**Geo-Assembling Sustainability in Greenland**

**Klaus Dodds and Mark Nuttall**

Royal Holloway University of London and University of Alberta

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**Introduction**

In this chapter we consider the geopolitics of sustainability. Our discussion is premised on the argument that space is not simply a stage on which practices of sustainability are enacted. Materiality, objects, and networks of knowledge create multiple contexts for ideas about sustainability to emerge, circulate, play out and make themselves felt in particular places and in and between particular kinds of assemblages. A range of scholars have argued that assemblage thinking addresses the interrelationships between the social and political worlds, as well as the environment, as if they were configured as a mosaic rather than a system or even a fixed, stable object. Sustainability, therefore, is not an outcome but something rather more contingent, dynamic and heterogeneous. The philosopher Manuel DeLanda contends, for example, that assemblage is not only opposed to forms of essentialism but predicated instead on an appreciation of multiple scales, connections and relationships (DeLanda 2006). Analytically, if assemblage has a value added then it lies in an insistence that it points us towards thinking of sustainability as something that can be studied as much as part of the everyday lives of people as it can at the formal institutional level of states and international organizations.

In a Greenlandic context we explore how socio-spatial relations, everyday things, and the more than human entities that constitute the world and bring it into being are enrolled and implicated in ideas about sustainability projects and narratives about the future (Nuttall 2017, 2018). For example, we draw attention to objects such as the shipping container (which might not be first thought of as something typically associated with Arctic sustainability) and to the defining and marking out of resource environments. We can posit this as indicative of assemblage in the way that it draws attention to how the complexity of sustainability is inherently multi-scalar and multi-sited. Thus it makes little sense just to treat Arctic sustainability as if it applied to only one kind of locality, environment, or biome.

Our chapter initiates a discussion about how we came to this term geo-assemblage as part of a broader interest in the intersection of assemblage, geopolitics and sustainability. Thereafter, we consider Arctic sustainability as assemblage in and beyond Greenland. Finally, we take a few brief examples which point to possible areas of future work where our starting point might be a shipping container, flight networks and critical infrastructure. Our point, by way of conclusion, is that when we think of Greenland and sustainability as assemblage we highlight how sustainability stretches Greenland geo-physically but also geo-politically, as land, sea, air, and minerals become complicit in regional and global sustainability projects.

**Assembling Geopolitics and Sustainability**

Inspired by the intersection of critical geopolitics and aspects of assemblage thinking, our argument is itself ‘sustained’ by an interest in how the natural and social worlds are jointly configured, what fills and comprises them, how they emerge and take shape, and what, in turn is seen to emerge from those worlds that can nourish ideas about sustainable futures. Geographer Martin Muller explains well the rationale for this turn towards assemblage (and associated literatures on actor network theory, or ANT):

Both assemblage thinking and ANT have much to say about the spatial dimensions of power and politics. That is because both approaches are concerned with why orders emerge in particular ways, how they hold together, somewhat precariously, how they reach across or mould space and how they fall apart. These aspects render assemblage thinking and ANT of particular interest not only to political geographers but indeed to anyone examining the exercise of power and politics. Within political geography, there have recently been explicit calls for a broader move towards socio-materiality, mobilising assemblages and actor-networks as concepts (Muller 2015: 27).

For example, we might take the case of rubies that are now being mined on a large, commercial scale near Qerqertarsuatsiaat in Southwest Greenland. Prior to this development, a form of small-scale artisanal mining existed with local people gathering gemstones for sale. Both forms of production involve a process whereby rubies are located, extracted, cut, given form, polished, made into something beautiful and valuable, and sent out to markets. Artisanal mining has been important for providing a means for some people living in the area to earn an income (often seeing Nuuk as a main market), as does the large-scale production at the mine of rubies (and pink sapphires) in terms of providing jobs in the mine and employment in ancillary industries. The mine itself is just one of a number of extractive industry projects the Greenlandic government hopes will be developed in the near future; while artisanal mining and employment for local people in the new mine provide hope for sustainable livelihoods, Greenlandic politicians and business leaders see the profits from large-scale mining as essential for building a sustainable national economy.

At scales ranging from the granular to the global, the subsurface/volumetric spaces involved are integral to a new earthly politics about Greenlandic autonomy – knowledge of mineral bearing environments and practices of extraction are assembled for purposes of scaling sustainability. Mineral resources such as rubies, pink sapphires, uranium and rare earth elements have become objects of value for sustainable futures and zones of extraction and production are marked out. Sustaining mining on either a small-scale, such as artisanal production, or the larger forms of corporate extraction, though, depends to a great extent on creating and sustaining the idea of value and nurturing markets; resources, how we give them meaning and how we attribute value to them, as geographers such as Gavin Bridge (2013) and anthropologists such as Tania Murray Li (2014) point out, are imagined, created and assembled. So the subterranean spaces complicit in these mining enterprises are embodied and textured (see the collection of essays edited by Bille 2017).

