisions March 25th 2010:**
Regarding the nomination of a cultural landscape in South Greenland for UNESCO World Heritage site, the Government of Greenland decided:

- That the delineation of area 1 remains unchanged, based on UNESCO’s guidelines
- That the delineation of area 2 shall be done based on UNESCO’s guideline, resulting in the reduction or termination of exploration areas of Hunter Minerals Pty. Ltd. and Ram Resources Ltd.
- That area 3 is included in the nominated area and that the delineation remains unchanged based on UNESCO’s guidelines because of overlap with an already existing exploitation license
- That the delineation of area 4 remains unchanged based on UNESCO’s guidelines
- That area 5 is delineated based on UNESCO’s guidelines as delineated in appendix 2 resulting in reduction or termination of Overseas Pty. Ltd exploitation license.
- That applications for exploration and exploitation licenses in areas in proximity to the nominated area will be accepted
That the newly delineated areas are discussed in hearings in Kujalleq Municipality including other relevant parties in the region

Map: Showing the proposal presented to the Government of Greenland specifying the different exploration licenses around the nominated areas January 1st 2010:

The above summaries show that the Government of Greenland has remained true to its decisions in 2007 and 2010 when it comes to the nominated area in Kujalleq. This is reflected in the previously overlapping licenses with nomination areas 2 and 5, which have been adjusted since 2010, as seen in the map below. The government has stuck by its policy even during the transitional period in 2009 from home rule to self-government and throughout various government administrations since then. It is to be noted that licenses close to components 2 and 5 have been modified as an adaptation to the extent of the nominated areas.

The Ministry of Industry, Labor, Trade and Energy has recently been in close contact with the Ministry of Mineral Resources regarding the no mining provision. They explained that the nominated areas were not visible in the geographical application systems such as nunagis.gl or govmin.gl due to technical reasons and not because exploration licenses can be applied for. This means that the areas are off limits for applications in their system. However, the Ministry of Mineral Resources shall ensure that licenses for the nominated areas are not available for application and has agreed to visualize this clearly within the above-mentioned sites. Hence, this work is currently ongoing and will soon also be visible as a “not available for license applications”.

24
Planning for Tourism and Interpretation

ICOMOS notes that the current level of visitation is low, and that a Tourism Strategy has been devised (but not been translated in full in the nomination dossier). It would be appreciated if the State Party could provide more detailed information about the proposed measures to attract visitors, provide access and sustainably manage tourism to this area and how the carrying capacity has been estimated.

The national tourism strategy 2016–2020 (only available in Danish and Greenlandic) was published in spring 2016 and has therefore not been incorporated into the 2016–2020 management plan for the nominated area. Hence, the Ministry outlines the Government of Greenland’s core policies from the national tourism strategy that may have an impact on the nominated area.

The overall goal is to attract more tourists by making Greenland more accessible thanks to reduced airfares, better infrastructure, new visitor centers and targeted marketing initiatives in key markets. It is also clearly stated in the national tourism strategy that the UNESCO World Heritage nomination in Kujalleq is a national priority.

In terms of enhancing local capacities to accommodate increased tourism activities, specific initiatives are planned focusing on better education within tourism-related professions, better access for financing, strategic municipal planning initiatives, better collection of standardized statistics and a general modernization of the legal framework. These activities are in details described in the national tourism strategy.

On behalf of the Ministry of Industry, Labor, Trade and Energy, the consulting company Ramboll A/S has conducted an analysis on how a new airport structure in Greenland could increase the number of tourists visiting Greenland. The aim is to double tourist air traffic by 2040 from approximately 37,000 passengers in 2014 to around 74,000 in 2040. This analysis is publicly available at Naalakkersuisut.gl in Danish and Greenlandic and has assessed the capacities of each region to accommodate a larger numbers of tourists.

Accommodation capacity has not peaked over the last ten years and the occupancy rate has generally declined since 2009 and remained below 30%. Hence, the municipality has the capacity to accommodate an increasing number of tourists. In 2014, the municipality had a total of 15 hotels and accommodation establishments for visitors, and even during the high season there is enough space to accommodate a larger number of tourists.

Cruise ship tourists in the municipality typically only stay for an afternoon or a day. Bearing this in mind, the Ministry of Industry, Labor, Trade and Energy has together with the Ministry of Municipalities, Settlements, Infrastructure and Housing initiated a plan to assess the existing harbor infrastructure and ensure greater disembarking and boarding capacities.

The 2016–2020 national tourism strategy makes recommendations for improvements to boarding capacities at key harbor facilities, with tidal pontoons and landing stages in Qassiarsuk, Igaliku and Aappilattoq, and renovation work to the harbor facilities in Qaqortoq to accommodate cruise ships more
effectively. A background analysis conducted by the engineering consultancy firm Orbicon Greenland has estimated the specific investments to be relatively low and has proposed concrete solutions.

The national tourism strategy highlights the importance of educating those who already work, or aspire to work, in the tourism sector. This is especially important in terms of language education and broadening the understanding of different cultures. There is a great focus on the challenges of the seasonality in this sector and working groups that include employer organizations and employee unions have been established to assess possible initiatives. Campus Kujalleq in Qaqortoq, which is located close to the nominated area, is now the main educational facility in Greenland on tourism and guides, and there is an interest in introducing specialized professional certificates in arctic guiding etc.

One of the 23 key recommendations by the Government of Greenland to develop tourism over the coming years has been to propose a new act that allows for the creation of nationally administered visitor centers and tourist facilities. This act is currently being assessed by the Greenlandic Parliament in the autumn of 2016. The idea behind the visitor centers is to promote specific sites and regions in general and thereby enhance the activities and information sharing at specific sites.

The act would allow for two different types of facilities. First, a visitor center would be created that focuses on information sharing related to the specific site, such as the planned Icefjord Center in Ilulissat. The Icefjord Center in Ilulissat, for example, will provide visitors with an engaging exhibition that conveys knowledge, facts and experiences relating to the Ilulissat Icefjord. Second, it would provide for the establishment of smaller tourism facilities that will be available for the tourists at different sites. Hence, the intention of these facilities is not necessarily to communicate site specific information, but rather to focus on easing accessibility to the sites. This could, for example, include toilet facilities, walkways, small information booths and similar projects. The general aim of the proposed act is to create a legal framework to regulate tourism facilities within specific sites.

Apart from the national tourism strategy, the Greenland National Museum and Archives is in the process of planning and designing a modernization of the dissemination of information on heritage sites in Greenland on a national level. The current plan involves a three-step development, of which at least the first will be initiated, regardless of the UNESCO World Heritage nomination process, in response to an increased number of tourists in several parts of Greenland:

- Erecting new and updated signposts at key heritage sites throughout the properties. In addition to providing the newest and most up-to-date information on our current knowledge of the Norse and Inuit farming traditions, signposts will include information on basic legislation and rules of conduct around heritage sites and sheep farms. It is believed that this initiative will be sufficient to protect most of the generally very stable heritage sites from the threat of erosion and disturbance from increased visitation. At the most popular and visited heritage sites, pathways and viewpoints will be established to protect the heritage features from erosion caused by increased visitor traffic.
The type of signposts selected and described above will be prepared for data storage and easy on-site wireless data upload. Thus, the next step will be to provide visitors with additional digital information that can be downloaded directly on to appliances such as smartphones and tablets.

The third and last step, The Tourism Strategy of Kujalleq Municipality, 2015-2020:

A municipal strategy for tourism was developed in 2014-15, and approved by the municipal council in March 2015. The main objectives for creating a tourism strategy were to assure a better coordination of development and branding initiatives within Kujalleq Municipality, including private tourism actors, the municipality itself, Visit Greenland and the Government of Greenland. Furthermore, the strategy should be in alignment with other strategies and development projects, incl. the planned Kujataa heritage area.

More specifically, the prospects of a UNESCO site are mentioned on page 10, where the important roles of tourism development are described, in which the municipality acknowledges its role as a regional political actor in relation to the creation of the Kujataa UNESCO site in Kujalleq Municipality.

Moreover, the strategy has the ambition, as explained on page 13, of creating a brand in which the main focus is on the Arctic Vikings, the issue of the “full circle” story—Kujataa being the place on earth where the human race met again after the exodus from Africa— and, last but not least, agro-tourism and the present-day Inuit farmers and their community.

Security is another issue in the strategy, as a larger number of tourist will mean greater needs for security measures within the local community, including developing better weather and security related warnings, support initiatives for training and certification of tourism actors and working to achieve improved SAR-services (the latter being a responsibility of the Danish Government).

Another key objective is to develop an experience economy in relation to the heritage area by securing involvement of various enterprises and individuals, from farms to local handicrafts artists etc.

