



Centre for Research on Settlements and Urbanism

**Journal of Settlements and Spatial Planning**

Journal homepage: <http://jssp.reviste.ubbcluj.ro>



# Settlement Closure or Persistence: A Comparison of Kangeq and Kapisillit, Greenland

**Anthony J. DZIK<sup>1</sup>**

<sup>1</sup> *Shawnee State University, Department of Social Science, Portsmouth, Ohio, USA*

E-mail: [tdzik@shawnee.edu](mailto:tdzik@shawnee.edu)

DOI: 10.19188/01JSSP022016

<http://dx.medra.org/10.19188/01JSSP022016>

**Keywords:** *Greenland, site and situation, settlements, demographic change, resettlement program*

## ABSTRACT

The founding and later persistence or demise of a settlement is often due to aspects of site and situation and their interplay. Historically, settlements in Greenland were located based on site characteristics, particularly animal resource exploitation possibilities, but fluctuations in the resource base often would impel people to relocate to places with better prospects. Settlements would be abandoned and new ones developed. In modern times the vagaries of nature have been accompanied by governmental directives which influenced settlement survival, growth, or closure. Kangeq and Kapisillit are two places where the interplays between site and situation eventually led to the closure of one and the survival of the other. This paper demonstrates that both locales shared some early history as well as some site traits and situational factors. The demise of Kangeq is shown to be mainly the result of a change in sea temperature and the Danish colonial government's G50 and G60 initiatives. Kapisillit persisted through environmental change and population decline, and benefitted somewhat from certain government programs although cultural attitudes impeded the reindeer domestication experiment. Greenland Self-rule in the 21<sup>st</sup> Century meant better government understanding of Inuit sensibilities, and now there is the possibility that Kapisillit will remain a viable settlement and that Kangeq might have some kind of modest reemergence.

## 1. INTRODUCTION

The founding and later persistence or demise of a settlement can often be attributed to aspects of site and situation and the interplay between these geographic concepts [1].

Site, or characteristics of place, usually determines the initial development of a human settlement (village, town, or city), but as time progresses situational factors often affect the success or failure of the venture. This has been especially true in Greenland where the inland ice, climate, sea, and topography severely limit suitable sites for human aggregation and where governmental policies of the past often directed the location and subsequent development or abandonment of many settlements [2],

[3]. Historically, settlements in Greenland were located largely based on site characteristics, particularly marine and sometimes land animal resource exploitation possibilities [4]. Fluctuations in the resource base (situation) would impel people to occasionally relocate to places with better hunting and fishing prospects and this would lead to the abandonment of settlements and the emergence of new ones. In modern times the vagaries of nature have been accompanied by governmental directives which have played a role in settlement survival, growth, or closure.

This paper compares the story of two settlements, Kangeq and Kapisillit, both located in the vicinity of Greenland's capital city Nuuk. The two villages have some common history. Both locales exhibit seasonal (Dorset people prior to 1000 A.D.) and

permanent (Thule people beginning in 14<sup>th</sup> Century) habitation over the centuries [5] and this indicates that these sites possessed good access to fish and marine and terrestrial mammals which formed the basis of those cultures' subsistence. Both settlements are also located within the confines of the Norse Western Settlement (Vestribyggð) which lasted from about 985 to 1350 A.D. Kapisillit is about 14 km north of the site of Sandnæs, the largest Norse farmstead in the Western Settlement of medieval Greenland. While the Norse did not farm at Kangeq, Norse artefacts have been found in Inuit (Thule) middens there which suggests they came to hunt or trade in that locality [6]. The "modern" era for both settlements commences with Danish colonization in the 18<sup>th</sup> Century. In the 20<sup>th</sup> Century, particularly after the 1950s, the two settlements embark upon different courses. Kangeq is abandoned by 1974 and Kapisillit survives. This paper demonstrates that human settlement in the vicinity of Kangeq and Kapisillit has ebbed and flowed over the centuries, largely due to various cultural and agency perceptions of site characteristics and situational changes.

## 2. THEORY AND METHODOLOGY

Site and situation are often complementary influences in the origin and evolution of a settlement. They often interact with each other and that can result in fashioning a settlement's unique story. Site is the actual location of a settlement and is composed of the physical characteristics of that location [7], [8], [9]. Examples of natural site characteristics are elements of climate, proximity to a navigable body of water, soil fertility, drinking water supply, local flora and fauna, topography, and relief. Human-built features such as airports, canals, and other infrastructure once in place may also be viewed as site characteristics. Situation involves a wide range of circumstances such as: 1) the location of a place within a broader regional or global framework, 2) relative location, 3) natural or human-caused disasters and climate change, 4) economic, demographic, and/or social changes, and government programs and directives. Once a settlement has been created, situation advantages (and disadvantages) can take on a site aspect [1], [9].

The initial motive for creating a settlement tends to arise from human perception of the site characteristics, but it is often situation that leads to expansion, regression, demise, or change of the settlement over time. This is quite evident in the cases of Kangeq and Kapisillit, both which originated because of encouraging site attributes, but their evolution (or expiration) was largely due to situation, namely government intervention [10], [11], [12], [13].

An extensive literature review of books, papers, and websites dealing with Kangeq and Kapisillit's history, culture, and physical geography was

conducted to ascertain how these settlements evolved in a manner different than other locations in West Greenland. Once this was established, a theoretical framework was developed by examining some of what had been written regarding the components the site and situation. To gain further insights and in preparation for a visit, correspondence with several current and former residents of the two places began in January 2016. In order to integrate theory and the reality of the region, the author undertook field work in the region during June and July 2016. Field work consisted of several guided excursions to the sites to interpret the cultural landscape and photograph relevant physical and human-made features. A series of casual interviews were conducted with several local residents in Kapisillit, tourist industry personnel, and the publisher of Saga maps to gain their perceptions of the region's geography, history, and sociology. Upon returning home the author continued correspondence with several current and former residents, a few people from Nuuk who have kinship ties to the villages, and with an archivist from Greenland's National Museum. Then commenced the fashioning of a descriptive analysis of the settlements. All photographs in this paper were taken by the author and all maps were compiled by the author.

## 3. RESULTS AND DISCUSSION

### 3.1. General site characteristics of the region

Kangeq and Kapisillit are located in coastal West Greenland in the Sermersooq municipality which contains Greenland's capital city of Nuuk (Fig. 1). Like many things in Greenland, the municipality is large, occupying an area of 531,900 km<sup>2</sup> in south-central and eastern Greenland. With the exception of the coastal fringes, this territory is largely covered by the inland ice sheet (Fig. 2). There are limited sites for permanent human habitation except for along the coast; in fact in the whole of Greenland there is only one settlement of significant size (Kangerlussuaq) that is not directly on the sea and it is only 9 kilometres from its harbour. The Sermersooq municipality has a population of 21,868 persons, 16,454 of which dwell in Nuuk [14].

The region discussed in this paper begins along Kapisillit Kangerluaq (one of the arms of Nuup Kangerlua fjord) and extends south-westward for about 100 kilometres to Kangeq (Fig. 3). Kapisillit (60°24'N latitude, 50°16'W longitude) is located on a peninsula near the head of Kapisillit Kangerluaq and is approximately 75 km northeast of Nuuk. Kangeq (64°7' N, 52°3'W) is located on the island of the same name near the entry to Nuup Kangerlua fjord approximately 20 kilometres southwest of Nuuk.