This speaks to newer studies of critical geopolitics which are not only concerned with how the world is represented, written, mapped, and contested, but with how the elemental and geophysical are entangled (for example, Elden 2013, Bruun and Medby 2014, Powell and Dodds 2014, Squire 2016). The ‘geo’ in our framing is lively, unpredictable and vulnerable to being ‘scrambled’ by human and non-human actors. Here we use ‘scrambling’ to infer how knowledge and everyday experiences of the Arctic are being altered and distorted and even overturned by social, ecological, technical and geopolitical change. Discourse matters, but so does the materiality and the embodied qualities of geopolitics and sustainability, as northern residents get to grips with thawing permafrost, glacial melt, sea ice retreat and warming temperatures. This seems particularly pertinent in the Arctic context given the scale and extent of reported change to sea ice, permafrost, ocean acidity and temperatures, and air quality, and the ways in which the natural and the social co-constitute one another in profound ways. In keeping with assemblage thinking, therefore, the human (already itself embedded in unstable networks) is only one of many shifting/dynamic/unpredictable elements in an accounting of how the material, biological, geophysical, social and technological interact with one another.

In their edited collection, *Northern Sustainabilities: Understanding and Addressing Change in the Circumpolar World*, Fondahl and Wilson, argue that, “Where one is located – both geographically and socially – matters in terms of some of the most pressing issues of sustainability in the North today, be they social, economic or environmental” (Fondahl and Wilson 2017: 2). While we welcome the importance accorded to the ‘where’, it is not clear to us how much agency is accorded to ‘place’ beyond acknowledging that Arctic sustainability might mean different things to different people, depending on their location. What the volume is better at, arguably, is recognising that sustainability might have social, economic and environmental qualities. What is missing though is an accounting of how the material and intangible qualities of places and locations – that go beyond the human – might create, circulate, and regulate different sorts of sustainability. Or, for example, how past, present and future visions and projects of and for sustainability leave their traces on human and non-human communities, entities and ecologies. Relations of power need to be addressed in this accounting, as we also recognise that the agency of the ‘one’ which ‘is located’ is not shared evenly across the Arctic, and indeed the wider world.

Greenlandic examples and experiences seem apt for discussions on the nature of contemporary narratives about Arctic sustainability (Gad 2014). This self-governing territory of the Danish Realm has assumed sharper international visibility and prominence in recent years as the effects of climate change and resource development, indigenous rights, conservation, sovereignty, and environmental and political security in the global North attract greater attention. Indeed, Greenland is often at the forefront of scientific and media reports about climate change and extractive industries. Ice is melting, hunting and fishing livelihoods are becoming increasingly precarious, and a number of places are in the process of being identified as having significant economic potential in terms of non-renewable resource development. The fate of the Greenlandic inland ice, on the one hand, and on the other hand the state of the country’s resource development plans both continue to inform representations and impressions of the wider Arctic as a dynamic frontier for extractive projects. Greenland appears to many observers to represent ground zero for debates about Arctic sustainability because of the confluence of interest in the prospect for further indigenous autonomy and governance, instability of the inland ice and intensification of resource extraction projects. Mining has been identified by the Government of Greenland as integral to long-term plans for independence from the Kingdom of Denmark – geology and deep time play into discussions of Greenland’s future (Nuttall 2017). Along with this come different scales of sustainability. But all of this is unfolding alongside ongoing discussion about climate change and the consequences for the country and the wider world that follow with the mass loss of ancient ice.

In our reading of Arctic sustainability, Greenland is not an inert stage for such conversations and speculations but more akin to a geo-assemblage; a space where topological and topographical relationships and networks play their part in assembling and mobilising arguments and relationships about Arctic sustainability, not just within the political-territorial unit of Greenland, but also in the Kingdom of Denmark, as well as the Arctic as a whole. Our term geo-assemblage is a neologism designed to draw attention to the importance of the material, as well as the intangible and more than human qualities of the Arctic and is a circumscribed intervention in this field of enquiry. It builds on a growing literature on assemblage thinking, some of which is directly pertinent to geopolitical investigations (for example, Depledge 2017, Dittmer 2017).