Finally, on page 19, the strategy explicitly mentions a number of projects to be established in relation to a heritage area, incl. a visitor center with satellites at the main sites, proper information on the sites. Furthermore, there are plans to develop hiking trails and farm tourism within the components of the heritage area.

The municipality’s strategy concludes that sufficient funds will be needed to accomplish these goals, and development should be based on a button-up approach. This means that the strategy aims for including the tourism actors in a regional tourism development institution, supported financially by the municipality.

The municipality maintains roads and piers within the nominated area, and is planning to increase the accessibility both by air, sea and land, i.e. referring to the description on pp. 14-16. The municipality will monitor the environmental impact on the sites from tourism, estimating erosion levels, thereby making it possible to gauge the need for foot paths and walkways etc. Entrance fees for the sites are currently being discussed within the Municipality, partly as a way of raising revenue for the management of the sites, but also as a way to monitor the number of tourist and traffic, as to track the environmental impact.
Furthermore, a site manager is expected to be employed during 2017, and 0.3 mio.kr has been secured in the proposed municipal budget for 2017.

As to the implementation of the strategy, the independent organization “Destination South Greenland” (DSG) was formed with this goal in mind in late 2015. DSG is funded by Kujalleq Municipality with 1.023 mio.kr in 2016, and the same amount is secured in the proposed budget for 2017, in addition to the mentioned funds for a site manager.

DSG’s main activities are in:

- Product development,
- Marketing and branding,
- Data collection
- Basic tourist information

DSG is working on developing products based on local resources, with particular focus on including the agricultural community in tourism development. A close corporation has been established with the Icelandic Farm Holiday organization “Hey Iceland”\(^2\), focusing on certification, quality development and Internet marketing.

A new brand has been developed called “Explores by Nature,” with a participatory approach based on workshops and seminars in 2015–16. A new branding video has been released in September 2016 focusing on the heritage of the farming community\(^3\).

DSG is working on developing the infrastructure needed for tourism development, mainly to improve accessibility to the tourist sites, including roads and piers within the Kujataa components.

Finally, it is planned that the site manager for the nominated area will initially work hand-in-hand with DSG, sharing office facilities etc. until more permanent structures are established for the proposed heritage site, i.e. within an upcoming visitor center.

\(^2\) [www.heyiceland.is](http://www.heyiceland.is)

\(^3\) [https://www.youtube.com/watch?v=JsgvC-7id5Y&index=3&list=PLYTwnZvSb6NvDn1RVfBwHmmjvmDa6wi02](https://www.youtube.com/watch?v=JsgvC-7id5Y&index=3&list=PLYTwnZvSb6NvDn1RVfBwHmmjvmDa6wi02)
Legal Protection

The nomination dossier refers to an Executive order on Cultural Heritage Protection to be approved and signed in February 2016 and that it ‘enters into force in 2016’ (pp. 23; 206-207; pp. 20-21 of the Management Plan). Can the State Party please confirm the status of this Executive Order?

The mentioned Executive Order was approved by the Government of Greenland in July 2016 and entered into force on 1 August 2016.

In addition to the information provided in the nomination dossier, ICOMOS would appreciate additional information on the specific legal protection mechanism (if any) that are able to safeguard the identified intangible heritage dimensions of the serial property; (…)

As mentioned in Chapter 5, entitled “Protection and Management of the Property,” in the nomination dossier the proposed area is protected and conserved by an established framework of national legislation and protective designations as well as by local planning policies. These arrangements are reinforced through a series of national legislation and local planning documents, which are described in the appendices. National legislation includes The Museum Act – Inatsisartut Act no. 8, 3 June 2015 on museum activities.

The Museum Act aims to safeguard Greenland’s material and immaterial (intangible) cultural heritage and promote the work and cooperation of the Greenlandic museum service. The Act defines what is understood by material and immaterial cultural heritage. The definition of “Immaterial cultural heritage” (also described as “intangible cultural heritage”) is in accordance with the definition of “intangible cultural heritage” in The UNESCO Convention of October 17, 2003 for the safeguarding of the intangible cultural heritage. The convention was ratified by Denmark in 2009 and the same year the Government of Greenland informed the Danish Government that Greenland wanted to enter into the Convention. The Museum Act Greenland has implemented the obligation of the Convention to take the necessary measures to ensure the safeguarding of the intangible cultural heritage present in its territory; including relevant legal protection measures.

The museum service has, in accordance with the Act, through recording, collection, conservation, research and communication, the task of safeguarding Greenland’s cultural, heritage and shedding light on Greenlandic cultural and natural history, making collections accessible to the public and available for research and disseminating the results of this research. The Greenland National Museum and Archives has a national responsibility for the tasks incumbent upon the museum service. The Act specifies more detailed rules relating to the museum’s responsibilities with respect to the recording, collection, establishment and maintenance of representative collections, historical research, communication etc.

The Museum Act will therefore provide the necessary legal framework and means for safeguarding the identified intangible heritage dimensions of the serial property.

(…) and on the application (if any) of legislation for nature conservation to the attributes of the serial property.

The conservation and use of the landscape in relation to agricultural use is regulated by the Nature Protection Act nr. 29 and Order no. 22 on the Management of Pastures and Livestock. This legislation has
implications for both the five components of Kujataa and the remaining agricultural landscapes and farms of Greenland.

**The Nature Protection Act nr. 29, dated 18. December 2003:**

The Nature Protection Act is designed in particular, as described in § 1, paragraph 2, to:

1) Protect biodiversity, including genes, species, habitats and ecosystems

2) Ensure that the exploitation of living resources is based on an ecologically sustainable basis

3) Preserve and manage landscape values

4) Safeguard the population’s ability to move and reside in a rich and diverse nature

5) Ensure that international agreements on nature conservation are implemented in accordance with Greenlandic law

It is noted that the Government of Greenland has elected legislation based on the principle of sustainable use of natural resources, including in the area of agriculture. Furthermore, the Nature Protection Act ensures the preservation and management of landscape values, which includes the grazing landscapes of Kujataa. The Act on Nature Conservation mainly relates to non-agricultural regions of Greenland, in which the conservation status outside towns and villages is very restricted in relation to disturbances in the landscape, but an exception in article § 27 of the Act, which creates provisions for the agricultural communities to conduct farming activities and thereby maintain the agricultural landscape.

**Government order no. 22, dated 8. September 2000, regarding management of grazing areas and livestock:**

The main principle of order no. 22 is a sustainable use of land, as described in article 2, paragraph 5: “A sustainable use of grazing resources is the use of pastures, which can take place over a number of years, without leading to degradation of the land carrying capacity”.

Order no. 22 regulates the number of livestock permitted on the pastures, in which the Government of Greenland sets an upper limit of grazing animals in each grazing area, as per article 6, paragraph 1: “The Government sets an upper grazing pressure for each grazing area, expressed as the number of livestock which can graze in that area. The grazing pressure is set yearly, or as needed”.

Each farm is granted a grazing concession within a grazing area, usually with more than one farm utilizing a grazing area, as per article 7 in order no. 22: “Any operating unit must be assigned a grazing concession to let their livestock have access to the pastures”.

This management of the grazing capacity protects the grazing resource from overuse, thereby protecting the landscape against depletion of vegetation and soil erosion.

Furthermore, the shrub lands of birch and willow, which represent important elements of the pasture landscape, are additionally protected by order no. 22, § 8, paragraph 2:
“Summer grazing concessions for sheep farming are granted for the period from 1 May to 31 October”.

The grazing concessions are therefore only for the snow-free period from 1 May to 31 October, thereby limiting or eliminating winter grazing. The winter grazing pressure on bushes is often particularly intense, which is why year-round grazing concessions with widespread winter grazing would lead to a depletion of the shrub lands of Kujataa.
Nomination to UNESCO’s World Heritage List

Kujataa
– a subarctic farming landscape in Greenland

Additional Information
22. February 2017
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Cultural landscape

ICOMOS understands that the two historical periods of farming are the focus of the justification for Outstanding Universal Value in this nomination. However, to better appreciate these within the larger geographic, cultural and historical contexts, it would be appreciated if the State Party can provide concise text (with a series of overlay maps, if available) that show the sequencing of human uses of the larger landscape of southern Greenland – including:

- Locations of all Norse farming sites in Greenland.
- Locations, sites and processes in the hunting of marine mammals and fishing by Norse and Inuit farmers in southern Greenland.
- Locations, sites and chronologies of Thule Inuit occupation of southern Greenland.

