Greenland, Denmark and the pathway to uranium supplier status

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ABSTRACT

On 24 October 2013, the Greenland parliament, Inatsisartut, lifted a decades-long moratorium on mining radioactive elements, paving the way for the country – and the Kingdom of Denmark – to eventually become the newest Western (and Arctic) supplier of uranium. Greenland’s status as a territory within a state is accompanied by a complicated legal system within the Danish Kingdom, where Nuuk has authority over its natural resources and Copenhagen is constitutionally responsible for the Kingdom’s foreign, defence and security policies. This system is further complicated by Denmark’s membership (and Greenland’s non-membership) in the European Union. For a Kingdom that has otherwise foregone the nuclear fuel cycle (except for medical purposes), the process ahead for Greenland and Denmark in jointly developing a ‘Kingdom-appropriate’ regulatory system to govern uranium promises to be complex, and one based on a steep learning curve. The biggest challenges are not only how to administratively structure a system for uranium governance, including delineating authorities between Greenland and Denmark, but also the need for a comprehensive, clearly articulated and jointly approved ‘uranium policy’ to guide its implementation.

1. Introduction

Much of the current debate on uranium in Greenland is around clarifying issues of competences and authorities between it and Denmark. The two countries, along with the Faroe Islands, are linked within the ‘Commonwealth of the Realm’, or Rigsfællesskab, where the overseas islands enjoy autonomous authority in domestic affairs while Denmark remains constitutionally responsible for foreign, defense, and security. In 2009, the Act on Greenland Self-Government granted Greenland authority over its natural resources, introducing an entangled legal system within the Danish Kingdom – a system further complicated by Denmark’s membership (and Greenland’s non-membership) in the European Union.

Until recently, Greenland had a decades-long practice of not allowing the exploration and extraction of uranium. On 24 October 2013, the Greenland parliament, Inatsisartut, lifted the so-called ‘zero tolerance policy’ on mining radioactive elements, thereby removing an immediate hurdle to extracting rare earths elements (REE) and other minerals that coexist with significant concentrations of uranium and thorium. The REE deposit at Kvanefjeld alone contains more than 10 million tonnes of rare earth, and also 575 million pounds (over 260,000 tonnes) of uranium (Kalvig et al., 2014: 22). The hurdle that remains, however, is a challenging one. There exists no system for administering export controls and nuclear safeguards on the Arctic island, a challenge shared by a number of other countries currently considering their uranium potential, including Tanzania, Mongolia and Nepal. But unlike these nations, Greenland is a self-governing island within a state. Denmark and Greenland, therefore, have to develop a joint, Kingdom-appropriate structure almost from scratch, one that must address a range of issues, from radiation protection to inventory control and nuclear non-proliferation.

This paper will situate Greenland and Denmark within the global uranium market, explaining how a shifting industry and regulatory structure have evolved over the decades from their focus primarily on security to one also encompassing environmental, health and safety considerations. It will also situate the Rigsfællesskab within the results analyzed by the Governing Uranium project, a global research project led by the Danish Institute for International Studies (DIIS) which is studying the governance (safety, security and safeguards) of mining production, milling and trade across 15 supplier and consumer countries. The paper then provides an overview of Danish-Greenlandic official activities in lead-up to the lifting of ‘zero tolerance’ and beyond, and how Copenhagen and Nuuk are working towards understanding the political responsibilities that come with supplier status. The paper concludes with a discussion of the policy challenges and
opportunities facing Greenland and Denmark as they embark on the pathway to uranium supplier status.

2. Shifting market, shifting geographies

The uranium industry is continually being reshaped in response to increased competition, nuclear accidents and geopolitical concerns. It is multinational with public/private cross-ownership in which a number of interests, including economic, commercial and strategic, can overlap or collide. Presently, the uranium market is shifting. At a price of approximately US$10 per pound (US$22 per kilogram) in 2000, the spot price soared in the mid-2000s from roughly US$20 per pound (US$44 per kilogram) to almost US$140 per pound (US$311 per kilogram) in 2007. Funding for exploration also soared but the short-lived price bubble meant new deposits could not be opened before prices went down again. Many projects have been put on hold in Australia, Canada and United States. The Kayelekera mine in the world’s newest uranium-producing country, Malawi, was placed on ‘care and maintenance’ in February 2014 after only five years of production. Today, the spot price lingers around US$30/lb, with demand further strained by annual global production and abundant secondary supplies (such as government or commercial inventories) that continually surpass demand.