In general terms, assemblage scholars draw attention to the manner in which things, objects and bodies – including the human and more than human – are arranged, move, interact, and collide in time and space. An assemblage, as Deleuze and Parnet (2007) see it, is a multiplicity of numerous, diverse, but constituent, co-functioning parts. Deleuze and Guattari (1988) argue, however, that it is critical to see assemblages as constituted by both material entities (content) and non-material entities (expression); so there are material things such as people, animals and objects in an assemblage, but non-material entities could be sentiments, statements, ideas, beliefs. Material and non-material entities move and interact across different temporal and spatial scales – histories of human action and human influence cannot be ignored, nor can the ways in which places are imagined, represented and approached. Component parts of an assemblage, however, are all engaged in, entangled with, and are affected by, a complexity of processes that act to stabilise or destabilise them. In Greenland, for example, we can think of historical and contemporary encounters between indigenous Inuit and Europeans and North Americans as encounters between different kinds of assemblages. For example, explorers and whalers brought their own ideas about the Arctic and marine mammals, as well as different technologies, into Northwest Greenland and encountered indigenous Inuit who had their own ideas about place, space, and animals, as well as their own technologies; similarly, the massive mobilisation of resources and people by the US military in the construction of Thule Air Base and the relocation of the area’s indigenous inhabitants involved a clash of assemblages of scale with profound environmental effects and social and ecological rupture.

There is a diversity of approaches to thinking about assemblage and it is probably more productive to think of this body of work as a storehouse of approaches towards both the social and material. Due emphasis is given to the dynamic nature of assemblages of objects, actors, affects and materials and their intersection with particular territories. Importantly, assemblage thinking does not presuppose any particular spatial unit. Where it has particular purchase for discussions on Arctic sustainability, though, is its attentiveness to how claims to knowledge about sustainability intersect with relationships and connections between social, technical and natural actors. Sustainability assemblages, as Havice and Ives (2015) note with reference to aquaculture, involve additional disciplinary aspects such as defining what and where is sustainable. Rules, norms and conventions play their part in shaping desired behaviour and promote evaluative mechanisms for judging sustainability in the Arctic and beyond. What counts as sustainable in an Arctic context or what Arctic sustainability makes manifest is also subject to negotiation and change. Taking assemblage thinking seriously implies that there is nothing static or assured about Arctic sustainability, or what it targets such as a fish stock, ice sheet, ecological resilience, architecture for modern living, or a mining project.

Sustainability assemblages might well then shift and transform depending on how particular things and objects are targeted for sustainability. Living and working in Greenland is, for many of its residents, a profoundly elemental experience. Seasonal variations in lightness and darkness, the movement and migration of animals, fluctuations in weather, sea ice extent and thickness, in combination with long-term warming trends combine to make everyday life entangled with relationships of earth, air, ice and ocean. While residents in larger urban centres such as Nuuk might have much in common with the citizens of Danish towns, our interest in geo-assemblage is premised on the recognition that Arctic sustainability is most profitably approached as a heterogeneous assemblage of human and non-human actors and materials organised and made manifest through apparatuses that bring those actors and materials together. Thus, Arctic sustainability is best approached as something where both ‘Arctic’ and ‘sustainability’ need to be interrogated and not assumed to be something simply reducible to a pre-formed location or reducible to authorised expertise, practices and institutions.

While discourses of sustainability might wish to emphasise coherence and agential (human) control (i.e. an apparatus), we suggest that an attentiveness to the ‘geo’ means that we recognise that human intervention in the name of Arctic sustainability – and the desire to achieve smooth flows between relational spaces – might be either overwhelmed by non-human factors such as air, ice and water and/or disrupted by attempts by stakeholders such as governments, commercial companies and others to manipulate ecologies and non-human communities. For example, the accidental or deliberate introduction of non-native species in the Arctic has often been complicit in generating un-sustainable outcomes, as non-native animals and plants end up disrupting those ecologies.

If sustainability is thought of as a heterogeneous assemblage so to should ‘Greenland’. We don’t assume this island to be a fully coherent associated territory of the Kingdom of Denmark. If assemblages are conceptualised as never quite complete or coherent, always still a process of becoming, then we also recognise that ‘Greenland’ as a political-territorial actor might be scrambled by human and non-human actors. In the Greenlandic context, the autonomy of the Greenlandic people has led to the institutions of the nation-state being redefined and the place of indigenous peoples to influence and direct the territorial-elemental reach of that nation-state. The Government of Greenland’s ability to exercise control over sub-surface activities was notable for the manner in which it has enabled politicians in Nuuk rather than Copenhagen to decide whether the island’s land and sea would be explored, mapped and exploited. The apparatus (as part of a wider sustainability assemblage) that made such resource development projects possible, however, required re-alignment and reconstitution. The Government of Greenland had to confront the disruptive activities of non-government organisations such as Greenpeace, fluctuations in global commodity prices, the vagaries of weather and environmental conditions, and address social-cultural anxieties over the possibility of large-scale immigration, pollution and accusations that local communities were not being properly consulted about major resource development projects. While for some Greenlandic political leaders mining has been positioned as elemental to plans for future independence, others argue that mining and resource extraction are incompatible with a sustainable Greenland.