The cultural history of Greenland is characterized by a series of in-migrations of very different peoples interspaced by long periods when there were no people in parts of or even the entire country (Fig.1). From Ellesmere Island in the northwest a series of hunter-gatherer cultures with origins on the North American continent (the Saqqaq, Independence I-II, Dorset, and Thule Cultures) in-migrated from 2400 BC. In Kujataa in the south peoples of Scandinavian and European descent (the Norsemen and later colonial Scandinavians) entered from shortly before 1000 AD.

The cultural landscape of Greenland preserves a unique record of these population movements and encounters that rank among the most evocative in world history. In particular the farming landscape of Kujataa represents a remarkable fusion of cultural traditions where both farmers from temperate Europe and hunters from the High Arctic had to adapt their very different ways of life to environmental conditions ideally suited to neither but forming the basis of a distinct and unique culture combining animal husbandry and seal hunting.

In order to contextualize the unique attributes of the Kujataa cultural landscape within the larger geography and history of Greenland and beyond, the following section presents: A) a brief overview and discussion of the distribution of Norse heritage sites in Kujataa; B) an outline of Thule Inuit cultural history and chronology in Kujataa; and C) a synthesis of the above presenting how the use of marine resources is reflected in the various cultures and the attributes of the nominated properties.
A. Location of all Norse (farming) sites in Greenland and Kujataa

The Norse settled in two main parts of Greenland: in the larger Eastern Settlement (Old Norse Eystribyggð) in Kujataa with some 550+ registered Norse heritage sites, and ca. 500 km further north in the Western Settlement (Old Norse Vestribyggð) in the inner Nuuk Fjord region with only some 90+ Norse heritage sites (Fig. 2) (Gulløv 2004). A separate cluster of Norse heritage sites is often referred to as the “Middle Settlement”, but was undoubtedly an
outlying part of the Norse Eastern Settlement (Fig. 2).

Norse (farming) sites: It has long been realized that not all of the recorded Norse sites represent regular farmsteads and that quite many are seasonal sites used in transhumance (shielings) (Albrethsen and Keller 1986). Based on recent surveys it has been suggested that actual farmsteads only represent between 1/3 and 1/2 of all registered sites (Vésteinsson 2010, Madsen 2014). Identifying specific site functions and histories is complicated by the fact that sites could shift between being used as a shieling or a farm, and many sites were only used for a short while, i.e. only an unknown subset were actually contemporary. In terms of interpreting the Norse cultural landscapes in general, the overall distribution of sites (Fig. 2) is in itself an important testament: in a Norse Greenland farm the farmstead was a production hub and core for a number of associated satellite sites that extended and facilitated various types of land use out into the larger landscapes ranging from the outer coast to the Ice Cap. That most these sites relate to farming or transhumance does not reflect that marine resources were not being utilized, but rather reflects the particular and unique way in which Norse society organized and used wider landscape resources.

![Figure 2. Map showing all the currently known Norse heritage sites in the two Norse settlement areas (map: C.K. Madsen 2017).](image)

**B. Locations, sites and chronologies of Thule Inuit occupation of southern Greenland**

The following section briefly summarizes the cultural and chronological contexts of the Thule culture in Kujataa. A general issue affecting our knowledge of both Paleo-Eskimo and Inuit prehistory of Kujataa is that it is archaeologically under investigated due to a historic research
focus on Norse settlement remains. The Paleo-Eskimo/Pre-Inuit and even later Thule culture sites in Kujataa are therefore archaeologically underrepresented, although enough have been recorded for a general distribution to be presented.

**Paleo-Eskimo/Pre-Inuit in Kujataa**

The Paleo-Eskimo/Pre-Inuit cultures are only represented in Kujataa by 7 confirmed archaeological sites (source: nunniffit.natmus.gl). One of these is in Qassiarsuk (component part 1), where a few lithic artefacts from the Saqqaq culture were found in connection with the excavation and partial restoration of two 16th-17th century Thule culture winter houses near the Norse farm (Ø29a) (Meldgaard 1964). The other Paleo-Eskimo/Pre-Inuit sites in Kujataa are represented by the same kinds of sporadic finds and there are no structural features known – e.g. tent rings, axial features, long houses, fireplaces etc. such as are found further north in Greenland and across to Canada.

**Thule Inuit in Kujataa**

With just under 600 registered sites in the part of Kujataa that overlaps with Norse settlement (Fig. 3), the Thule culture is archaeologically far better represented than the Paleo-Eskimo/Pre-Inuit cultures. However, in spite of the relatively large number of known Thule culture sites, the actual number is undoubtedly significantly higher due to the bias of archaeological and historical investigations towards the Norse sites (for exceptions, see e.g.: Mathiassen 1936, Bak 1971, Gulløv 1997, Kapel 1997, Jensen et al. 2011). The sites shown in Fig. 3 represent the overall spectrum of Thule culture activities, i.e. various types of seasonal camps, cairns, shooting blinds, fishing weirs, burial grounds, traps, caches etc. Of these, only a small number has been systematically excavated or otherwise investigated. Consequently the interpretation of Thule Inuit culture in Kujataa relies on parallels from other parts of Greenland.

**Early Thule culture, ca. AD 1200-1500**

In a recent project, Gulløv et al. have been able to document the extensive presence of the Thule culture in Kujataa from at least the 15th century (Gulløv 2000b, Raahauge et al. 2002, Raahauge et al. 2003, Jensen et al. 2011). It is arguable that this comprehensive Thule culture settlement must have been preceded by a pioneer phase, a notion supported by recent 13th century ¹⁴C-dates from a winter house in the southernmost part of Kujataa (Golding et al. 2011). While these dates need corroboration they are highly interesting as they open for a scenario with a temporal overlap between Norse and Inuit settlement of as much as 250 years. The outcomes of such a prolonged cultural encounter could have had profound implications for both societies, and it has been recently suggested that trade between the two cultures was an important driver in the rapid migration of the Thule culture down Greenland’s west coast (Gulløv 2000a, Gulløv 2008).
Generally, the Early Thule culture in the Kujataa appears to share the characteristics of west and southwest Greenland (e.g., Grønnow et al. 1983, Gulløv 1983, Gulløv 1997). The life of the Thule Inuit was characterized by a high degree of mobility that facilitated yearly seasonal movements related to the changing availability of various resources and prey animals. Settlement and activities in the winter half of the year was concentrated in the outer fjords and on the coast, whereas the caribou hunt in the inland was a mid-to-late summer activity. Late spring and early summer could include moves to intermediate camps with access to temporary resources, such as for instance egg-collecting and the hunt for migrating prey. Late summer and early fall could involve stays at intermediate camps for collecting berries and wood, but mainly concentrated on exploiting the large number of char and salmon migrating up the rivers.

The Early Thule culture in Kujataa would have been very similar, although the more ice-free, subarctic environmental conditions made the marine biosphere with its inexhaustible supply of seal, fish, and seabirds even more important than elsewhere in Greenland. The exploitation of these resources is reflected in the overall settlement patterns, i.e. the concentration of sites, and foremost winter settlements, in the outer fjords and on the coast (cf. Fig. 3). Consequently, the dependency on marine resources is – as it is with the Norse – reflected primarily in the refuse heaps of the winter settlements and in the isotopic values of the bones of the Thule Inuit themselves (Gulløv 2012, Nelson et al. 2012).

With none of the Thule culture sites in the nominated properties being radiometrically dated,
it cannot at present be conclusively stated if any sites should be ascribed to the Early Thule culture.\footnote{See further pp. 141-42 in the nomination text.} However, most of the site types mentioned are represented in the properties: for instance, Thule culture winter houses are found at Upernaviarsuk and Arpatsivik (component part 5), Itilleq (component part 2) and Qassiarsuk (component part 1). In the two latter cases, they are rare examples of inner fjord Thule culture winter settlement, suggesting major earlier presence of both marine and terrestrial resources. Temporary spring and autumn summer camps are located in component parts 1-2, and 4-5, associated grave fields in component parts 2 and 5. Attributes that attest to the traditional Inuit way of life and use of seasonal resources are therefore well-represented in the nominated property, even considering that the Thule culture is generally under-investigated in the region.

\textit{The mid-Thule culture and early colonial encounters, ca. AD 1500-1721}

From the late 16th century European explorers and whalers were increasingly present along the coasts of Greenland. From 1721 the Kingdom of Denmark-Norway supported trading points and missions, eventually leading to Greenland becoming an actual colony (Gad 1967, Gad 1969). The arrival of European whalers, missionaries, traders, and officials completely changed the nature of Thule culture land use and settlement patterns. However, until disrupted by permanent colonial influences, the mid-Thule culture saw the development of an elaborate trading system in the 16th to late 18th century that facilitated the movement of people and trade goods from Kujataa to whaling grounds in Disko Bay (Fig. 4), which ran parallel to the subsistance oriented settlement patterns.