The region's geology is composed of a granitic-gneissic-migmatitic geologic basement complex largely

of pre-Cambrian age (some rock in the area dates back over 3 billion years). The physiography superimposed upon the geologic basement is a generally alpine-like landscape that exhibits the effects typical of continental glaciation (Fig. 4).

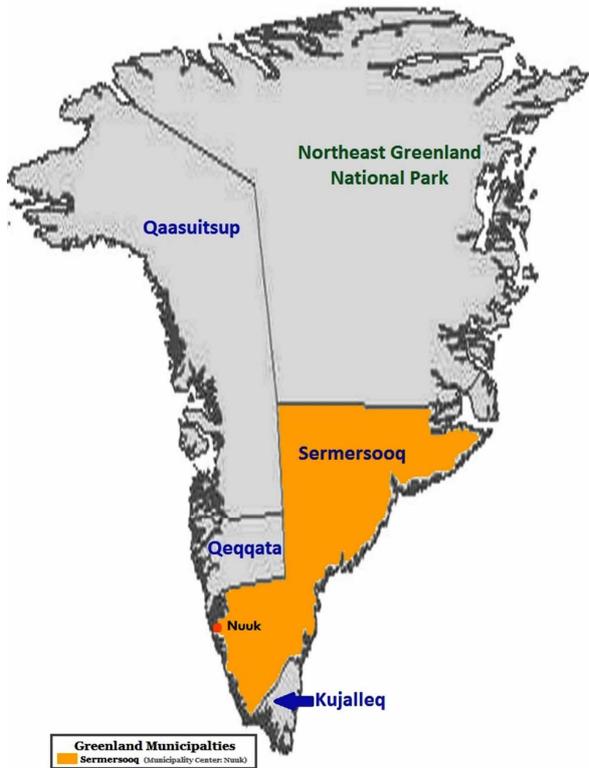


Fig. 1. Location of Nuuk and Sermersooq municipality.



Fig. 2. Extent of the Inland Ice.

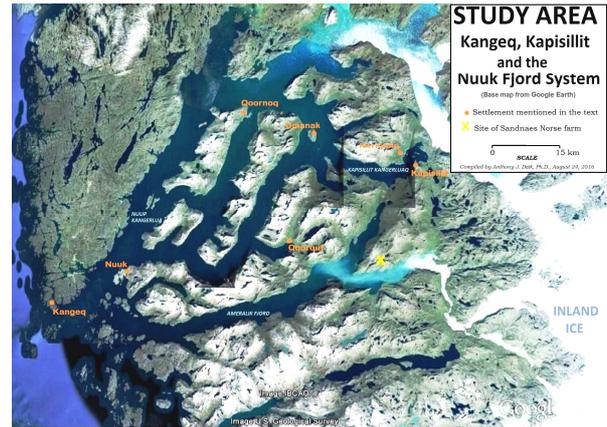


Fig. 3. Site and situation of Kangeq and Kapisillit.



Fig. 4. Topographic setting of Kapisillit.

Mountains in the vicinity of Kapisillit average over 800 meters in height and there are several summits nearby that exceed 1300 meters. The settlement is positioned for the most part on a strip of undulating lowland that begins to rise a few hundred meters from the water. The front of the inland ice sheet is a little over 20 kilometres southeast of this village. Kangeq Island has an area of approximately 4.9 km<sup>2</sup> and its terrain is undulating to moderately rugged, with elevations on its coastal fringe ranging 0 to 10 meters a.s.l. and a short distance inland there are hilly places that exceed 35 meters (Fig. 5). Many toponyms in Kalaallisut (West Greenlandic dialect) describe site characteristics and Kangeq means “promontory”. The abandoned settlement of Kangeq is located on a little inlet on the southeast tip of the island.

As over much of Greenland’s west coast, the climate is influenced by the maritime location and the proximity of the Inland Ice. In the Köppen classification system, the climate of the region is determined to be ET (polar tundra climate). Every monthly mean temperature is below 10°C, but as the climograph for Kapisillit (Fig. 6) shows, there are several months with means above freezing. Because of the maritime effect, winters are not exceptionally cold. Wintertime monthly means are just a little under -10°C. Precipitation for

Kapisillit averages 59 cm annually. Nuuk, which is more open to the sea, is a bit wetter with 75 cm and it can be assumed that the same is true for Kangeq which has no reporting station. Overcast and foggy conditions occur frequently in the region's fjord system. Snow is a significant part of the regional landscape with Nuuk reporting a yearly average of 105 days when some snow falls and 223 days with some snow cover [15].



Fig. 5. Topography near Kangeq.

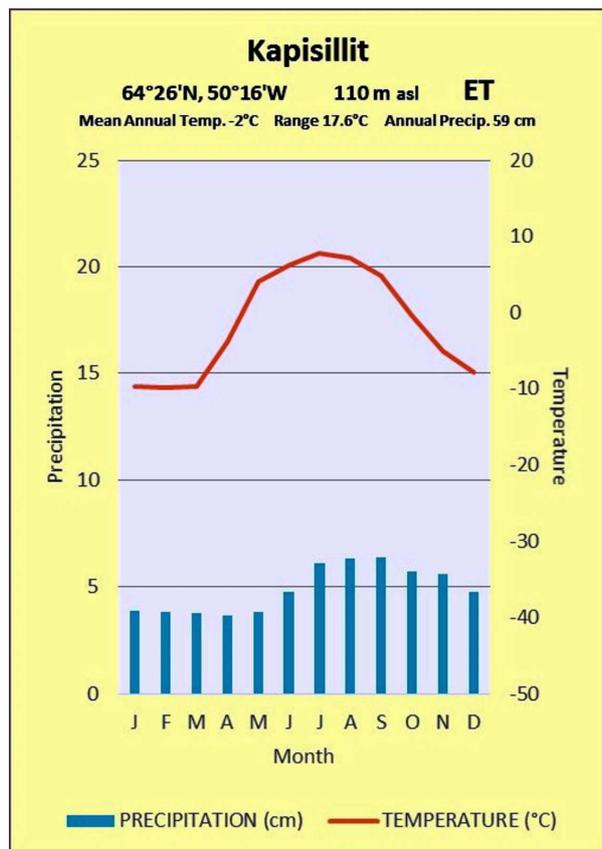


Fig. 6. Climograph for Kapisillit.

The two major factors controlling the ice conditions in the open sea and fjords are the “warm” northward-flowing West Greenland Current and the cold southward-flowing Baffin Island Current. Sea ice is normally absent from the study area’s coastal waters

from April/May until November/December, although icebergs may be encountered throughout the sea ice-free season. Isolated from the offshore conditions, sea ice forms locally during winter in the fjords. The innermost reaches (such as at Kapisillit) of the fjords have ice from December to March. Much of this is land-fast ice. “Land-fast” means that it is bound to the coastline and doesn’t move like open-water pack ice. Nuuk harbour gets up to 30 cm thick sea ice. In summer there can be icebergs and bergy bits in the fjords, especially near Kapisillit where the nearby glacier Kangiata Nunaata Sermia is the source (Fig. 7 and Fig. 8).



Fig. 7. Ice at Kapisillit quay in June 2016.



Fig. 8. Icebergs in Kapisillit Kangerluaq about 11 km west of Kapisillit in June 2016.