What we should be cautious about, however, is assuming that all of this unfolds in a spatial container identifiable as the island of Greenland. Circulating policies and objects of sustainability stretch and reach beyond the territorial borders of Greenland and the Kingdom of Denmark, and even the wider Arctic. Territory is not simply a platform for sustainability assemblages. Sustainability discourses and practices are inserted by human stakeholders in particular territories but they have a capacity to generate territorial units, including visions of territory that are more or less attentive to human and non-human communities and aerial, terrestrial, marine and subterranean components of those territories. In the Greenlandic context, this appears to us to be particularly important as the territory has been imagined and re-imagined in multiple ways, which in turn reveal colonial, Cold War, and post-colonial assemblage legacies and visions (Dodds and Nuttall 2018).

**Geopolitics of Sustainability in and beyond Greenland**

Sustainability is a complex area of enquiry and embraces not only discourse but also professions, disciplines, industry, and a host of objects, practices and technologies that might attract the moniker ‘sustainable’ (Fondahl and Wilson 2017). Sustainability assemblages intersect with other assemblages involving actors, objects and practices associated with security, sovereignty, science and stewardship. It is not uncommon for Arctic states to argue that they wish to promote sustainability in the Arctic (which is many different regions, comprising different levels and understandings of sustainability and many different ideas about the future – from political and industry discourses to indigenous articulations of sustainable livelihoods and sovereignty).

Danish minister for equality and Nordic co-operation, Karen Ellemann told the Arctic Frontiers conference in Tromsø in 2017 that, “The consequences of the global climate changes are obvious in the Arctic Region – a region that only contributes minutely to the reasons for these changes. It is in the best interest of the Arctic states, with support from the international community, to find the right balance between economic development and the protection of the environment. That includes respecting the way of life of the indigenous population” (cited in *Copenhagen Post* 2017). This view is not untypical of Arctic state officials where sustainability is often prescribed as a policy-challenge regarding ‘balance’ – balancing competing demands for social and economic development and environmental protection. Within that framing, the interests of indigenous communities are located as if to suggest that ongoing struggles over land, resources and rights can also be subject to a balancing act. What is instructive about the quote is the sourcing of authority, with the explicit assumption that Arctic states will be the ones to steer communities and ecologies towards more sustainable futures.

Sustainability, we would contend, in Arctic policy and academic discourses is typically about finding such ‘balance’. It is framed as a necessary yet reasonable approach because, as the Danish minister implied, climate change is ‘obvious’ in the Arctic. But it also usually necessitates on the part of government ministers (on behalf of settler colonial states) that the ‘ways of life’ of indigenous communities (rather than say northern settler residents) are respected in the process of achieving this balance. For one thing, land claims in parts of the North American Arctic have been settled and governments have recognised indigenous rights and they are protected constitutionally. Northern settler residents are seldom represented by organisations that emphasise rights and consultation. Icelandic fishers and Norwegian whalers may be represented by occupational organisations, but indigenous peoples’ organisations such as the Inuit Circumpolar Council (ICC) work to represent indigenous residents in broader areas of human rights and have become key players in Arctic politics, playing a major role in the Arctic Council and other international fora.

Greenland continues to serve as a space of and for sustainability in Danish and indeed global discourses. As critical geopolitical scholars remind us, the framing of places is never politically innocent, and this is even more so when the place in question (in this case, Greenland) has been embroiled in a colonial history and geography, where forms of ‘epistemic’ and physical violence have been manifest. The term ‘epistemic violence’, as first deployed by post-colonial and feminist critic Gayatri Chakravorty Spivak (see Dotson 2011), brought to wider attention the manner in which non-Western methods and approaches to knowledge were undermined (for an Arctic example, see Cameron 2015).