The geographies of uranium production and consumption are also shifting. Long-standing uranium consumers such as Japan and Germany are scaling back their reliance on nuclear power while China’s nuclear ambitions suggest it will surpass the United States over the next decade(s) to become the world’s largest consumer. At the same time, India’s re-entry after a three-decade nuclear trade moratorium has added a new and thirsty importer to the global market. With Kazakhstan outpacing Canada and Australia in 2008 to become the world’s largest supplier, the centres of uranium production and consumption are leaning eastward while new uranium suppliers such as Malawi and potentially Tanzania and Greenland are creating new centres of supply through countries that may or may not have a nuclear regulatory system in place.

The governance of uranium has also evolved nationally as many lessons have been learned during seven decades of mining. Most of the harshest are related to environmental hazards, particularly at so-called ‘legacy mines’, which were opened before an established environmental consciousness and abandoned or closed without rehabilitation. And, the legacy endures: many mines which were mothballed during the 1950s through to the 1990s are either still in need of remediation, or remediation efforts are still ongoing. Today, however, uranium producers are subject to a range of environmental permissions, monitoring and closure plans. Social impact assessments and public consultations are also increasingly required with industry sensitive to the need for ‘social licensing’ from communities before and during mining operations.

Governance at the international level is also maturing. Comprehensive nuclear safeguards under the International Atomic Energy Agency (IAEA) have been in place since 1972. Historically, their application to the front end of the nuclear fuel cycle have been limited to the output of conversion plants (i.e., uranium hexafluoride or UF6, the chemical form of uranium that is used during the uranium enrichment process), leaving mining, milling and conversion outside of full international material accountancy and control. Ongoing nuclear proliferation challenges such as the decade-long effort to reach a deal with Iran coupled with technological advances in processing and refining have prompted the IAEA to address the issue of which uranium-bearing materials are subject to its safeguards system (i.e., materials that require full material accountancy and control). The first such clarification occurred in 2003 and the second is currently under development.

The international regulatory system is therefore evolving, adding additional inspection and reporting requirements to a state’s treaty obligations. Consequently, uranium suppliers today have to take into account a range of regulatory provisions to include environmental protection, public consultation, and international non-proliferation treaty obligations.

3. A mineral of a different sort

All of the uranium supplier countries studied under the Governing Uranium project categorize uranium-bearing ores and their concentrates as a type of strategic resource and thus require government ownership or oversight, particularly on trade. For long-standing uranium producers (and consumers) the guiding principle of classifying uranium as a mineral of a different sort is grounded in its explosive potential. Canada, for example, declared nuclear energy a matter of ‘national interest’ in its 1946 Atomic Energy Control Act, providing Ottawa exclusive jurisdiction. Similarly, Australia (in 1952) and India (in 1962) both labelled uranium as a ‘prescribed substance’ subject to federal oversight in their respective atomic energy acts while Brazil codified the sole authority over uranium to the government in its 1988 Federal Constitution. South Africa also considers uranium as a ‘restricted material’ in its 1999 Nuclear Energy Act and more recently, Namibia categorized uranium as a ‘strategic mineral’ in a Cabinet decision in 2007, and also as a potential energy production source (Hammer-slaecht, 2012: 9).

The ‘uranium rush’ began during World War II. By 1939, top government officials in Europe, Russia and United States were beginning to recognize the strategic importance of uranium as a result of meetings with scientists. Russia’s 1942 Resolution ‘On Uranium Mining’ ordered the start of uranium production in Tajikistan with the focus shifting in the second half of the 1940s to deposits in Eastern Europe (Khlopokov and Chekina, 2014: 18). For the United States, the identification and purchasing of uranium from abroad was carried out by Murray Hill Area, a special unit of the Manhattan Project. Almost half of the uranium used in the US nuclear weapons complex was initially imported from other countries, specifically Canada, the former Belgian Congo, as a byproduct of gold mining in South Africa and early uranium recovery in Australia (Squassoni et al., 2014: 8). Post-World War II, it became clear how uranium resources would be used. At the opening of Rum Jungle uranium mine in Australia’s Northern Territory in 1954, then Australian Prime Minister Robert Menzies stated (Cawte, 1992: 8):

Whatever we may think about atomic bombs and their terrible subsequent development, let us understand quite plainly and realistically that part of our security in the present tremulous condition of world safety depends upon the superiority of the Free World in terms of these dreadful instruments. And Australia, by making a contribution of this kind... is itself making a powerful contribution to international defence.