Sporadic permafrost exists over parts of the region, especially in the inland areas [16]. Where the permafrost is found, the layer generally is not very thick because of the insulating property of months of snow cover [17]. Because of the tundra climate and the sparseness of vegetative cover, the soils of the sites are thin and mainly of the orders gelisols, entisols, and inceptisols. Vegetation in many places is discontinuous and comprised largely of the usual tundra flora of grasses, sedges, mosses, lichens, and dwarf willow. Higher elevations and slopes are typically bare rock (see Fig. 4 and Fig. 5). Terrestrial mammal species are few in number at both Kangeq and Kapisillit. Arctic fox and

mountain hare are fairly common around both locations. In the past wild caribou lived in the vicinity of Kapisillit while today there is a feral reindeer population (largely a remnant from a domestication experiment that began during the 1950s and faded away in the later decades of the 20<sup>th</sup> Century. Polar bears (technically classified as marine animals rather than land denizens) on occasion visit the region. One was killed near Nuuk in 2012 [18] and in July 2015 a married couple returning from a hunting trip encountered one on the open fjord near Kangeq [19].

As in all of Greenland, it is the sea around Kangeq and Kapisillit that is teeming with animate life. Several whale species are common and fjord seals and migratory seals are numerous. Local hunters and fisherman say that in recent years seal populations in the area appear to have grown and that has had a negative effect on traditional fishing [20 and author's conversations with locals]. A variety of fish make their home in the region's fjord system with cod, lumpfish, redfish, and salmon being the most notable harvests. The Kapisillit River is the only known place in Greenland with a spawning salmon population (In fact, Kapisillit is the Kalaallisut word for "salmon"). Genetic studies of these salmon have determined that they live isolated from other North Atlantic salmon populations [21]. These fish are anadromous and spend much of their life in seawater but return to the Kapisillit River from late June onwards to spawn during late autumn. The surviving adults either spend winter in the river or return to the fjords.

### 3.2. Site, situation, and settlement in the Pre-modern Era

*Paleo-Inuit.* The area around Nuup Kangerlua fjord was along the migration route of the Paleo-Inuit peoples and bands would have hunted and settled here because of site characteristics. Saqqaq culture sites dating back to around 2000 B.C. have been unearthed just a short distance northwest of Kapisillit on lowland strips protected from the wind by low ridges [22]. The Saqqaq disappeared from west Greenland around 900-800 B.C. perhaps due to cooling temperatures and the arrival of the Dorset culture at roughly the same time. Temperature reconstructions in west Greenland show a marked cooling beginning around 800 B.C. and lasting over 800 years [23]. The Saqqaq, with their hunting and fishing technologies may not have been able to adapt as they preferred open-water hunting of seals and colder temperatures with greater sea ice coverage would have curtailed that activity [24]. The Dorset who succeeded them possessed technologies such as snow knives, sledge shoes, and soapstone vessels for burning seal fat, that were better-suited to the now colder climate [25], [26]. Archaeological evidence of the Late Dorset culture has been found near Kangeq. These

people were accustomed to colder temperatures and were quite adept at hunting from the sea ice [27]. The Dorset people seem to have vanished from the Nuuk region prior to 1000 A.D. Their disappearance was likely due to the onset of the Medieval Warm period which would have impacted their subsistence. The vanishing of the Dorset from south Greenland remains a mystery. Speculation is that because of their small populations, 20 or 30 persons in a settlement, and their isolation, the Dorset settlements south of Disko Bay (Latitude 69°N) succumbed to disease or deprivation. It would appear that the Saqqaq and Dorset were both affected by situation, namely climatic shift. With the Dorset gone, it can be inferred that the environs of Kangeq and Kapisillit remained uninhabited until the arrival of the Norsemen [6], [26], [28].

*The Norse Western Settlement.* Erik the Red and the Norsemen fortuitously arrived in Greenland as the Medieval Climatic Optimum (Medieval Warm Period) was getting underway. This time of relatively mild climatic conditions in Europe and the North Atlantic lasted roughly 900-1300 A.D. As Erik sailed up the fjords in southwest Greenland in 982 A.D., he saw the potential that parts of the physical landscape presented for animal husbandry, hunting, and fishing. The Norse founded two far-flung settlements, the larger Eastern Settlement (peak population of about 4,000) located near present-day Narsarsuaq (61° 10' N, 45° 25'W) and the smaller Western Settlement (peak population 1000) located along a series of fjords near present-day Nuuk. At both locations the overall landscape was not too different from the place Erik had left in Iceland, but, upon closer inspection, this was a better land. For instance, there were no sterile lava flows and there was the possibility of having larger hayfields. Willow scrub could be used for fodder and fuel and sporadic in location were sizeable groves of birch [6]. Lyme-grass (*Elymus arenarius*), a plant Erik was probably familiar with, grew wild in a number of places along the fjords. This versatile plant was used in Iceland as a human food source, especially if cultivated barley crops failed [29]. It was also used for grazing sheep and cattle and could be cut for fodder. There were sizeable swatches of potential pasture. The site characteristics were quite suitable for a dairying and sheep-oriented culture. There were also suitable ship landing sites in both regions and this was important for a small society that would need long-distance trade with Iceland and Norway. The Western Settlement was also relatively close to the Norrusetur ("Northern places") hunting area by Disko Bay where they obtained walrus skin and ivory, narwhal tusks, polar bear skin, and gyrfalcons. The yearly expeditions were essential for augmenting the economy the Eastern and Western Settlements by providing commodities for trade with Iceland and Europe [30]. In addition to these features, the Western Settlement was hidden from the coast, the

fjords had tricky tides, and the winds could be vicious, all which provided some protection from sea-pirates and marauders.

Archaeological evidence suggests that the Western Settlement had 90 farms spread over the area's fjord system [31]. The largest and most important was Sandnæs along Ameralik Fjord (formerly called Lysefjord) a short distance south of present-day Kapisillit. The area had numerous small lakes and glacial meltwater streams that provided fresh water for people and stock. Caribou roamed the region and provided the pastoralists with supplemental meat. Before the climate cooled, the Western Settlement had functional farms and sufficient hunting. But situation began to change in the 13<sup>th</sup> Century and by the mid-14<sup>th</sup> Century the Western Settlement was abandoned. As the climate cooled, a type of chain-reaction of impacts threatened the viability of the Norse settlements. Summer sea ice increased and impeded navigation and reduced the availability of harbour seals. Lower summer temperatures would reduce livestock survival rates and pasture quality and quantity suffered. This was particularly devastating to the small upland farms in the more arctic Western Settlement [32]. The environmental changes would have lowered subsistence flexibility. The demise of the Western Settlement is not completely understood. A number of researchers postulate that combination of increasing isolation, late winter subsistence failure, political and economic change in Europe, and increasing competition with the newly arrived Thule [31], [32], [33]. Despite the old popular notion that the Norse did not adapt to the changing environment and situations and subsequently perished, recent research contends that they did make adjustments. However, they saw themselves as agriculturalists and traders. When such endeavours became increasingly difficult, the Norse begrudgingly consumed more food from the fjords, but eventually decided to leave Greenland for a more suitable environment [34]. An orderly abandonment seems plausible given the archaeological evidence [34], [35]. Speculation is that the last residents may have attempted to sail to Vinland or Iceland and disappeared [36].