The Kujataa Thule Inuit were key players in this trade network, transporting furs, especially of fox, and driftwood to trade with the people and whalers in the northern regions. In return they received steatite, baleen, caribou skins, and European goods from the north (Fig. 4). Large multifamily groups – at times with up to more than 50 \textit{umiaqs} (“women’s boats”) – took part in the journeys, which gave rise to a new type of building, the rectangular turf and stone built communal house occupied by several families on their travels (Gulløv 1997). This period of blooming Thule culture trade and travel is represented by the ruins of a communal house in component part 5.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure4.png}
\caption{Map showing the mid-to-late Thule culture trading system. Aasivik are historically known larger and seasonal trading places (after:Gulløv 1997:Fig.116)}
\end{figure}
The extensive Thule culture trading system was relatively short lived: with the creation of permanent mission and trade stations along the coasts of Greenland, initiated by Hans Egede’s mission at the mouth of the Nuuk Fjord in 1721, Thule culture settlement patterns quickly became more fixed. The main cause was that colonial trade and mission agendas required the Inuit to set up permanent winter settlement around the European posts in order to supply them with blubber, whale oil, skins, and food, as well as to convert the Inuit to Christianity. Coupled with small-pox epidemics in the 18th century that decimated Inuit populations, the trade network and, to some extent, the traditional Thule culture settlement patterns were disrupted. From this point, Thule culture quickly changed, ultimately becoming what the Greenland Inuit are today, i.e. a distinct Arctic culture with strong ties to the lifeways, knowledge, and land use patterns of their Thule culture ancestors, but at the same time with considerable Scandinavian and European elements and traits.

Figure 5. 1838 prospect of the Julianehaab colony. Cattle can be seen grazing to the right of the colonial buildings and downslope from the Inuit houses, while vegetable plots are visible in the left side of the watercolour by J.M. Mathiesen (1800-1860).

Overall developments were similar in Kujataa, although somewhat belated compared to the rest of West Greenland: It was only in 1775 that the first colony – Julianehaab, today’s Qaqortoq (Fig. 5) – was established by Anders Olsen, followed by Nanortalik in 1797 (Fig. 1). Moravian mission stations were established at Lichtenau in 1774 and Friedrichtsahl in 1825-26 (Jensen et al. 2011). A small-pox epidemic seems to have raged in 1783-85, at least in the more southern parts of Kujataa, which postponed the establishment of the Nanortalik colony (Ibid.).
From the founding of Julianehaab onwards, the search for the “missing Norsemen” and the idea of reintroducing farming to Greenland were on the agenda of much European enterprise in Kujataa: explorers and surveyors looking for Norse sites and ruins were at the same time assessing the potentials of farming and grazing (Gad 1969, Madsen 2014). Abandoned Norse farms were surveyed not in order to estimate their size or status, but to establish where best to place new farms. One of these surveyors was Anders Olsen, who in 1776-77 travelled the fjords of Kujataa, which also allowed him to single out Igaliku (component part 2) – the best farming land in Greenland – as the site of his farming settlement established in 1783.

The early colonial explorers and surveyors were highly dependent on the local late Thule culture populations, who acted as guides to the Norse sites in fjord systems they knew through and through, ferrying the Europeans around the fjords in their umiaqs (“women’s boats”), helping to feed and clothe them, and working as translators. The Inuit became familiar with animal husbandry and small-scale gardening in the colonies (cf. Fig. 5). In short, with their extensive and intrinsic knowledge of the land and the sea, the 19th century Inuit was well poised to put to shame the expectations of the Danish colonists: for a long time, indeed into the early 20th century, the latter generally believed the Inuit incapable of becoming sedentary farmers (Bendixen 1927, Gad 1969). The colonial idea was instead to make farmers from other parts of the Danish-Norwegian kingdom, like Iceland and the Faroes, settle in Greenland. Today’s Inuit farmers are a lasting rebuttal of this misconception. They are a living testimony of the unique intertwining of Norse and Inuit cultural traditions. The farming landscape of Kujataa bears witness to the unique adaptations of both cultures and to the remarkable continuities that have allowed modern farming to develop from a medieval mould. The farming landscape also attests to the central circumstance shared by Norse and Inuit farmers: a successful farming livelihood in Kujataa rests on the knowledge of and dependence on extensive marine resources.

C. Locations, sites and processes in the hunting of marine mammals and fishing by Norse and Inuit farmers in southern Greenland

To understand how Kujataa’s cultural landscapes reflect a marine dependence, both a broader outline of the historical trajectories of the Norse and the Thule Inuit and the availability of marine resources must be traced: on one side were Norse farmers that over time increasingly became hunters and sealers, on the other were Thule Inuit hunters that over time became farmers. The starting points for these two opposing trajectories are perfectly mirrored in the archaeological settlement evidence (Fig. 6): juxtaposing Norse and Thule culture sites, they form clearly distinct patterns with Norse sites (red dots) concentrated in the inner- and mid-fjords with (seasonal) outliers further out the fjords, whereas the Thule culture sites (blue dots) are concentrated in the outer fjords and on the coast with (seasonal) outliers further into the fjords.

These contrasting settlement patterns (Fig. 6) reflect deep cultural roots: the Norse were at their cultural core farmers rooted in a tradition of sedentary landownership, whereas the Thule Inuit were hunters rooted in a tradition of seasonal nomadism (Gulløv 1997). From the very beginning of their settlement on the Arctic margins of viable farming, the Norse...
supplemented their subsistence economy with marine resources, foremost seal, that were most abundant in the outer fjords and on the coast (Figs. 7-8). This reliance increased steadily through time (Arneborg et al. 2012a, b) yet, recent settlement analysis affirms that Norse settlement never shifted geographical focus from the inner and middle fjords (Madsen 2014), even as some Norse households derived as much as 80% of their diet from seal!

Thus, rather than breaking with cultural traditions and resettling where their core marine resources were found, the Norse economy took on a seasonal nomadic aspect reminiscent, but geographically opposed, to that of the Thule Inuit. In short, the Norse went sealing in the outer fjords and on the coast and brought the resources back to the farms. The seal hunt probably unfolded as communal events orchestrated by the boat-owning elite, possibly similar to traditional whaling in the Faroe Islands (Ogilvie et al. 2009). In effect, the locations, sites, and processes of Norse marine exploitation are essentially evidenced by the farms themselves and their survival for up to half a millennium, their geographical distance from the marine resources notwithstanding.

When the mobile Inuit hunters became sedentary farmers and revived the relict Norse homefields, they did not forget their origins or knowledge of the marine resources on which their Thule culture ancestors had relied. Rather, traditional and local ecological knowledge of the marine resources was what allowed the Inuit to begin farming in the first place. A good example of the continuation of hunting traditions is how a part of the farming population of Igaliku would spend several spring months on the small coastal island of Uummannaq hunting

![Figure 6. Map overlaying all known Norse (red) and Thule Inuit (blue) heritage sites in Kujataa (source: nunniffiit.natmus.gl, map: C.K. Madsen 2017).](image-url)
hooded and harp seal (Fig. 7, pers. comm. Kaleeraq Ottosen, born 1939). Today the seal hunt remains important to Inuit identity and food culture, but is carried out from motorboats.

The use of marine resources has always, and continues to be, key to the successful and sustainable livelihood of Arctic farming. Figure 7 shows the approximate margin of summer drift ice, the most important seal hunting stations and -grounds known historically and ethnographically. Figure 8 illustrates the seasonal cycles and approximate numbers of the three main seal species hunted by the Norse and Inuit: hooded seal, harp seal, and harbour seal. While the harbour seal is stationary, the hooded seals and harp seals are migratory and each spring pass by the coast of Kujataa in numbers of several hundreds of thousands. It is believed that the present populations are as little as 1/10 of the size they would have been prior to the onset of commercial sealing (source: http://www.natur.gl/). Thus, during the Norse and Thule-culture periods the hunted seal species would have numbered in millions, each year arriving approximately at the same time and in the same places: In short, seal has always traditionally been an inexhaustible food-, clothing-, and fuel resource.

Despite the economic importance of seal hunting and the extensive scale of the activity, neither the Norse nor the Inuit farms nor even the Thule culture settlements, display many tangible attributes that reflect this dependency directly. While drying seal meat and fish is a common sight on the existing Inuit farms, the archaeological evidence is indirect: Norse drying houses and Thule culture meat caches were undoubtedly used for drying and storing

Figure 7. Map showing the approximate margin of summer drift ice, the most important Inuit seal hunting stations and -grounds known historically and ethnographically (source: Kaleeraq Ottosen, born 1939).
seal meat, but could equally have stored other meats. However, the refuse heaps and isotopic values in human bones leave no doubt: whether Norse or Inuit, it was the seal hunt that ensured their survival in Kujataa.