In securing the ‘Free World’, the United Kingdom and United States established the Combined Development Trust (CDT) (later the Combined Development Agency, CDA) in June 1944 to ‘secure control of uranium and thorium’ within their territories and in third countries. In these early years, the applications of splitting the atom for civilian purposes were being developed, but the overriding objective was acquiring as much uranium as possible to make as many atomic bombs as possible. So much so that the UK Department of Atomic Energy commissioned a legal review in 1947 to check whether uranium acquired from the Belgian Congo through the CDT could be used for peaceful energy purposes (Berkemeier et al., 2014: 4–5).
The establishment of the IAEA as the world’s ‘Atoms for Peace’ organization in 1957 initiated a shift in a number of suppliers to apply export policies based on the non-proliferation principles of the IAEA statute, specifically to ensure nuclear materials were not used for military purposes. The IAEA began to apply technical measures referred to as ‘safeguards’ to verify the correctness and completeness of the declaration made by states regarding their nuclear materials. By May 1958, mines in Canada were given permission to find their own markets for output not required to satisfy existing Canadian Government obligations. Export permits were then introduced, requiring approval from the Atomic Energy Control Board (AECB) and the Department of Trade and Commerce. Permits could be issued for individual sales of up to 250 pounds for use in testing and research, with a maximum for any one country of 2500 pounds, unless a cooperation agreement existed between Canada and that country, in which case sales of larger amounts were allowed (Hunter, 1962: 338).

With the entry into force of the Nuclear Nonproliferation Treaty (NPT) in 1970 followed by the formulation of model safeguards agreements in 1972, international regulation of nuclear materials became more formalized. The security logic also switched from one where supplying uranium for nuclear weapons was beneficial to the pursuit of international security to one of employing uranium as the mode of enforcing non-proliferation and international governance. By the late 1970s, Australia had installed a number of conditions of supply, allowing sales to only non-nuclear weapons states party to the NPT, requiring prior consent to be obtained from Canberra before Australian uranium could be transferred to a third country, enriched beyond 20% U235 or reprocessed. Adequate physical security on nuclear industries of importing countries was also required. The government noted its safeguards policy was one of ‘great stringency’ and more rigorous than other nuclear suppliers at the time (but similar in approach to Canada and the U.S.) Prime Minister Fraser stated in 1977 that: ‘Our aim is to minimize the risk of nuclear weapons proliferation’ and that “[o]nly as a producer and supplier of uranium can Australia be an effective force in achieving improved international safeguards and controls’ (quoted in Clarke, 2012: 230). Similarly, for Canada, today, the stated objectives of its nuclear non-proliferation policy are to ‘assure Canadians and the international community that Canada’s nuclear exports do not contribute to the development of nuclear weapons or other nuclear explosive devices’ as well as to ‘promote a more effective and comprehensive nuclear non-proliferation regime’ (CNSC, 2014).

4. Sharing authorities

As the governance and policy approach to producing and trading uranium evolved over the years so have the roles of federal governments in oversight. Given the strategic applications of uranium, the highest level of governments have maintained authority over their export controls, foreign policy and trade, non-proliferation, safeguards and treaty obligations while issues related to environment safety, transport, labour and health have typically been left to the purview of provinces, states or territories. The federal mandate, however, has expanded over the decades, as noted by the Chair of Canada’s AECB in a 1996 statement to the House Standing Committee on Natural Resources. It stated that the AECB’s mandate had ‘evolved from one chiefly concerned with security to one that also focuses strongly on the health, safety and environmental consequences of nuclear pursuits’ (Bowman, 2011: 4). The AECB underscored that its successor, the Canadian Nuclear Safety Commission (CNSC), under the Nuclear Safety and Control Act (NSCA), would be better able to cooperate with the provinces while Natural Resources Canada commented that the reference in the NSCA (Bowman, 2011: 4), directly to the environment as the concern of the nuclear regulator [is] something which the current statute does not do. It is not intended that the commission duplicate the responsibility of federal and provincial environmental authorities. Rather the reference is a reflection of appropriate public and political concern that the environment must be considered, along with people, in the regulatory activities of the commission.

The NSCA thus allowed the federal regulator to include public health and environmental considerations and to cooperate – not replace – provincial involvement. It defined federal responsibilities as safety from major accidents, international aspects and security. It gave the CNSC the authority to regulate the development, production and use of nuclear energy and the production, possession and use of nuclear substances, and prescribed equipment and information in Canada. The CNSC also has the authority to conduct environmental assessments under the Canadian Environmental Assessment Act of 2012, implement Canada’s bilateral agreements with the IAEA on nuclear safeguards regulation and set nuclear liability insurance requirements (CNSC, 2014).