*The Thule.* The Thule people, ancestors of Greenland's Inuit, arrived in the Nuuk fjord region around 1300 A.D., just about the time that the Norse Western Settlement is in disarray. Thule sites at Kangeq date to 1295-1435 [37]. The Thule were well-adapted to the cooling climate and settled mainly near the coast where they may have effectively blocked Norse hunting efforts there [38]. Some Norse artefacts have been uncovered in the middens of the Thule settlements. Whether these were obtained through trade or by scavenging the abandoned Norse farms is not fully clear [39], [40]. Recent excavations and analyses are providing us with a clearer picture of Thule life in the

region, but artefacts, especially organic ones, may now be endangered because of regionally warming temperatures [41]. Local middens show that the Thule took advantage of all locally available food sources, both terrestrial and marine, and also subsisted on sea birds in the Kangeq area [42].

### 3.3. Site, situation, and settlement from the 1700s to the present

The demise of the Norse left the Thule as the only inhabitants of the region until the 1700s. Some European explorers and whalers likely visited the Kangeq area in the late 16<sup>th</sup> century, but left nary a trace [43]. In May 1721 the Danish-Norwegian Lutheran priest Hans Egede sailed to Greenland intending to bring the Reformation to "lost" Norse colony. Finding no remaining Norse, Egede set out to impart the Gospel upon the Inuit and established the first Danish mission and trading post in Greenland on the "Island of Hope" (Kangeq Island). Disturbed by the windy conditions of Kangeq and facing a financial crisis, Egede moved his colony to the current location of Nuuk in 1728. The Thule (Inuit) continued to utilize Kangeq and there still are remains of several turf winter houses on the island (Fig. 9).

*Kangeq.* From the 18<sup>th</sup> Century onward, the Danish colons under the auspices of various governmental agencies and programs set up a number of official settlements in Greenland. Kangeq was awarded official status in 1854. Madsen [2] provides data on population and number of houses/buildings in Kangeq for various years from the late 19<sup>th</sup> Century to closure in 1974. By 1889 there was a spækhus (blubber house) which indicates that seal products were being traded in the village. By 1907 there was a powder house, a store, and a small chapel with a school room built by the Moravian brethren. The population in 1918 was 118 persons and 15 Inuit houses are noted. There was new construction in the 1930s and that included a small fish house (fish processing factory). Population was slowly increasing and reached its peak (155 residents) around 1960. Much of the male adult population lived by subsistence hunting and fishing and it would seem that Kangeq was not very different from a dozen other small settlements in the larger region.

The production for trade/exchange that existed in many small settlements such as Kangeq consisted mainly of the harvesting, transfer, and basic processing of raw materials such as fish, seals and foxes while utilizing manual labour and simple technologies such as salting and drying and generating only small revenue [12]. As the 20<sup>th</sup> Century progressed, new economic realities involving infrastructure and expanded commercial fisheries caused the Danish colonial government to seriously assess the future of Greenland's smaller settlements. In November 1948,

the Greenland Commission was established to examine potential problems that existed in Greenland with reference to social, economic, political, cultural and administrative issues. The Greenland Commission of 1950 (hereinafter called G50) listed a number of priorities that would be taken into account with regard to the closure or continuation of a settlement. All revolved around the capacity of the place to support future population growth. Briefly these priorities were: feasibility of development of professional opportunities for the local population; room for erecting new buildings; access to potable drinking water; productivity of the trading association [correspondence with Mikkel Nohr Jensen, Archivist, Greenland National Museum, and July, 2016].

Development and modernization of Greenland's commercial fisheries was also a priority and that industry was increasingly being concentrated at Nuuk. The subsequent 1960 G60 plan expanded upon the G50 plan. G60 proposed the abandonment of some fishing settlements that had low production or that had problems because of lack of investments in production plants [10].

Madsen [2] suggests that Kangeq was ripe for closure because it had long suffered from problems such as poor housing construction and a poor water supply *"not free from an inflow from middens"*. The village population was also declining. Stemming from these negative situations were social problems and the population of Kangeq was often uncooperative with the trade manager. A situation regarding local codfish stocks in the 1950s and 1960s may have also made Kangeq a candidate for closure. A decline in regional ocean water temperature had greatly reduced the reproduction of the cod stock. In tandem with over-fishing, this prevented the cod from spawning and within a few years it practically wiped out the cod stock [44]. In effect this was a case of a loss or reduction of a site characteristic, i.e. fish stocks, because of intrinsic and extrinsic situation (over-fishing and water change).

As part of the Danish colonial rule policy of the 1950s through the 1970s a number of settlements in West Greenland that were deemed unproductive and, in terms of infrastructure and power generation and too expensive to maintain were to be closed. The residents of these settlements would be relocated to communities with "better" opportunities [13], [45].

In the case of Kangeq and nearby Qoornoq the relocation was to Nuuk. People had no choice about remaining in the village as the school and power generator were shut down and mail delivery ceased. The last 64 residents left Kangeq in 1974 and while much of the village is still standing, it is a "ghost town" today (Fig. 10, 11, and 12). Most of the people from Kangeq who were relocated to Nuuk found themselves living in small apartments in 5 story buildings just outside of Nuuk's Central Business District (Fig. 13).



Fig. 9. Remains of Inuit turf winter house at Kangeq. A former resident of the village believes it may have been lived in as late as 1930.



Fig. 10. Former KGH (Royal Greenland Trade Company) store in Kangeq. According to Orla Dalager from Nuuk, this building was also the home of the trade manager around 1904.



Fig. 11. Abandoned fish processing plant in Kangeq.

These living quarters with amenities such as electricity, heat, and running water were a great improvement in living standards compared to the traditional housing of the villages and the apartment blocks were in close proximity to schools, shopping and other services [46]. The design of the structures,

however, was unsuitable for the Inuit lifestyle as it was conceived by a totally different social structure from that which most of the residents came from, i.e. a hunting, fishing society [47]. Many residents from places such as Kangeq found it hard to adapt to the new conditions and the move had notable personal and social costs [48]. The size and floor plan of the apartments made it difficult to enter and exit wearing bulky arctic clothing, and the Scandinavian-style closets were too small to store fishing and hunting equipment. Such things were often stored on the balconies or in hallways, creating potential hazards [49]. On occasion coagulated blood stopped up the drain pipes because fishermen were gutting their catch in the bathtubs. Many of the new arrivals became disillusioned and some resented the fact that their lives had been infringed upon by the colonial government [50].



Fig. 12. Derelict bridge that used to span the cove between two sections of Kangeq. Note the load of lumber on the dock in the centre of the photograph. There have been some efforts to refurbish several of the homes.



Fig. 13. Apartment building blocks outside of Nuuk CBD. These are similar to the infamous “Blocs” that housed persons relocated from Kangeq in the 1970s.

While Kangeq today is “officially” abandoned and has no permanent residents there is an intermittent human presence. In the ephemeral summer tour operators from Nuuk bring tourists to view the “ghost town” and the abandoned fish plant is used by regional fishermen to store equipment (Fig. 14). A few former residents and a few descendants of former residents

occasionally visit as well for nostalgia, hunting, or to scavenge useful items [51 and author’s conversations with several persons who had lived in Kangeq, June, 2016].



Fig. 14. Nets stored in the abandoned fish processing plant in Kangeq, June, 2016.