Figure 8. Map showing the distributions, migrations and approximate present numbers of the three main seals species hunted by the Norse and Inuit in Kujataa (source: http://www.natur.gl, map: C.K. Madsen 2017.)


Selection of Components

ICOMOS appreciates the additional information provided in November 2016 concerning the rationale for the selection of the five components. The ICOMOS Panel considers that the contents of each component have been clarified. However, what is still under consideration is the specific and necessary contribution of each component to the Outstanding Universal Value of the property as a whole. Perhaps this could be asked from the perspective of understanding whether and how the proposed Outstanding Universal Value would be detrimentally affected if each of the five components was not included?

The five components are selected to demonstrate the full range and variation of the farming landscape, both in its medieval Norse and modern Inuit manifestations. Each of the components illustrates specific attributes which are unique to it and without which the Outstanding Universal Value of the nominated property as a whole would be compromised. The attributes include unique features, unique configuration of features and unique values which give each component its specific character illustrating necessary aspects of the property’s OUV. Also, each component part has features which are typical of the Kujataa farming landscape as a whole but are uniquely well illustrated in that component (Table 1).

In addition to each having its own unique attributes that are necessary to illustrate the property’s OUV, the components are also selected so that in combination they illustrate the full range and variety of the farming landscape. One important attribute of this landscape is its stark geophysical divisions with deep fjords and high mountains separating the settlements and pastures. The separation of the component parts is partly a reflection of this and in itself underscores the cut-up nature of this farming landscape.

Although it is split into 5 components the nominated property covers a relatively compact part of southern Greenland’s farming landscape (Fig. 2 above, Fig. 10 below). This area represents the centre of gravity of both Norse and Inuit farming, in terms of settlement density and complexity as well as cultural and socio-political centres. It is where all the necessary attributes illustrating the landscape’s OUV are present in a relatively small area, where both access and adequate protection can be guaranteed.
<table>
<thead>
<tr>
<th>Unique features - Norse</th>
<th>Cp 1 Qassiarsuk</th>
<th>Cp 2 Igaliku</th>
<th>Cp 3 Sissarluttoq</th>
<th>Cp 4 Tasikuluulik</th>
<th>Cp 5 Qaortukuloog</th>
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</thead>
<tbody>
<tr>
<td>Early turf church – three phases of medieval churches</td>
<td>Cathedral and episcopal complex – multiple unique architectural features</td>
<td>Largest and best preserved non-church farm in Norse Greenland</td>
<td>Hvalsey church – standing masonry walls</td>
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<tr>
<td>House of the first modern sheep farmer in Greenland, Otto Frederiksen</td>
<td>Igaliku stone houses / The “King’s Road”</td>
<td>Greenland’s longest rural road connecting sheep farms</td>
<td>Upernaviarsuk research station and school / Tuperna and Anders Olsen’s houses from 1781</td>
<td></td>
<td></td>
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<tr>
<td>Large cattle farms and shieling system</td>
<td>Manor-centred settlement pattern</td>
<td>Nucleated isolated settlement</td>
<td>Inland settlement / small and medium sheep farms</td>
<td>Outer coast settlement / dairy-farm and island-farm satellites</td>
<td></td>
</tr>
<tr>
<td>Greenland’s largest existing farming settlement</td>
<td>Igaliku - Greenland’s first farming village</td>
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<tr>
<td>Site of Eiríkr rauði’s first farm in Greenland / seat of Norse Lawman – centre of secular government of Greenland</td>
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<tr>
<td>Site of Otto Frederiksen’s farm – the beginning of modern sheep farming in Greenland</td>
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<tr>
<td>Site of Tuperna and Anders Olsen’s farm from 1783 / Greenland’s only agricultural settlement in the 18th to late 19th century</td>
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<tr>
<td>Centre of education and research of modern Greenlandic farming</td>
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<tr>
<td>Site of Hvalsey church wedding in 1408 – last sign of Norse in Greenland</td>
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<td>Site of Hvalsey church wedding in 1408 – last sign of Norse in Greenland</td>
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**Table 1.** Features, configuration of features and values unique to each component part of the nominated property.
Attributes of Inuit Farming (1780s to current period)

ICOMOS would like to more precisely understand the attributes of the Inuit farming that contribute to the proposed Outstanding Universal Value. While continuing cultural landscapes are by definition dynamic, the ICOMOS Panel is concerned to better understand whether the attributes associated with this period of farming could be adversely affected by future agricultural intensification or industrialization (or change in existing or additional residential or tourism developments, etc). To understand the dynamics of change in such cultural landscapes, it is critically important to define the attributes in more detail than is currently the case.

“Kujataa – Greenland: Norse and Inuit farming at the edge of the ice cap” is nominated under criterion (v) as “an outstanding example of a traditional human settlement, land-use, or sea-use which is representative of a culture (or cultures), or human interaction with the environment especially when it has become vulnerable under the impact of irreversible change.”

Referring to UNESCO-terminology (Operational Guidelines 2015, Annex 3), the nominated property presents a unique and outstanding example of Norse and Inuit cultural landscapes within the category of “organically evolved landscapes”: Kujataa is home to two distinct farming cultures – separated in time by centuries and tracing their cultural origins to opposite sides of the world – but both inhabiting and shaped by the same sub-Arctic environment.

Importantly, the Kujataa farming landscape epitomises both subcategories of cultural landscapes identified by UNESCO:

- a relict (or fossil) landscape; in the form of the almost complete and still visible medieval settlement landscape left by Norse farmer-hunters occupying Kujataa between ca. AD 980-1450.
- a continuing landscape; where the descendants of Inuit hunters have since the 1780s turned farmers, who have resettled, and revived, the ancient Norse farm sites and fields.

Their different chronological and geographical origins notwithstanding, the characteristics and development of Norse and Inuit farming cultures demonstrate how Kujataa is a landscape of thresholds: a geographic threshold between the New World and the Old, a climatic threshold between the Arctic and the temperate zones, and a socio-cultural threshold between hunting and a farming way of life. A delicate balance has always determined the nature life in Kujataa, shaping the attributes that characterize both the Norse and Inuit farming landscapes:

**Shared tangible attributes of Norse and Inuit farming:**

- **The landscape setting:** the agricultural marginality of Kujataa is principally illustrated by the way Norse and Inuit farms all occupy the exact same places in the landscape, i.e. the farms are set in the few and small ecological niches which allow for farming in the sub-Arctic: low altitude south-facing gentle slopes that optimize temperature conditions and sun-heating. It is primarily the inner fjord areas that provide the long-term environmental niche conditions and stability needed to run a farm. This is where both Norse and Inuit first settled to farm in Kujataa (Fig. 9), and where their farms survived the longest. The existing modern Inuit farms in the nominated property demonstrate this most clearly (Fig. 10).
Figure 9. All Inuit sheep-farm locations from 1906. The majority of the outer fjord farms were short-lived and out of commission before the 1970s.

Figure 10. Inuit farm localities today. Most of the outer fjord locations have been abandoned and farming has become concentrated in the same core areas as in medieval times.
• *The home fields and meadows:* The most important locational criteria for farms in Kujataa is the presence of soils supporting the kind of vegetation suitable for hay-making in sufficient quantities. The right combination of natural conditions for hay-making is rare even in inner fjord Kujataa. However, the Norse targeted practically all landscape niches meeting these requirements, cleared, expanded, and fertilized home fields and meadows, affecting a vegetation change that is still visible today, even at sites not farmed since Norse times. Beginning with Anders Olsen’s farm at Igaliku in the 1780s, the Inuit farmers have reclaimed and revived the relict Norse home fields, starting with the ones around the farms, but over the years expanding into the mountains and the lands around the Norse shielings. These fenced-in home fields are one of the most important tangible attributes of both Norse and Inuit farming. Although the fields themselves have been re-soqn and extended the Norse features – farm mounds, barns, stalls and pens – are still visible at the modern farm, protected by the farmers and existing legislation (see pp. 203-204 in the nomination document).

• *Flora:* improvements of home fields and species of flora introduced by the Norse affected a long-lasting, but highly localized and slowly disappearing, change to vegetation patterns. When the Inuit renewed farming in Kujataa, they were quick to re-cultivate, and thereby also reinvigorate, the plant species and communities introduced by the Norse and, over time, introduced a number of new species, including vegetables now cultivated for household consumption on small garden plots. The environs around the Inuit farms today appear much as they would have in Norse times: patches of exceedingly lush anthropogenic plant communities. With their mix of native and introduced species these bright green oases contrast with the darker colours of the natural sub-Arctic vegetation of the surrounding pasturelands.