While Spivak’s ground-breaking work addressed the intervention of British colonial rule on Hindu laws and social and cultural practices in India (such as widow sacrifice), these intrusive practices offer insights into the shifting geometries of Arctic power. In the Danish-Greenlandic context, the colonisation of Greenland by Danish administrators and traders from the eighteenth century onwards was economically opportunistic but also culturally expansionist. Making Greenland a ‘sustainable’ part of the Kingdom of Denmark has involved a wholescale intervention in Greenlandic society from building institutions of governance to developing a public media, transforming the economy to commercial fisheries and other large-scale industries and, most infamously, dispatching groups of Greenlandic children to schools in Denmark (Rud 2017). But it also involved a series of international negotiations with other parties over a number of decades, including negotiating with the United States (in the form of a territorial settlement in the former Danish West Indies in return for US acquiescence over Danish control of Greenland in the aftermath of World War I) and later winning an international judgement against Norway over East Greenland in the 1930s.

During World War II, the Danish government allowed the United States armed forces to maintain a military presence in Greenland for continued American recognition of Danish sovereignty. Making Denmark a ‘sustainable’ member of NATO during the Cold War entailed developing and maintaining a secretive military relationship with the United States, involving locating nuclear weapons on the island. A defence agreement signed in 1951 gave formal recognition to the American military presence in Greenland and gave their armed forces unlimited freedom to roam over much of Greenland’s territory. Later, the US-sponsored Project Iceworm and construction of Camp Century, some 240km east of Thule Air Base, in the late 1950s revealed further reasons for American activities in and under the inland ice in the late 1950s (Dodds 2017, Nielsen and Nielsen 2017). The Danish government was never told that the project involved plans for placing American missiles under the Greenlandic ice sheet (Camp Fistclench had been constructed a couple of years earlier to the south, and served in part to test techniques employed at Camp Century). US Army documents released by Denmark in 1997 include details about the extensive complex planned for Project Iceworm, which were sketched out specifically in a report on the *Strategic Value of the Greenland Icecap*.

Sustaining Danish-Greenlandic relationships has also involved an array of other investments ranging from organising and maintaining the Sirius Patrol to planning for (very popular) official visits by the Danish Royal Family. But contemporary Greenland is also a site of large assemblages of other forms of activity that constitute an intense and intersecting global scientific, commercial and geopolitical gaze. Scientific research facilities on the inland ice and numerous teams of scientists from around the world who are flown into remote fjords focus on the effects of climate change on the cryosphere, coastal waters, and wildlife; mining companies and seismic survey vessels move personnel and equipment in and through remote locations and across waters which are difficult and expensive to reach and work in; tourists and cruise ships have precipitated a form of mass tourism in some places, such as Ilulissat; urban planners and architects are visualizing sustainable forms of living in Greenland, as new buildings and designs for sustainable towns seek to erase colonial-era legacies of spatial practice and housing conditions; and Greenland’s strategic importance has not diminished even if strategies of sovereignty and security are framed in environmental, social and economic ways rather than in purely conflictual terms.

These activities might not have been framed by Danish governments as examples of ‘sustainability’ but they were sustaining in the sense of managing what we might term ‘dis-ease’. Danish academic Lars Jensen, has been at the forefront of interrogating colonial and postcolonial histories and geographies of the Kingdom of Denmark, and has considered the epistemic, structural and symbolic violence of Danish colonialism. One immediate caveat to offer is that if we do regard Arctic sustainability discourse as a form of epistemic violence, then it is not unique to Denmark (Jensen 2015). The Arctic as a space of and for sustainability is also equally troubling. Whether the Arctic and Greenland are judged to be indicative of ‘sustainability’ raises troubling issues as to how the term is used and how people and ecologies are evaluated. Sustainability like categories such as ‘nordicity’ and ‘borealism’ before it, carry with them complex legacies of knowledge creation and appropriation. Colonial and Cold War era science, often with funding and logistical support from militaries, were crucial in generating synoptic knowledge and classificatory schema.

As critical scholarship on Arctic geopolitics and militarism attests, we learn that much of that activity and investment was distinctly ‘unsustainable’ and ethically questionable. Ranging from US plans to use nuclear weapons to re-engineer Alaskan landscapes to unreported/suppressed nuclear accidents in Greenland (Farish 2010). The record is jaundiced and the story is even worse when it comes to Soviet nuclear testing in the Arctic. Indigenous residents were subject to radio-iodine experiments, ecosystems damaged due to toxic waste, and some – the people of Uummannaq in Avanersuaq – displaced from their lands in the name of international and national security projects designed to ‘sustain’ the defence of North American and European communities located far away from the Arctic. In 2015, a Danish film, The Idealist [*Idealisten]*, confronted some of that awkward Danish-US Cold War history in Greenland including official cover-ups by Danish governments in the late 1960s onwards related to activities at Thule Air Base, albeit by focusing on the dogged determination of a Danish journalist, Poul Brink (Dodds and Jensen 2018). One might conclude that the Danish-US military relationship was kept ‘sustainable’ by simply lying and by making objects such as military waste either disappear from Greenland or simply left buried under the ice.