Kangeq may be considered a relic of the colonial government’s G50 and G60 initiatives and the dubious process of Danization espoused by that government. Greenland was granted Home Rule in 1979 and since that time there have been further refinements, most recently the Act on Greenland Self-Government in 2009. The Act recognizes that the Greenlandic people have a right to self-determination and the government in Nuuk has made a number of adjustments addressing the sensibilities of the Inuit majority. For some abandoned villages, this has meant a new chance, albeit limited, for life. For example, the sheep station settlement of Qoorqut located on an arm of the fjord about 28 km east of Nuuk was abandoned at about the same time as Kangeq. In recent years the municipal government in Nuuk has encouraged some redevelopment in Qoorqut in terms of summer school camps, vacation homes, and tourist opportunities. By 2008 most buildings in the village were refurbished and were in use throughout the year, but as there was no permanent population [52]. Today Qoorqut has become a cultural and recreational destination for residents of Nuuk and a music festival is held there annually [Source: correspondence with Anne Lincke Ottosen, Sept. 2016]. At this time such large-scale redevelopment is not seen in Kangeq. However, Sermersooq municipality is allowing a few of the houses to be refurbished (Fig. 15) by individuals (including a former resident) and organizations from Nuuk [53].

*Kapisillit.* The area around Kapisillit was inhabited intermittently since the time of the Norse colony. The Inuit apparently set up seasonal habitation here to avail themselves of salmon and wild reindeer and Thorhalleson’s description of Moravian missionary work in the area mentions such a settlement called Pissigsarbik in 1774-75 [54].

The beginning of the permanent settlement in 1927 [55] may be partly a case of situation leading to settlement. In 1926 the National Council for South Greenland entertained a proposal to move the population of the settlement Umanak Godthåbsfjord (a small island west of Kapisillit) to a new place in the fjord [2]. Conditions at Umanak were difficult especially in winter when *“the ice settles so unfortunately that both fishing and hunting impossible”* [2]. There were also sanitation issues. People from Umanak had been hunting fox and landing fish near the mouth of the Kapisillit River for years, making this a reasonable move. While the government did not compel the people to relocate, a number of people apparently went to the new place. While it is not clear as to their locational origin, the first permanent settlers at Kapisillit were the Jakobsen brothers in 1927 [55]. They were soon followed by other settlers, many who may have come from Umanak as Madsen [2] reports that by 1930 Kapisillit had a population of 74 while Umanak had lost about half of its population (83 persons in 1918, 46 in 1930). Because of its population growth and the expanding fisheries nearby, Kapisillit was granted legal status as an *udsted* (trading post) in 1937 [55]. Shortly thereafter a facility for salting and drying codfish and air-drying halibut was erected. In 1948 a school was built to serve the growing population (161 in the 1940s).

In the early part of the 20<sup>th</sup> Century the Danish Board of Greenland proposed introducing sheep farming to parts of Greenland in an attempt to diversify local economies in the face of declining seal harvests and to cultivate greater self-reliance for Greenlanders [13]. The first sheep farm developments were started in the 1920s in the southwest near present-day Narsarsuaq where the activity is still extant today. Perhaps because the Norse had raised sheep at Sandnaes, a branch of the Sheep Breeding Station was established in Godthåb (Nuuk) in 1932 to cultivate local interest in sheep farming. This government sheep station moved to Qoorqut, but interest was low as the region was profiting from cod and only a few privately-held ventures are noted in the 1940s. These farms were at Kapisillit and Neriunaq and they seem to have lasted until the 1960s while the government farm ceased operation a decade sooner. Another initiative of the Danish colonial modernization strategy (G50) was the introduction of domestic reindeer herding. A pilot program was established in the 1950s a short distance southwest of Kapisillit. Sami (Laplander) herders from Europe were brought in with some reindeer in order to educate the Inuit in the art of reindeer husbandry. The hope was that a viable and profitable enterprise would develop. The industry reached its apex in the late 1960s with as many as 7000 animals on the range and over 2000 slaughtered, but the numbers diminished through the 1980s and early 90s [11]. At first the herds were owned by KGH, but in 1978 ownership was transferred

to the residents of Kapisillit under the management of the local Greenlandic Co-operative. Aastrup [56] believed that improper or careless range and herd management ensued because no one in the Co-operative had received training in reindeer ranching. In time the herd's normal pattern of congregating in large groups devolved into to a pattern of living in small groups. The animals became less likely to migrate between winter and summer pastures. An aerial survey in 1989 showed: *“1) no signs of human husbandry...; 2) distribution, herd structure and foraging activity was similar to that of wild reindeer; 3) the percentage of calves was two thirds what would be common for a domestic herd”* [11]. It appeared that many of the reindeer were feral and some may have been interbred with wild caribou. The herd was owned by the Co-operative until 1998 and sold to the Nuuk Municipality which decided to leave the animals as they were, effectively ending reindeer husbandry in the Kapisillit region. A similar reindeer program had been instituted further south in Greenland near Qaqortoq (465 km from Kapisillit) and there are two companies still operating [57]. Why the activity failed at Kapisillit is a matter of speculation and several commentators have suggested that reindeer domestication may have not been culturally compatible with the hunter tradition of Kapisillit [58], [59]. The operations further south may have worked better because that area has a longer tradition of animal husbandry, namely sheep farming. A few traces of the defunct reindeer enterprise can still be found around Kapisillit, and have been or will be converted to other uses (Fig. 15).



Fig. 15. The reindeer range across the water from Kapisillit. The red building was part of the operation.

The 1950s and early 1960s were the halcyon days for Kapisillit. The cod fishery was booming, the reindeer operation was at its highpoint, and the population peaked at 302 in 1960. A modern church was erected in 1960 and several paved paths were laid out and the village took on a prosperous look, which, despite the economic downturn that followed, still remains today (Fig. 16). The disappearance of the cod caused by colder water temperatures in the region and

an outbreak of rabies in the local arctic fox population in the 1960s severely impacted two of the economic mainstays of Kapisillit and a number of residents left in search of employment, most going to Nuuk. The population then experienced a steady decline, falling to 187 in 1970, 127 in 1980, and 86 in 2010 [2], [60].

The population in 2016 stands at about 63 [Sources: various official and unofficial websites and author’s conversations with residents]. Today there are few employment opportunities in the settlement and many residents are pensioners or are receiving some kind of monetary assistance from the government. The unemployment rate for working-age non-retired adults (estimated from data provided by the municipality, and depending on computation method) ranges from 19 to 40%. Some residents still supplement their existence with fishing and/or hunting (Fig. 17).



Fig. 16. Kapisillit in 2016.



Fig. 17. Drying fish and reindeer antlers in Kapisillit.

In spite of the economic problems faced by Kapisillit, it does not appear that any government agencies ever considered closing the settlement. Anecdotal information from recent years even seems to imply tacit encouragement of keeping the settlement viable. Some people from Nuuk have weekend and vacation homes in Kapisillit and retirees have been

returning. Sørensen [61] relates the story of a grandmother in Nuuk who planned to retire in Kapisillit to give her grandchild “the opportunity of experiencing what she referred to as a more genuine Greenlandic way of life”.

Discussions and developments in recent years may offer hope that Kapisillit will survive and perhaps have some economic revitalization due to public and private initiatives. Since Kapisillit offers an experience of a small Greenlandic village and is close to the ice fjord, there is already a little bit of tourist activity which could be expanded. The Sermersooq municipal council has been developing a comprehensive plan for the village which considers recreational areas, natural preserves, homes, expansion of the docks and a recreational connection to Nuuk [55]. Such efforts might enhance the village as a tourist destination. A few parts of plan have already been put in the place. Due to an annual race that takes place in the region a trail from Nuuk to Kapisillit has been marked and a hiking club and ski club from Nuuk has erected four shelters on the trail [62].