• *Pastureland:* while home fields provided Norse and Inuit with winter fodder for their livestock, both farming traditions were and are highly dependent on extensive grazing of uncultivated pastureland extending from just beyond the home field and far into the mountains. Grazing domestic livestock – beginning with the Norse animals and continuing with the sheep and cattle of the Inuit farmers – have transformed the natural sub-Arctic vegetation and created a unique attribute of Kujataa: an “ovigenic” open landscape of grass-dominated slopes and hills. Further away from the farms, the grassy pastureland gradually gives way to the natural, but in places equally rich and dense, shrub and heath vegetation. Traditional ecological knowledge of where to find the lush patches of natural vegetation and at which time a year they are accessible and free of snow, has always been key to successful farming in Kujataa, and as such the land-use practices of the Inuit farmers can, and have, greatly informed our knowledge of Norse farming.

• *Domestic livestock:* the Norse introduced the first domestic animals to Greenland: cattle, sheep, goats, horses, pigs, dogs, and cats. All of these species were at some point reintroduced to Greenland by the farmers of recent history, in most cases of the same Icelandic stock that the Norse had brought. Inuit farmers experienced the same problems as the Norse of keeping alive the more climate sensitive livestock – the cattle and pigs – which completely died out during a cold interval in the 1960-70s. Today, influenced by warmer climatic conditions, cattle have been reintroduced, which means that – apart from goats and pigs – the breeds of livestock used by the Norse are all a visible attribute in, and inextricable part of, the cultural landscape, where Icelandic horses and sheep dogs still play a part in the farming infrastructure alongside modern mechanized machinery and vehicles.

• *Dependency on marine and other wild resources:* A unique feature of Norse and Inuit farming in Kujataa is the substantial and continued economic importance of wider landscape resources, especially marine mammals, and to a lesser extent fish and birds, as well as terrestrial game
animals and birds. As presented in section 1, the traditional farms of the Norse and Inuit would not have survived without extensive use of these resources. Commercial seal hunting collapsed in the 1970s, and has since been subsidised by the Greenlandic government but seal meat remains an important part of the farmers’ diet and cultural identity.

- **Landscape and settlement patterns:** In combination, the above tangible attributes of both Norse and Inuit farming mirror each other: dispersed farms situated in distinctly anthropogenic home fields; surrounded by the “ovigenic” pastureland which eventually gives way to the natural sub-Arctic shrub heath. The scattered farms are nodes in a tight community network that relies on both farm-based and collaborative efforts for successful continued farming in a marginal environment.

In addition to the above shared attributes, some features of Inuit farming culture in Kujataa have developed from the unique merging of Inuit hunting culture and European farming traditions, and the continued adaptation of this culture to a global world. The specific attributes of Inuit farming traditions can be divided between tangible and intangible attributes:

**Tangible attributes of Inuit farming:**

- **Buildings:** these include the wooden and (in Igaliku) stone dwellings of modern Inuit farmers, their sheep stables and barns, as well as their churches and school buildings. Architecturally most of these houses are fairly similar to the types of houses introduced all over Greenland in the 20th century and they display the same bright colours originally meant to help identify building function. The small 19th to early 20th century houses built in brightly red sandstone, reused from the Norse ruins, are unique to Igaliku. The mainly stone- and cement built old stables and barns – some also reusing Norse building stones – reflect limited access to timber during the early 20th century pioneer Inuit farming settlement. Surrounding the home fields are wire fences that – like the turf walls of the Norse – prevent the sheep from grazing the home fields in the summer.

- **Features related to hunting:** Associated with the farms are features related to different types of hunting, most frequently chambered traps for fox trapping and shooting blinds for bird hunting. Many such features are from the early modern period, but some are still in use. They reflect the hunting techniques and cultural origins of the Inuit farmers as hunters. Traditionally, marine hunting – especially sealing – was important and carried by rowing out to seasonal camp sites on small islands off the mouth of the fjords (Fig.7). While marine hunting and fishing is today carried out from motorboats that are owned by every farm, Inuit farmers still have a strong connection to the sea and the seasonal marine food sources. In Kujataa, such traditional Inuit food sources are combined with the products from farming – mutton, dairy, vegetables (potatoes, carrots, beads, turnips etc.) – to create a food culture that is distinct within Greenland. This food culture is shaped by the seasonal variability and availability of resources, for instance the arrival of seal, cod, and char, the butchering season of sheep and the ripening of vegetables. The storing and curing of the different meats derives from the Thule culture, as for instance the air drying and fermentation of mutton and fish, and cold smoking of fish with heather.

**Intangible attributes of Inuit farming:**

- **Language:** The Inuit farmers of Kujataa have a unique vocabulary in the local Inuit dialect, concerning technical farming terms.

- **Place names:** The cultural landscapes of Kujataa are generally signified by the same type of place names that are used elsewhere in Greenland: they are names highly descriptive of the functions or qualities of a site, area or feature, and most point back to origins within the Thule culture’s
hunter’s way of life. Examples of such place names are “Eqaluit” meaning a river with Arctic char, “Issuttarfik” meaning a peat cutting place, “Itilleq” meaning the crossing (for boats and kayaks) though a few names are directly connected to farming, as “Angutikuluut Qaqqaa” meaning Rams’ Mountain (near Kangerlua farm, component 1).

- **Local and Traditional Ecological Knowledge:** The cultural roots of the Inuit farmers of Kujataa in a hunter-gatherer culture are evident in their Local and Traditional Ecological Knowledge, which extents not only to the qualities and variability of the farming landscape, but also to the marine environment of the fjords and outer coast.

- **Clothing, products, and crafts:** The traditional costume of the Greenland Inuit – the kalaallisut – is an important symbol of national identity also celebrated by the farmers of Kujataa. Combining elements of the ancestral Thule culture (seal skin boots and pants, the anorak jacket of the hunter) with elements of early colonial contacts (glass beads, woven cloth), the national costume of the Kujataa farmers displays distinct elements of their local heritage: black calf skins and the leg skins of lambs which form a part of the women’s costume. Traditionally calf skins from the village of Igaliku were utilized, while the lamb leg skins are still in high demand and are supplied from the modern sheep farms to other parts of Greenland. Knitwear and felt produced by the Kujataa farming households is unique to Greenland and exported all around the country. Recently, different crafts combining farm products with other more traditional materials (driftwood, bone, tooth) and Inuit symbols have become an important cottage industry, especially for women on Kujataa’s farms.

- **Music and poetry:** There is a strong and distinct local tradition in music and poetry, recounting stories and episodes about local famous farmers and their often funny or embarrassing deeds.

- **Seasonal events and festivities:** There are several seasonal events that bring together almost all of the farming community of Kujataa, as well as people that were born in, but have since left the farming settlements. Among the most prominent gatherings are the yearly meeting of the sheep farmer’s association and the “Igaliku fest” celebrating Anders Olsen and his re-settlement of Igaliku in 1783.

The continuing landscape of today’s Inuit farmers is superimposed on the relict landscape of the Norse. The two cultural landscapes and farming traditions are inextricably linked and mutually reinforcing. Neither would exist in the form it does today without the other.

An Inuit farming identity, with roots going back more than two centuries, is unique among Arctic peoples and hunting cultures of the world. The Kujataa farmers derive their identity from being simultaneously Inuit hunters and pioneer farmers. Their farming way of life is shaped by having observed the relict landscape of the Norse and drawing lessons from it to re-create a type of farming that is suited to this marginal environment. For this reason the modern Inuit farmers feel an affinity for their Norse forbears which exemplifies the continuity not only of the landscape but of the farming way of life in this unique sub-Arctic environment.
Inuit farming and potential impacts of future development (in agriculture, industry, tourism etc.)

Future industrial and urban developments:

Major future industrial and urban development within or outside the villages of Kujataa is not considered realistic due to the combination of a small resident population, a marginal setting with restricted infrastructure and limited resource availability. In a few places outside the nominated properties, exploration and mining projects are being actively developed (see section on Potential Impacts of Future Mining Development below). Within the Kujalleq Municipality in general, only the towns of Qaqortoq, Narsaq and Nanortalik are expected to be developed further as urban centres with industries. Minor continued development in seasonal recreational housing – building of summer houses and huts within the farming settlements and in the open landscape – is expected and will be developed according to the management plan based on land and heritage legislation, as well as municipality planning strategies. The gradual implementation of small-scale green and clean energy facilities – like the installation just outside of Igaliku – is also expected and encouraged and will be regulated and developed by the same controlling measures.