Epistemic and instrumental violence went hand in hand with one another in many other parts of the Arctic. Indigenous peoples were marginalised and victimised (or traumatised via residential schools in Canada) while the instrumental power of Arctic states was put to use in ensuring that land, sea and air was securitised in the name of national defence and sovereignty. Science’s role in the colonial and Cold War Arctic occupies a deeply ambivalent role given funding sources (Arctic militaries were substantial funders) and the manner in which the environmental and physical sciences as well as social sciences provided expert knowledge on the region’s peoples and ecologies. But even before the Cold War was declared over in the late 1980s, we find evidence of challenge and change. One notable area was indigenous governance and autonomy. Across the North American and Nordic Arctic, indigenous communities and organisations campaigned for greater cultural recognition, access to natural resources and engagement with political decision-making.

In the case of Greenland, this process began in 1979 with the introduction of Home Rule after a referendum supported the established of the Greenlandic parliament and the granting of sovereign powers in areas such as education, fisheries, the economy, and health. By 1985, the Greenlandic people had left the EEC, a decision made based on Greenlandic ideas regarding what was ‘sustainable’ and what was not. In that case, the withdrawal from the EEC was based largely on an evaluation of the common fisheries strategy and the potential harm it might do to the Greenlandic economy and to fishing households and communities. Further devolution in 2009, in the form of Self Rule and a greater degree of self-government, resulted in the momentous decision to allow the Government of Greenland to enjoy sovereign rights over the subsurface resources of the country (something Denmark denied Greenland during negotiations for Home Rule). While Denmark contributes to this day an annual block grant, the Government of Greenland has become a far more active and assertive participant in areas such as resource governance, and is also asserting a greater say in some areas of foreign policy and international relations.

In the last few years, a political discussion about the nature of sustainability in Greenland, and what it means in a Greenlandic context, has played out with sustainability and growth plans being drawn up by government departments, especially in relation to the country’s finances and plans for the development of subsurface resources. A number of terms abound that refer to the idea of sustainability; in wildlife monitoring and management, for example, *nungusaataanngitsumik atuineq* refers to the sustainable exploitation and use (*atuineq*) of fish or marine mammals, and one literal meaning is ”to use something in a way that it doesn’t disappear/is used up”. In official political discourse, *piujuartitsineq* is usually the preferred word to convey the notion of sustainability. *Piuvoq* means something that is useful and which can be used, while *piujuartoq* means something that is lasting. *Piujunnaarpoq* means something is no longer of any use. *Piujuartitsineq* conveys the sense of there being a state of something lasting or being continuous.

Greenland was and is indispensable a space for the sustainability of Danish Arctic practices. When Danes think of the Arctic they would typically think of Greenland. When the Danish government called for an Arctic Ocean conference in May 2008, they selected Ilulissat because it was a place familiar to Danes as a place-based metaphor for climate change and anxieties over an imperilled Greenlandic ice sheet. Without Greenland, there would be no *Kingdom of Denmark Strategy for the Arctic* (2011-2020) and there would have been no need to submit extensive materials to the UN Commission on the Limits of the Continental Shelf in lieu of extending Denmark’s sovereign rights over parts of the Arctic Ocean seabed. Greenland acts as a direct proxy for wider Danish discussion about its role as an ‘Arctic great power’. As part of that discussion of Denmark’s great power capabilities, it has been suggested that it be made sustainable by recruiting local Greenlandic communities to participate in search and rescue and maritime surveillance activities (Stransbjerg 2012, Sejersen 2015).

The five Arctic Ocean coastal states have reinforced their special geographical relationship. While Greenland played host to that first meeting in Ilulissat, a second meeting was organized in Canada in 2010. While the seabed was a powerful material marker of their relationship with one another, in more recent years the fate of the high seas of the central Arctic Ocean has provided further incentive. In 2014, Nuuk was host to a meeting on potential fishing activity in the central Arctic Ocean, which later led to the 2015 Oslo Agreement (Declaration concerning the Prevention of Unregulated High Seas Fishing in the Central Arctic Ocean) by the coastal states to prohibit their vessels from fishing in the region until a regional fisheries agreement is in place. This occurred in consultation with extra-territorial actors such as China, South Korea and the European Union. While those negotiations are ongoing as we write, the net result has been to reinforce, according to some Danish observers, a view of the Kingdom of Denmark as a ‘middle power’ with a vested interest in the governance of the Arctic Ocean. Greenland’s geographical qualities are clearly critical to this in terms of identification of Denmark/Greenland as a coastal state with specific sovereign rights. So if there is a geopolitics of sustainability then it leaves traces and remnants in a variety of spaces, bodies and objects.