Kapisillit currently is supplied with electricity from a diesel generator, at a high cost due to importation of fuel by ship and local delivery infrastructure problems in an arctic environment. This is a common problem for many of Greenland’s small settlements and is in part responsible for lackluster or fading local economies. It has been suggested that the village could reduce its reliance on diesel “using a diverse mix of energy production types, owned and managed by the community themselves...” [63]. Tactics suggested include solar thermal collectors, wind, and fish-based biogas. Implementation of such approaches could possibly enhance Kapisillit’s prospects for tourism, and perhaps even attract some new industry.

Table 1 below summarizes the settlement histories of Kangeq and Kapisillit.

Table 1. Comparative settlement histories of Kangeq and Kapisillit.

CHARACTERISTIC	KANGEQ	KAPISILLIT
Former Paleo-Inuit or Thule presence or settlement	yes	yes
Former Norse presence or settlement	trade/hunting; no settlement	farms nearby
Year settlement founded	1721	1927
Year given official status	1854	1937
Peak population (Year)	155 (1960)	302 (1960)
Current population	0	86 (2010 official) 63 (2016 unofficial)
Current Status	abandoned	viable

#### 4. CONCLUSIONS

For much of the period of Danish colonial rule in Greenland the government encouraged and/or actively directed the consolidation of the dispersed seasonally nomadic Inuit into a number of “permanent” settlements. This was done to facilitate administration, trade, and religious conversion.

In some cases, the locations for these settlements were selected because of site characteristics that might benefit traditional subsistence activities while in other instances, (for example, Kulusuk in East Greenland) the place was selected to suit Danish purposes [3].

It is estimated that in the early 1900s, there were 169 trading stations and settlements in West Greenland and an undetermined number in East Greenland and the northern Thule regions [2].

As the 20<sup>th</sup> Century progressed, the colonial government came to the realization that many of these settlements were no longer viable and had come to be very expensive to maintain. In addition, climatic fluctuations over the decades had at times impacted (sometimes positively, sometimes negatively) local and regional subsistence and commercial ventures in seal-hunting and fisheries.

The conclusion was that there were just too many little settlements. Various programs, particularly the G50 and G60 initiatives, were developed to address this situation and a number of settlements were shut down in the second half of the 20<sup>th</sup> Century. Today there are only 17 official towns and 58 settlements remaining [14], [64].

The stories of Kangeq and Kapisillit are intertwined with the concepts of site and situation. Both were founded on the basis of seemingly favourable site characteristics, but progressed or regressing largely because of extrinsic factors, i.e., situation.

Climatic variations and government programs, both situational factors, played, and continue to play, significant roles in the two locales and likely will influence what develops in the near future. As shown in this report, the results have been quite different with Kangeq being abandoned and Kapisillit persisting. There are some potential bright spots for the future of Kapisillit largely because the Self-rule government has a better understanding of the intricacies of Greenlandic culture than did the former Danish colons.

Kangeq as well may also see some small revitalization. As Uiloq Jessen of the The Nordic Council and resident of Nuuk states, “...the settlements ... still have a cultural importance to Greenland. This is why you can expect that the settlements will continue to be kept alive for a long time. Many people in the settlements still live in a traditional way and the fear might be that especially the Greenlandic hunting traditions and that way of life will disappear” [64].

#### 5. ACKNOWLEDGEMENTS

This research was in part funded by Faculty Enrichment Funds from Shawnee State University and through travel monies from the Department of Social Sciences. In June and July 2016 the author conducted field work in the Nuuk Fjord region.

Sincere thanks is given to the current and former residents of the settlements for the information they gave and the stories they told. I’m especially indebted to Orla Dalager, Anne Lincke Ottesen, Gabe Egede, and Jes Olsen for the useful information they provided.

Thanks also to Mikkel Nohr Jensen of Greenland’s National Museum for answering questions and suggesting books and documents to read. I also must mention the informative conversations I had in Nuuk with Tage Schjøtt, publisher of Sagamaps, and thank him for the helpful maps he provided.

#### REFERENCES

- [1] **Patton, S.** (1983), *Comparative advantage and urban industrialization: Reading, Allentown, and Lancaster in the 19<sup>th</sup> Century*, In: Pennsylvania History. Vol. 5, No. 2, pp. 148-169.
- [2] **Madsen, J. C.** (2009), *Udsteder og Bopladser I Grønland 1901-2000* [Trade stations and settlements in Greenland], Forlaget Atuagkat, Nuuk.
- [3] **Dzik, A., Dzik, V.** (2016), *Complementarity of site and situation: a case study of Kulusuk, East Greenland*, In: Geography Online vol. 14, no. 1, pp. 1-18. Available at: <http://www.siue.edu/GEOGRAPHY/ONLINE/gov14n1a1.html>, Last accessed: May, 20, 2016.
- [4] **Hendriksen, K.** (2014), *Driving forces in the Greenlandic urbanization*. In: Proceedings of Artek Event 2014, Sisimiut, Greenland. Available at: [http://orbit.dtu.dk/files/102242352/Driving\\_forces\\_in\\_the\\_Greenlandic\\_urbanization.pdf](http://orbit.dtu.dk/files/102242352/Driving_forces_in_the_Greenlandic_urbanization.pdf) Last accessed: February 27, 2016.
- [5] **Gulløv, H.** (1997), *From Middle Ages to Colonial Times. Archaeological and Ethnohistorical Studies of the Thule Culture in South West Greenland 1300-1800 AD*. Danish National Museum. Copenhagen.
- [6] **Seaver, K. A.** (1996), *The frozen echo: Greenland and the exploration of North America ca A.D. 1000-1500*. Stanford University Press, Stanford, CA.
- [7] **Dickinson, R. E.** (1948), *The scope and status of urban geography*. In: Land Economics, vol. 24, no. 3, pp. 221-38.
- [8] **Nagle, G., Spencer, K.** (1998), *Changing Settlements*. Nelson Thornes Ltd, Cheltenham, U.K.
- [9] **Zhang, Z., Xiao, R., et al.** (2014), *Spatial point pattern analysis of human settlements and geographical associations in eastern coastal China- a case study*, In International Journal of Environmental Research and Public Health, vol. 11, no. 3, pp. 2818-