Other countries have taken similar approaches to the environmental and safety aspects of uranium regulation. In 1999, Australia enacted the Environmental Protection and Biodiversity Control Act in which ‘nuclear actions’ are given ‘national environmental significance’. States can assess and install their own environmental approvals, but approval by the Federal Environment Minister is required before any uranium mine can operate in Australia. This means operators have to submit an environmental impact assessment to the state or territory where the mine is located, and also to Canberra for approval. Both state and federal levels add on conditions with their approvals. In Brazil, the Union – the highest level of government – along with the State, Federal District and County levels control the environmental and health aspects. Here, the constitution also guaranteed protection of the environment, leading to the establishment of the Brazilian Environmental Protection Agency (IBAMA) in 1989 to conduct environmental licensing of all nuclear installations, including mines. Licensees, therefore, submit two applications at the Union level – one to the National Nuclear Energy Commission (CNEN) regarding safety aspects related to the use of radioactive materials and another to IBAMA regarding environmental aspects (IAEA, 2012). The challenge for systems where two such applications are required is to ensure coordination at the state-federal level or across the federal level to mitigate redundancies.

In the United States, an ‘Agreement State’ programme allows some states to perform regulatory functions such as licensing and inspection authority that the Nuclear Regulatory Commission (NRC) otherwise would conduct. State definitions and regulations must be identical or more stringent than those of the NRC. The NRC undertakes biannual reviews of each state’s performance to ensure compliance and maintains reassertion authority in the case of accidents or emergencies, though there is a probationary period before an Agreement State can lose its authority. The process to become an Agreement States takes four to five years. The majority of the 50 states are Agreement States, Only 12 states are non-Agreement States: Idaho, Montana, Wyoming, South Dakota, Michigan, Indiana, Missouri, West Virginia, Vermont, Connecticut, Delaware and the District of Columbia. Agreement States are not able to draft their own guidelines on the import and export of uranium, nor do they have the authority to issue import/export licenses. This also applies to the disposal of source material (Squassoni et al., 2014: 36–37).

The systems of shared authority naturally depend on the extent to which jurisdictional provisions apply in each country. When
issues related to aboriginal agreements and land claims are added, the regulatory complexity of the federal-state/provincial framework surrounding uranium can become further entangled. Despite the variance in political systems, one aspect common to all is that the jurisdiction over the bilateral trade, export and safeguards of natural uranium resides with the State. The ministries involved may vary. Australia, for example, established its safeguards office within the Department of Foreign Affairs and Trade to carry out its obligations under its agreement with the IAEA and its bilateral agreements, while others such as Canada and the United States created separate federal agencies to do the same. Similar for exports, whether issued by Ministries of Industry, Trade, or a federal agency, permits for the trade of uranium are considered an issue of national interest across all the states studied.

It is important to note that membership within the IAEA is based on statehood. The IAEA interacts with the designated competent authorities of the state on safeguards implementation. Taiwan is the only exception, as it is not exist an independent state (and is thus not a member) but it implements IAEA safeguards under a 1964 trilateral agreement (INFCIRC/158) signed by the United States and the IAEA. Taiwan signed the NPT in 1968 and ratified it, but was replaced by the People's Republic of China when it took Taiwan's place at the United Nations in 1971. The United States recognizes Taiwan as an independent state and has a far-reaching nuclear relationship with Taipei; the verification of nuclear safeguards in Taiwan was first conducted by the United States under a 1955 bilateral agreement. Washington's access to Taiwan's nuclear programmes has been described as 'close to what UNSCOM and IAEA inspectors had in Iraq beginning in 1991' and that 'From the perspective of routine international nuclear diplomacy, US-Taiwan relations in this area is clearly not routine' (Hibbs, 2012).

5. Limited international and regional guidance

Natural uranium is considered to be source material under the IAEA Statute and thus a type of nuclear material, as defined in IAEA document, INFCIRC/153 of 1972, which defines the starting point of full safeguards (i.e. the application of the full set of accountancy and control provisions on nuclear material inventory). These safeguards, however, do not apply to material in mining or ore processing activities. Paragraph 34(c) is commonly referred to as 'the starting point of safeguards', stating that:

> When any nuclear material of a composition and purity suitable for fuel fabrication or for being isotopically enriched leaves the plant or the process stage in which it has been produced, or when such nuclear material, or any other nuclear material produced at a later stage in the nuclear fuel cycle, is imported into the State, the nuclear material shall become subject to the other safeguards procedures specified in the Agreement.