**Containing Arctic Sustainability?**

What do assemblages of Arctic/Greenlandic sustainability and its opposite, unsustainability entail? What do, for example, stacks of Royal Arctic Line containers have to do with sustainability? If the container – and the ship that brings it – represents a ‘lifeline’ to Greenlandic society (especially to those smaller, remote communities in the far northwest, where sea ice closes the shipping lanes for several months of the year), then it does so because the Government of Greenland awarded the Royal Arctic Line A/S (created in 1993) an exclusive concession to transport sea cargo between and within Greenland. Without those supply chains, and to say nothing of subsidies, remoter communities in Greenland would be made unsustainable (or forced to adapt in ways that might be judged to be ‘unsustainable’). As Royal Arctic Line A/S’s remind audiences – the company serves to provide ‘en livline til det grønlandske samfund/’a lifeline to the Greenlandic Society’. The company works via thirteen harbours and ports throughout Greenland.

If we follow the ‘life-line’ (i.e. logistical networks), via the container, we find evidence of how the materiality of Greenlandic society in the most remote communities – along with the idea of sustainable livelihoods – is tied to attempts by government and corporate actors to generate a habitable geography by developing modern infrastructure. Communities up and down the coastlines of Greenland are not only tied to those infrastructural flows but the container itself becomes a material marker of sustainability. Essential supplies, such as foods, fuel, and clothing, or equipment needed for hunting and fishing such as outboard engines and new boats, building materials, or parts for machinery or new classroom furniture for village schools, are brought in by ship. As in almost any part of the world, other kinds of goods, objects and materials circulate within a complexity of networks of production and distribution. They cross oceans and reach Greenland because people have ordered household appliances, computers, toys, cars, snowmobiles, and an array of other consumer goods. As Birtchnell, Savitzky and Urry (2015) put it, containerisation reshapes societies, economies and geographies, but it is accompanied by instabilities and insecurities. Without the shipping container, it would be impossible (or expensive if flown by air) to move everyday objects such as household possessions and strategic supplies such as food and energy. The durability and extent of the container ‘life-line’ depends on the entangled relations between human factors (such as shipping schedules, ship capacity, container facilities, and transport costs) and non-human agents and forces such as weather, sea ice, and ocean conditions which affect the condition of the ship to traverse such maritime spaces. Sustaining community life in Greenland entails a complex process of keeping goods in motion (Birtchnell, Savitzky and Urry 2015), but this can be frustrated by weather and the presence and movement of sea ice. Some forms of mobility, then, can throw up obstacles to other mobilities.

In Upernavik in Northwest Greenland, for example, while sea ice is present for several months of the year, it is forming later in the winter and, in many places along the coast, is not always as firm and fast as it should be to allow for travel on it. The spring sea ice break up has also been happening earlier in the season over the past twenty years or so, a trend which makes hunting and fishing by dog sledge precarious when the ice is not solid and yet still covers large stretches of water, or travel between communities by open boat is tenuous as the ice which lingers during the early weeks of open water hinders mobility. Less ice, though, means the supply ship can arrive with much-needed freight a few weeks earlier than in previous years (by late winter and early spring, supplies run low in the stores in the town of Upernavik and the villages of the district). The open water season around the town is now from around early/mid-May to early November, although sea ice can remain in the bays, channels and fjords, often blocking access to and from the villages until mid-June. The rest of Greenland –

and the wider world – may seem somewhat closer to connect with than twenty or thirty years ago, but weather and ice still disrupts and frustrates air schedules and travel by boat or ship. The town of Upernavik is situated on a small island and the airport was constructed on its highest point by levelling the mountain top. Travelling to and from Upernavik by the Dash-8 service, for example, means being prepared to wait in either Ilulissat or Upernavik for several days because of a winter storm, a late spring or early summer snowfall, or the seemingly persistent low cloud cover and fog that obscures the runway and leads to cancelled flights in summer and autumn. Increasingly stormy weather and more fog during summer throws up considerable challenges for travelling to and from Upernavik by air (Nuttall 2018).