2833. Available at: <http://www.mdpi.com/1660-4601/11/3/2818/htm> Last accessed: March, 14, 2016.
- [10] **Petersen, R.** (1995), *Colonialism as seen from a former colonized area*, In: *Arctic Anthropology*, vol. 32, no. 2, pp. 118-126.
- [11] **Cuyler, C.** (1999), *Success and failure of reindeer herding in Greenland*, In: *Rangifer*, vol. 19, no. 4, pp. 81-92.
- [12] **Winther, G., Duhaime, G.** (2002), *Comparative societies in Greenland and Nunavit: a lesson on the importance of supporting structures*, In: *Journal of Rural Cooperation*, vol. 30, no. 1, pp. 25-41.
- [13] **Hayashi, N.** (2013), *Cultivating Place, Livelihood, and the Future: An Ethnography of Dwelling and Climate in Western Greenland*. Ph.D. dissertation, Dept. of Anthropology, University of Alberta, Edmonton.
- [14] **Statistics Greenland** (2013), *Greenland in Figures 2013*, Available at: <http://www.stat.gl/publ/en/GF/2013/pdf/Greenland%20in%20Figures%202013.pdf> Last accessed: February, 21, 2016.
- [15] **Danish Meteorological Institute** (2001), *The Observed Climate of Greenland, 1958-99, with Climatological Standard Normals 1961-90, Technical Report 00-18*, Available at: [www.dmi.dk/fileadmin/user\\_upload/Rapporter/TR/2000/tr00-18.pdf](http://www.dmi.dk/fileadmin/user_upload/Rapporter/TR/2000/tr00-18.pdf). Last accessed: March 2, 2016.
- [16] **Elberling, B.** (2016), *Det Isfrie Grønland – Fra Molekyle til Landkab*. [The ice-free Greenland - From Molecule to Landscape]. Gydenal, Copenhagen.
- [17] **Møller, A., Hollesen, J., et al.** (2014), *Fortiden er bevaret -men truet*. [The past is preserved - but threatened], In: *Geografisk Orientering*, vol. 44, no. 1, pp. 34-37, Available at: [http://cenperm.ku.dk/outreach/2014/M\\_ller\\_et\\_al\\_Fortiden\\_er\\_bevaret.pdf](http://cenperm.ku.dk/outreach/2014/M_ller_et_al_Fortiden_er_bevaret.pdf) Last accessed: August 26, 2016.
- [18] **Qvist, N.** (2012), *Galleri: Her er Nuuks nanoq*. [Gallery Here is Nuuk's polar bear]. In *Sermitsiaq*, May 3, 2012. Available at: <http://sermitsiaq.ag/node/125372> Last accessed April 3, 2016.
- [19] **Sandergaard, A. K.** (2015), *Øjenvidne ville filme isbjørn: Vi kom nok for tæt på den*. [Eyewitness wanted to film polar bear: We were probably too close]. In: *Sermitsiaq*, July 23, 2015. Available at: <http://sermitsiaq.ag/ojenvidne-filme-isbjoern-kom-nok-taet> Last accessed: August 1, 2016.
- [20] **Brooke, J.** (2000), *As Greenland's seal population surges its fishermen look to revive the hunt*, In: *New York Times* October 17, 2000, Available at: <http://www.nytimes.com/2000/10/17/science/as-greenland-s-seal-population-surges-its-fishermen-look-to-revive-the-hunt.html?pagewanted=all> Last accessed: March 2, 2016.
- [21] **Vinter-Jensen, K.** (2012), *Unique salmon population in Kapisillit*, Greenland Institute of Natural Resources, Available at: <http://www.natur.gl/en/fish-and-shellfish/fish/laks/unique-salmon-population-in-kapisillit/> Last accessed May 28, 2016.
- [22] **Berglund, M.** (2003), *The architecture at three Saqqaq sites in the Nuuk Fjord, Greenland*. In: *Etudes/Inuit/Studies*, vol. 23, no. 1-2, pp. 329-346.
- [23] **D'Andrea, W. J., Huanga, Y., et al.** (2011), *Abrupt Holocene climate change as an important factor for human migration in West Greenland*, In: *Proceedings of the National Academy of Sciences of the United States of America*, vol. 108, no. 24, pp. 9765-69.
- [24] **Meldgaard, M.** (2004), *Ancient harp seal hunters of Disko Bay. Subsistence and settlement at the Saqqaq culture site Qeqertasussuk (2400-1400 B.C.) West Greenland*. *Meddelelser om Grønland Man and Society* 30. Copenhagen.
- [25] **Maxwell, M. S.** (1985), *Prehistory of the Eastern Arctic*. Academic Press, Orlando, FL.
- [26] **Jensen, J.** (2009), *The Stone Age of Qeqertarsuup Tunua (Disko Bugt). A regional analysis of the Saqqaq and Dorset cultures of Central West Greenland*. Series: Monographs on Greenland *Meddelelser om Grønland*, vol. 336. Museum Tusulanum Press, Copenhagen.
- [27] **Ogilvie, A., Woollett, J., et al.** (2009), *Seals and sea ice in Medieval Greenland*. In: *Journal of the North Atlantic*, vol. 2, no. 1, pp. 60-80.
- [28] **Sköld, P.** (2009), *Footprints on the edge of Thule: Landscapes of Norse-Indigenous interaction: A major new research programme*, In: *Journal of Northern Studies*, vol. 2, pp. 117-129.
- [29] **Griffin, L., Rowlett, R.** (1981), *A "lost" Viking cereal grain*, In: *Journal of Ethnobiology*, Vol. 1, No. 2, pp. 200-207.
- [30] **Ljungqvist, F. C.** (2006), *The significance of remote resource regions for Norse Greenland*. In: *Scripta Islandica*, vol. 56, pp. 13-54.
- [31] **Francis, C. S.** (2011), *The Lost Western Settlement of Greenland 1342*. Master's Thesis, Department of History, California State University, Sacramento, Available at: <http://csusdspace.calstate.edu/bitstream/handle/10211.9/1514/The%20Lost%20Western%20Settlement%20of%20Greenland,%20201342.pdf?sequence=1>, Last accessed: September 9, 2016.
- [32] **Dugmore, A., McGovern, T., et al.** (2012), *Cultural adaptation, compounding vulnerabilities and conjunctures in Norse Greenland*. In: *PNAS*, vol. 109 no. 10, pp. 3658-3663.
- [33] **McCannon, J. A.** (2012), *History of the Arctic: Nature, exploration, and exploitation*. Reaktion Books, London.
- [34] **Arneborg, J., Heinemeier, J., Lynnerup, N.** (2012), *Greenland Isotope Project: Diet in Norse Greenland AD 1000-AD 1450*, In: *Journal of the North Atlantic*, Special Volume 3.
- [35] **McGovern, T.** (1991), *Climate, correlation, and causation in Norse Greenland*, In: *Arctic Anthropology* vol. 28, no. 2, pp. 77-100.
- [36] **Dzik, A. J.** (2014), *Interplays of site and situation along Tunulliarfik Fjord, South Greenland*, In: *Journal of Settlements and Spatial Planning*, vol. 5, no. 2, pp. 67-81.