Future agricultural intensification:

Inuit farming has been, and is still, an ongoing process of adaptation to changing environmental and economic conditions. Historically, this adaptation has been a process of specialization in inner fjord sheep farming and intensification (e.g. building of modern stalling and storage facilities, investing in agricultural machinery, introduction of new domestic plant species, improved field amendment and grazing strategies etc.). Agriculture still remains the principal economic activity of Kujataa, supported by a Greenlandic agricultural policy that recognizes the needs of two interest groups, producers and consumers. The overall policy statement reads:

“Consumers must be guaranteed a supply of Greenland-produced agricultural produce at reasonable prices and with good, stable quality. Greenlandic producers must have the opportunity to earn a reasonable income, to have continual opportunities for further development, and to produce in a sustainable manner.”

The Greenland government is therefore committed to maintaining agriculture, including securing the necessary subsidies for the survival of the community and for continued domestic agricultural production within Greenland.

Due to environmental limits, future large scale agricultural production on an industrial scale is not a realistic possibility within Kujataa. However, in the decades to come it is expected that farming will move towards more economically viable units – i.e. larger farms – with increased flock sizes and home field areas. It is estimated that future flock sizes could be increased from the present average flock size of ca. 500 ewes to as much as 700-800 ewes, although the grazing capacity will determine the actual development. Other possible future developments in farming – especially if the global warming trend continues – could involve the introduction of new crops and the spread of agriculture to other, more northern parts of Greenland, for instance the inner Nuuk fjord (Norse Western Settlement).

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2 “Visioner for det grønlandske landbrug”, Landbrugspolitisk redegørelse, Greenland Government 2007
(English: “Visions for the Greenland Agriculture”, An agricultural policy paper)
The future development of Greenlandic agriculture will be directed by the Government of Greenland’s precautionary principle of natural resource management. In this respect, Greenland has acceded to several international conventions such as the Rio Declaration 1992 (Environment and Development), the Convention on Biological Diversity (CBD) and the Washington Convention (CITES), which impose obligations on nature protection, biodiversity conservation and the exploitation of natural resources must be sustainable and in accordance with the precautionary principles.3

What follows is a review of how the key tangible attributes of Inuit (and Norse) farming may be impacted by future agricultural development in Greenland:

**Future landscape setting and settlement patterns:** The environmental constraints of Kujataa agricultural landscapes preclude any major move or reorganization of the established settlement patterns, although a continued future global warming trend could affect the growth and diffusion of agricultural activities, both towards the outer fjords and higher altitudes. Another expected future development is the centralization and intensification of activities on larger agricultural units (which is paralleled in the Norse settlement evidence). None of these developments are expected to have a negative impact on the heritage value of the farming landscape.

**Future home fields and meadows:** The limited extent of arable land in Kujataa precludes any major extension or reorganization of the farmed land. Continued intensification in farmland management (e.g. fertilization, irrigation, draining of meadows) is to be expected, as is an increase in the number of smaller plots cultivated in the outfield. None of these developments are detrimental to the existence and preservation of the existing home field layouts (or the wider cultural landscapes), but could rather be seen as bolstering the agricultural attributes.

**Future flora:** While a number of non-native plants species have been introduced to Kujataa, the environmental limits of the Artic environment has constrained their spread to the anthropogenic soils just around the Inuit (and relict Norse) farms. Based on parallel evidence from the Nuuk fjord region, such introduced domestic plant communities can have a long-lasting impact, but will eventually be outcompeted by native Arctic species as the supplementary nutrients in the soils are used up or washed out over time. The continued existence of unique flora around the farms, and new species introduced, is therefore primarily contingent on the continued existence of the farms and their grazing livestock.

**Future pastureland:** The future open pastureland found in Kujataa is completely contingent on the continued presence of grazing livestock and the continued presence of active farms. While new domestic species may be introduced, and other less cold-resistant species such as cattle may become more numerous, the environmental constraints and limited extent of arable land makes continued extensive rangeland grazing the most viable agricultural strategy in Kujataa, thereby contributing to the preservation of this attribute of the cultural landscape.

**Future domestic livestock:** The environmental constraints and limited extent of arable land greatly moderates the variation in livestock species that can effectively be used in Kujataa. Although some experimentation with new livestock species may occur in the future, a continued reliance on the existing time- and environment-proven pasture-based domestic species is the most realistic future scenario and thereby protection of this attribute.

**Future dependency on marine and other wild resources:** The present Inuit farmers are less dependent on marine resources than previous generations – in part because of easy access to foreign imports –

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3 Government of Greenland website: [www.naalakkersuisut.gl](http://www.naalakkersuisut.gl)
but they are still an integral element in Inuit identity, and as such encouraged by the Government of Greenland through continued fiscal subsidies provided for the traditional sealskin economy.\(^4\) With changing attitudes towards, and a legislation that supports, the import of seal skin products to the EU,\(^5\) hunting may in the future take on an even more important aspect of the farming economy.

**Buildings and features related to hunting:** These attributes are protected by heritage legislation as described in the management plan.

**Future development of tourism:**

Within Kujataa tourism has been on-going since the late 1950s, when the first tourists arrived in the region by the former American air-base in Narsarsuaq. Since the 1970s hiking tourism has been developed, and at least 10 of the farms within Kujataa offer facilities for tourists, typically hostels but also transportation and horse renting.

The development of tourism has been a gradual process, and has had only marginal effects on the natural environment and the local community. But a rise in tourism should be expected in the years to come, and clear indications of a rise are being observed within 2015 and 2016. So far the tourism service providers have been able to address the needs of the growing number of tourists, but greater capacity will be required if the present growth will continue in the years to come. Growing numbers will put pressure on the most-visited sites, many of which are within the nominated property. Limited transport infrastructure means that most tourists are dependent on tour operators for access to natural and cultural heritage sites. Uncontrolled visitation is therefore not considered likely to become a significant problem in Kujataa.

Agro-tourism is currently being developed in close cooperation for web-based marketing between the farmers’ co-operative Icelandic farm holidays\(^6\) and Visit Greenland (the national tourism board of Greenland). The development of agro-tourism has been defined as a priority for Visit Greenland,\(^7\) placing particular focus on the farms of Kujataa. Farmers have participated in agro-tourism study trips to both Iceland and Tuscany (Italy), thereby gaining practical information and experiences useful for developing this sector.

**Conclusion:**

Due to human presence and agricultural activities within Kujataa, the historical and contemporary pastoral ecosystems are stable, but subject to continued agricultural use. The continued success and development of Inuit farming is key to preserving the unique attributes that illustrate the Outstanding Universal Value of the Norse and Inuit farming landscape of Kujataa. The necessary legislation and management framework is in place to ensure the continued existence and development of farming in Kujataa.

The international recognition of the Kujataa farming landscape that inscription on UNESCO’s World Heritage list would bring, would be another potential source of local pride and economic diversification for the small community of Inuit farmers, the adaptive and industrious caretakers of the Norse landscape heritage.

\(^4\) Provisions for subsidies for seal skins, Greenland Government fiscal budgets since the late 1980s
\(^5\) [http://ec.europa.eu/environment/biodiversity/animal_welfare/seals/seal_hunting.htm](http://ec.europa.eu/environment/biodiversity/animal_welfare/seals/seal_hunting.htm)
\(^6\) [heyiceland.is](http://heyiceland.is)
Comparative Analysis

While the comparative analysis provided includes useful information and perspectives, a fully analysis needs to also include the Danish Tentative List property Aasivissuit-Nipisat: Inuit Hunting Ground between Ice and Sea; the transnational Tentative List property of Viking Monuments and Sites (Denmark, Germany, Latvia, Norway); and the Canadian Tentative List property of Quttinirpaaq.

In the nomination text the external comparison focused on farming landscapes from around the world which shared attributes with Kujataa in terms of ecology, economic organization, resource utilization and/or way of life. The comparison clearly demonstrated that the combination of seal hunting and animal husbandry that underpins the farming of both Norse and Inuit in Kujataa represents a unique adaptation among human societies. Kujataa also bears comparison with other types of sites which are culturally related to it. Three of these are considered below and added to the table of comparison (Table 2):

Aasivissuit-Nipisat - Inuit hunting ground between Ice and Sea

Aasivissuit-Nipisat is on Denmark’s tentative list of sites to be nominated for World Heritage status. The nomination was submitted in January 2017. It is a hunting landscape on the west coast of Greenland, between Nuuk and the Disco Bay. It contains well-preserved and extensive records of Palaeo-Eskimo and Inuit hunting traditions ranging from coastal marine fishing and sealing to inland trout fishing and caribou hunting. The property contains features going back to 2500 BC and has been the focus of intensive research throwing light on the long-term continuity and sustainability of the Arctic hunting way of life. Norse walrus hunters passed this area on their way north to their hunting grounds in the Disco bay area but no remains associated with them have been found in Aasivissuit-Nipisat and the area is well beyond the limits of sub-Arctic farming.