Depending on an array of factors and forces, there may well be different thresholds of and for sustainability. In Greenland, for example, ports vary in size and capability so some areas of the country are better served than others. In Nuuk, a new container terminal is planned for the capital in order to allow for further container traffic. In order to do so, however, an estimated 300,000 cubic metres of rock was blasted from the shoreline and the harbour area dredged of subterranean material. New infrastructure was planned including warehousing and administrative buildings, and a quay extended in order to handle the expected boost to shipping container traffic.

Sustainability thresholds might take on another shape and feel. The Danish naval patrol vessels, which are employed in search and rescue operations as well as scientific survey work, could be interpreted as helping to make Denmark’s presence in the Arctic ‘sustainable’ and indicative of Copenhagen’s commitment to be not only an Arctic Ocean coastal state but also an ‘Arctic great power’. The Arctic sustainability assemblage in this case involves policy documents (e.g. *Kingdom of Denmark Strategy for the Arctic 2011–2020* and sea charts), ships, sea, military personnel, infrastructure and legal rights afforded to the Kingdom of Denmark as a coastal state. So the interplay between ships being tied up in harbours and ports in Greenland and then moving onshore (either in the form of containers or vessels) helps to remind us that sustainability is not rooted in a single place, but rather it involves topographical and topological relationships between human agents, objects and environments linking many places, or linking and connecting many different assemblages.

Making Greenland sustainable, inhabitable and workable depends on many kinds of encounters between many different places, but also often involves a clash between different worldviews. In the case of living marine resources, for example, which many people in small hunting and fishing communities depend upon, regulations, quotas, and management systems are implemented by Greenland government authorities in Nuuk (often in association with, or adhering to the rules of broader international regulatory agencies). This is based on scientific information about the status of fish stocks and the population estimates for large marine mammals such as polar bears, narwhals, walrus and other species of whale, which derives from research carried out mainly as part of the assessment and monitoring work of the Greenland Institute of Natural Resources (GINR) in Nuuk – an advisory body to the self-rule authorities. These regulations are responses to advice about the status of animal populations (which are increasingly affected by environmental and climatic changes) and the level of hunting or fishing that should be allowed. In short, there is concern over the survival of many animal species and controversy over the nature of the sustainable resource use. Local hunters complain, however, that such assessments are carried out by scientists with no consideration of local knowledge about marine mammals or fish. The effects of such management systems combine with changes in environment and climate to influence, determine and impact the abilities of people to hunt and fish certain species. Often, people feel it is harder to negotiate and work with these regulations than adapt to changing sea ice conditions. In many cases, rather than being the major issue for people, climate change is something which intensifies the societal, political, economic, legal, institutional and environmental challenges already affecting everyday life and hunting and fishing activities in northern communities (Nuttall 2017).

If you were to take to the air, courtesy of Air Greenland, at Kangerlussuaq on Greenland’s west coast, it is hard not to be reminded of Greenland’s importance as an air bridge sustaining North American and European commercial and geopolitical interests, especially since the end of World War II. The physical geography and location of this vast island was pivotal to sustaining a Cold War geopolitical strategy, which witnessed airport construction, submarine patrolling, and geophysical investigation of the ice sheet for scientific-military-strategic purposes. As Cold War historians of the physical and environmental sciences have observed, Greenland attracted a great deal of interest both above and below the ice sheet. North American continental defence, depended on its long-term sustainability, on physical and environmental knowledge about weather, ice, and sea conditions (van Donen 2015, Dodds and Nuttall 2018). But this air-link to Denmark is also vulnerable to disruption and curtailment. As if to illustrate this point well, we can both relate experiences of being delayed by many hours because Air Greenland’s only Airbus was grounded not by weather but by a combination of crew shortage, travellers who have wondered away from the airport terminal, and delays to and from Nuuk. While not unique to the Arctic region per se, air delays are an integral part of making northern life time-consuming, precarious and expensive.

In each of these brief examples, we would contend there are different geo-assemblages of sustainability at play. In the case of the shipping container, the sustainability here is arguably more localised and co-dependent on shipping schedules, sea conditions, and port facilities. In the example of the vessel, the sustainability in question appears to pivot on the infrastructural capabilities of the Danish Kingdom to stretch, exercise, and sustain its sovereign rights to offshore maritime and subterranean spaces. Finally, when we consider Air Greenland and its aerial network, which embraces both a direct flight to Denmark and inter-island connectivity across Greenland then the intersection of weather and plane provision is crucial in stitching together something more or less sustainable. To make sustainability ‘work’ requires the harvesting and managing of natural and social actors and environments, and those sustainability assemblages also have the capacity to disperse if circumstances alter. In other words, there is nothing immutable about those expressions of sustainability.

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