- [37] **Paterson, A.** (2011), *A Millennium of Cultural Contact*. Routledge, New York.
- [38] **Gulløv, H. C.** (1999), *The Eskimo cultures of Greenland and the Medieval Norsemen: A contribution to history and ethnohistory*, In: Proceedings of the International Congress on the History of the Arctic and Sub-Arctic Regions. I. Sigurdsson, ed., Reykjavik: University of Iceland. pp. 54-71.
- [39] **McGovern, T.** (1980), *Cows, harp seals, and churchbells: adaptation and extinction in Norse Greenland*, In Human Ecology vol. 8, no. 3, pp. 245-275. Available at: <http://www.fiskecenter.umb.edu/Staff/Steinberg/Vikingo8/Readings/McGovern1980.pdf> Last accessed: August 4, 2016.
- [40] **McGovern, T., Jordan, R.** (1982), *Settlement and land use in the inner fjords of Godthab District, West Greenland*, In: Arctic Anthropology, vol. 19, no. 1, pp. 63-80.
- [41] **Hollesen, J., Matthiesen, H. et al.** (2016), *Climate change and the loss of organic archaeological deposits in the Arctic*. Scientific Reports Vol. 6, 28690, Available at: <http://www.ncbi.nlm.nih.gov/pmc/article/PMC4928077/> Last accessed August 30, 2016.
- [42] **Gotfredsen, A.** (1997), *Sea bird exploitation on coastal Inuit sites, west and southeast Greenland*, In: International Journal of Osteoarchaeology, vol. 7, no. 4, pp. 255-449.
- [43] **Arctic Council** (2012), *Assessment of Cultural Heritage Monuments and Sites in the Arctic*. Project # P 114. Available at: [http://www.arctic-council.org/sdwg/wpcontent/uploads/2014/08/AC\\_SDWG\\_0201-Cultural-heritage-Monument-Sites-project-final-report.pdf](http://www.arctic-council.org/sdwg/wpcontent/uploads/2014/08/AC_SDWG_0201-Cultural-heritage-Monument-Sites-project-final-report.pdf) Last accessed February 19, 2016.
- [44] **Rasmussen, R.** (2010), *Climate change, the informal economy and generation and gender response to changes*. In: The Political Economy of the Northern Regional Development. vol. I. Tema Nord 2010:521. Nordic Council of Ministers: Copenhagen, 219-238. Available at: [http://library.arcticportal.org/714/1/The\\_Political\\_Economy\\_of\\_Northern\\_Regional\\_Development\\_NCoM.pdf](http://library.arcticportal.org/714/1/The_Political_Economy_of_Northern_Regional_Development_NCoM.pdf) Last accessed: May 2, 2016.
- [45] **Stefánsdóttir, M.** (2014), *Large Scale Projects in the Arctic: Socio-economic impacts of mining in Greenland*. Master's Thesis, School of Humanities and Social Science, University of Akureyri. Available at: [http://skemman.is/stream/get/1946/19374/44766/1/MA\\_thesis-final.pdf](http://skemman.is/stream/get/1946/19374/44766/1/MA_thesis-final.pdf). Last accessed: June 1, 2016.
- [46] **Grydehøj, A.** (2014), *Constructing a centre on the periphery: urbanization and urban design in the island city of Nuuk, Greenland*. In: Island Studies Journal, vol. 9, no. 2, pp. 205-222. Available at: [http://www.islandstudies.ca/sites/islandstudies.ca/files/ISJ-9-2-Grydehoj\\_o.pdf](http://www.islandstudies.ca/sites/islandstudies.ca/files/ISJ-9-2-Grydehoj_o.pdf) Last accessed: May 2, 2016.
- [47] **Hersher, R.** (2016), *The Arctic Suicides: It's Not The Dark That Kills You*, NPR Radio April 21, 2016, Available at: <http://www.npr.org/sections/goatsand>
- soda/2016/04/21/474847921/the-arctic-suicides-its-not-the-dark-that-kills-you, Last accessed: April 30, 2016.
- [49] **Bode, M., Schmidt, S.** (2009), *Nuuk*. Available at: <http://www.artonline.jp/BGWG/mikestaffan/index.html> Last accessed May 2, 2016.
- [50] **Nordlund, M.** (2015), *Urbanization in Greenland*. In: Greenland Today March 2015. Available at: <http://greenlandtoday.com/urbanization/?lang=en> Last accessed: June 1, 2016.
- [51] **Lennert, A.** (2013), *"Inuit Pinngortitarlu"—Nuuk Fjord Monitoring and Mapping Project*. Technical Report, Greenland Institute of Natural Resources, Nuuk. Available at: [https://www.researchgate.net/publication/277311275\\_Inuit\\_PinngortitarluNuuk\\_Fjord\\_Monitoring\\_and\\_Mapping\\_Project](https://www.researchgate.net/publication/277311275_Inuit_PinngortitarluNuuk_Fjord_Monitoring_and_Mapping_Project) Last accessed: April 28, 2016.
- [52] **Rasmussen, R.** (2008), *Greenland village futures*. In: Journal of Nordregio, vol. 3, p. 25.
- [53] **Rasmussen, R. (ed.)** (2011), *Megatrends. Nordic Council of Ministers, Copenhagen*. Available at: <http://81.47.175.201/flagship/attachments/TemaNord2011-527.pdf> Last accessed: May 2, 2016.
- [54] **Thorhalesen, E., Bobé, L.** (1914), *Beskrivelse Over Missionerne i Grønlands Søndre Distrikt Hvilke han som Vice-provst Visiterede i Aarene 1774-1775*. [Description of missions in Greenland Søndre District Which he served as Vice-Dean Referral in the years 1774-1775], Hoffensbergske Etablissement, Copenhagen.
- [55] **Sermersooq Municipality** (2012), *Lokal samfunds profil Kapisillit*. [Local communities Profile Kapisillit], Kommuneqarfik Sermersooq, Available at: [http://sermersooq.odeum.com/download/kapisillit\\_da\\_final.pdf](http://sermersooq.odeum.com/download/kapisillit_da_final.pdf) Last accessed: August 14, 2016.
- [56] **Aastrup, P.** (1978), *Tamr endr iften ved hinner a, Vestgrønland. Bestandensudvikling, struktur og fourageringsmuligheder*. [West Greenland reindeer: The population development, structure and feeding resources], Special opgave, Vildtbiologisk Station, Kalø, Denmark.
- [57] **Smáradóttir, S., Magnúsdóttir, L. et al.** (2015), *Future Opportunities for Bioeconomy: Focus on the West Nordic Region*. Nordic Council of Ministers. Copenhagen.
- [58] **Rasmussen, H.** (1994), *Coping with collapses? Problems in the use of common and private terrestrial animal resources in Central West Greenland*. In: Folk. vol. 36, pp. 131-151.
- [59] **Hentzer, C.** (1997), *Det biologiske grundlag for tamren- og moskusoksedrift i Ltennera, Nuuk, Vestgrønland*. [The biological caribou and muskox operation in Ltennera, Nuuk, West Greenland Det Kgl Veterinær- og Landbohøjskole, Institut for Husdyrbrug og Husdyrsundhed, Sektion for Husdyrernæring. Copenhagen.
- [60] **Statistics Greenland** (2010), *Population in Localities January 1st by Locality, Age, Gender and Place of Birth 1977-2010*. Nuuk.

[61] **Sørensen, W.** (2008), *Perceiving landscapes in Greenland*. In: Jones, M. and Olwig, K. (eds.) *Nordic Landscapes: Region and Belonging on the Northern Edge of Europe*. University of Minnesota Press, Minneapolis.

[62] **Elvarsdóttir, H.** (2013), *An Approach Towards Sustainable Coastal Tourism Management: Nature-based Tourism in Nuup Kangerlua, Greenland*. Master's Thesis, Department of Coastal and Marine Management, University Centre of the Westfjords, Ísafjörður, Iceland.

[63] **Carruth, S.** (2014), *Resilience and renewable energy planning in Greenland: Proposing a biologic-geologic spectrum*. In: *Proceedings of the 10th Artek Event- Urbanization and Infrastructure in the Arctic*, Sisimiut April 2014. Available at: [http://arcticjournal.com/sites/default/files/proceedings\\_artek\\_event\\_2014\\_final\\_2\\_2.pdf](http://arcticjournal.com/sites/default/files/proceedings_artek_event_2014_final_2_2.pdf). Last accessed September 22, 2016.

[64] **Jessen, U.** (2015), *The challenges of living in rural Greenland*. Available at: <http://www.worldpolicy.org/blog/2015/09/09/challenges-living-rural-greenland> Last accessed May 1, 2016.