Viking Age Sites in Northern Europe

Viking Age Sites in Northern Europe was a transnational serial nomination to UNESCO’s World Heritage List proposed jointly by Denmark, Germany, Latvia, Norway and Iceland. It is made up of seven properties in nine locations, two of which are already inscribed on UNESCO’s World Heritage List (Jelling and Þingvellir). The serial property comprised the archaeological remains of some of the most important and well preserved political and economic centres of the Viking Age, including a royal manor, fortresses, an assembly site, a town, quarries and monumental burials. The property illustrates the Viking phenomenon, both in its Scandinavian homelands and in new settlements abroad (Iceland and Latvia), with an

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emphasis on the symbols of power and on international exchange. Chronologically it overlaps slightly with Kujataa where farming settlement started in the Late Viking Age.

**Quttinirpaaq**

Quttinirpaaq is on Canada’s tentative list of sites to be nominated for World Heritage status.\(^\text{11}\) Situated on the northeast corner of Ellesmere Island in the High Arctic it is a polar desert with very limited potential for human survival but nevertheless contains extensive evidence for seasonal occupation and of the passing through of all the known Palaeo-Eskimo cultures going as far back as 2500 BC as well as of Thule Inuit in the last millennium. The property illustrates the earliest human occupation of the High Arctic, the High Arctic hunting way of life and the migrations that have brought new people into northern Greenland on several occasions over the last five millennia.

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Standards for comparison (Yes/No)</th>
<th>Kujataa</th>
<th>Vegaøyen</th>
<th>Ólafur</th>
<th>Lofoten</th>
<th>St Kilda</th>
<th>Minusinsk</th>
<th>Okhotsk culture</th>
<th>South Island NZ</th>
<th>Aasivissuit-Nipisat</th>
<th>Viking Monuments and Sites</th>
<th>Quttinirpaaq</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct relation</td>
<td>Is the property the setting of subarctic farming?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
</tr>
<tr>
<td>Cereal cultivation</td>
<td>Was plant cultivation a significant component of the economy?</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Animal husbandry</td>
<td>Was animal husbandry a significant component of the economy?</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Fishing</td>
<td>Was fishing a significant component of the economy?</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Sea mammal hunting</td>
<td>Was sea mammal hunting a significant component of the economy?</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>


Table 2. Summary table for external comparison on p. 185 of the nomination text, with information on the three properties discussed in this section.
The further comparison with key heritage sites illustrative of Inuit and Norse cultural histories brings out clearly how exceptional Kujataa is. It is a landscape where these two very different cultural traditions have sought and found the same solution to supporting a farming way of life in a sub-Arctic environment.
Potential Impacts of Future Mining Development

Information and maps about possible future mining projects in southern Greenland were provided in the Additional Information dated 14 November 2016. ICOMOS notes that the nominated components do not include mining proposals, and that a ban on mining has been established for these areas. However, future mining activities might involve infrastructure developments and roads that extend beyond the mining activity itself. The ICOMOS Panel is concerned to fully appreciate all the impacts on these areas that might occur in the future should these mining projects proceed. While future developments might be difficult to foresee in detail, further information on these potential impacts would be appreciated.

There are six active exploration licenses in the proximity of the nominated property.

Though the exploration licenses cover a relatively large area in the exploration phase, an actual mine will be considerably smaller. This means that mining infrastructure can usually be constructed within the exploration license area. The exploration company will always try to place such infrastructure within their exploration license area as this is a faster process for the company. If the infrastructure is not within their exploration license area, the company will need to apply for a new area.

Pursuant to the Mineral License and Safety Authority’s standard procedure, a consultation procedure is initiated for such applications for new or expanded license areas. The consultation is sent to relevant parties, and these parties will have the opportunity to submit their comments to the application. After the consultation period, the Mineral License and Safety Authority draft a recommendation to the Government of Greenland. Based on that recommendation, which includes a summary of the comments submitted during the consultation, the Government of Greenland decides on whether to approve or reject the application for the new area.

Only the project by TANBREEZ has progressed so much that it is possible to account for the planned infrastructure. The planned roads, harbour and buildings are all within the license area and are therefore outside the nominated property (Fig. 12). Shipping of ore from the site harbour is not planned to take place in proximity to nominated property (the nearest component part is no 5), and neither is transport to local towns (Fig. 11).
Figure 11. Map showing the proposed sailing routes (blue and black lines) and infrastructure position of the TANBREEZ-project (black square) in relation to the component parts of the nominated property. A detailed map of the infrastructure area is shown on figure 12.

Figure 12. Map with an overview of the total project infrastructure.
Buffer Zones

While the Operational Guidelines do not require buffer zones in all cases, the ICOMOS Panel is concerned that they have not been provided for the five components, particularly given the close proximity of potential mining activity (and associated industrial/infrastructure works) to each of them. Could the State Party consider creating buffer zones for the five components to ensure that they are sufficiently protected from these potential impacts?

The State Party and the steering group behind the nomination has discussed the possibility of creating buffer zones with Kujalleq Municipality, and in relation to the finalization of a new Municipal Plan for Kujalleq Municipality for the period 2017-28, the land use authority has decided to define a buffer zone bordering the nominated property as illustrated in Fig. 13 – and in the accompanying map showing the geographic coordinates.

Figure 13. Map showing buffer zones defined in the Municipal Plan.

The buffer zone connected to Kujataa, defined by the watershed surrounding the nominated property, however minimum 300 meters outside the nominated areas, is a transition zone connected to all five components. The buffer border continues into a seaboard border situated approximately 300 meters off the coast, amended to connect the areas 2-5.

The buffer zone is subject to the general land management regulatory framework of the municipality.
However complementary attention will be required within municipal land use administration, to ensure that:

- the integrity of the farming community is preserved
- the grazing landscape is maintained
- continuity of agricultural use is ensured.

At the general Council Meeting in Qaortoq on 15th of February 2017, the Municipal Council approved the buffer zone and complementary requirements, based on supporting maps showing the extent of the zone.
Tourism Planning

While ICOMOS appreciates that this is a continuing process, it would be appreciated if further information confirming that the needed expertise and financial resources are available for this work.

The Government of Greenland is implementing a comprehensive strategy on tourism development. The main focus in the coming years will be the development of infrastructure to support growth in tourism. The Parliament has decided on a new airport structure, constructing new airports in Qaqortoq (near the nominated area, marked on fig. 13), Nuuk, Ilulissat and Tasiilaq, enabling direct flights from Europe and USA to these destinations.

Another strategic effort is the establishment of regional visitor centers at the main sites (both cultural and natural). The visitor centers will be established in partnership between the Government and the relevant Municipality to ensure both local engagement and government support in the form of funding and operation. For the nominated property this will strengthen the site management as this will be a logical part of the visitor center operation carried out in partnership between the Municipality and the Government. The Government has defined funding for both the planned visitor center organization and for the future development of further regional visitor centers. The Government is establishing an independent organization to operate the regional visitor centers, in order to create a strong organization with the needed expertise to continuously develop new and existing centers. Every centre will be operated by staff specialized in the specific theme of the site in question.

The Municipality has already established a destination management company (Destination South Greenland) funded by the Municipality. Destination South Greenland will work together with the local tourism companies on product development and with the Municipality on destination development. The Municipality has in the process of making this application developed the site management plan and the implementation of this has already begun. Every year the Municipality spends funds on site management at the most visited places, in order to secure accessibility.

Both the Municipality and the Government are committed to support the nominated property in Kujataa, and see it as a major opportunity to both attract more visitors but also to join forces in the destination management. The experience from the UNESCO World Heritage area at the Ilulissat Icefjord has shown that awareness of the destination has grown significantly resulting in more tourists and therefore more activities. Setting up a management system with a site manager, a park ranger, and a management plan for the heritage sites has proven efficient in order to develop and maintain the area in a sustainable way. Furthermore it has been possible to attract private and public funding for an Icefjord center that will communicate the OUV of the World Heritage site, and create new experiences for visitors. Lessons learned from Ilulissat will be applied both on other future World Heritage Sites, and is already benefiting other tourism destinations in Greenland.
**Name of the Property**

The ICOMOS Panel has questioned whether a slight change to the name of the property might be possible in order to more clearly communicate that farming has occurred over more than one cultural/historical period. The State Party's views about this possibility would be useful.

The State Party has discussed the change to the name of the property with the steering group behind the nomination. The steering group is willing to change the name of the property as requested, and decided to put forward the name:

**Kujataa – Greenland: Norse and Inuit farming at the edge of the ice cap.**