Safeguards, therefore, begin when nuclear material 'leaves the plant or process stage', historically interpreted as the output of conversion plants (i.e., Uranium Hexafluoride or UF6, which is the chemical form of uranium that is used during the uranium enrichment process.) In 2003, the IAEA re-interpreted this definition in its Policy Paper 18 (Owen, 2006) in which safeguards were extended to the production of purified uranil nitrate. In Canada, this meant moving the starting point for the implementation of safeguards to when drums of yellowcake were added to production lines. This marked the first time that Agency safeguards captured Cameco's Blind River refinery plant in Canada (Owen, 2006). The new starting point, however, meant bypassing the tens of thousands of drums stored at the site and therefore uranium ore concentrate (UOC, commonly referred to as 'yellowcake'), remains a 'pre-34c’ material and therefore not subject to the full scope of IAEA accountancy and control provisions. But UOC is used to feed subsequent stages of the nuclear supply chain and therefore the IAEA requires information on exports (Paragraph 34a) and imports (Paragraph 34b). In other words, if a pre-34c material is traded for eventual use in a nuclear reactor, this must be recorded and reported. If such material is not destined for use in the nuclear supply chain, then reporting is exempt.

Large supplier countries such as Australia and Canada report their exports and imports on a monthly basis. Unfortunately, when looked at as a whole, reporting under Paragraph 34 is uneven across IAEA members, particularly since some states do not consider uranium-bearing ores or their concentrated byproducts as potentially destined (or potentially diverted) for nuclear purposes. While the paragraphs are generally used for UOC exports and imports only, any material containing even trace quantities of uranium or thorium (i.e., phosphates, copper, coal and rare earth elements) should be reported if such material is exported for nuclear purposes. The technology for extracting uranium from phosphates, for example, is well-known and mature, with some 20,000 tonnes of uranium recovered from phosphates to date (World Nuclear Association, 2014). If a state recovered uranium from such secondary sources, it would not be obliged to report until. Forachieved 34c-level. For states that may be seeking such sources specifically for their uranium content, therefore, secondary can provide a potential proliferation pathway. Given this, it is incumbent on States, such as the Rigsfællesskab, that may export uranium-bearing ores or UOC to apply prudent controls and evaluate the risk that uranium will be extracted for nuclear purposes; and, if so, to apply appropriate controls on such exports.

In 1997, the IAEA attempted to mitigate the reporting gap of secondary sources with the passing of the Model Additional Protocol (INFCIRC/540), a voluntary agreement which grants the IAEA complementary inspection authority beyond that of comprehensive safeguards agreements. It requires annual reporting on uranium and thorium holdings, along with reporting on exports and imports of pre-34c material for non-nuclear purposes (although this information does not require detailed nuclear material accountancy). These requirements formalize the need for Additional Protocol states to apply prudent controls and evaluate the risk that uranium will be extracted for nuclear purposes. For those without comprehensive safeguards agreements (let alone the Additional Protocol), there are no legal obligations to track secondary uranium sources. As Denmark and Greenland are party to the Additional Protocol, they will be required to report on, and provide access to, mining facilities and their products and trade.

Whereas the IAEA Statute does not interpret the terms ‘source material’ or ‘safeguards’ as they apply to ore or ore residue, Euratom’s control begins as soon as ore is produced or material is imported into the territory of one of the member states. The Euratom Treaty (Article 77) states that the Commission shall satisfy itself that ores, source materials, or special fissile materials are not diverted from intended uses as declared. Euratom, therefore, requires operating records to be kept for ores and source materials, including during transport, and allowing inspectors access to places and data. In 1973, the Agreement between Euratom and the IAEA (INFCIRC/193), applied IAEA safeguards across Euratom member states (previously, Euratom states had bilateral safeguards agreements with the IAEA). With the Additional Protocol in force across all Euratom states in 2004, the Commission Regulation (Euratom) No 302/2005 of 8 February 2005 on the application of Euratom Safeguards, stated that basic technical characteristics of ore extraction operations shall be declared and that accounting records of ore quantities extracted with average uranium and thorium content and stock of extracted ore at mines shall be kept for at least 5 years with annual
declarations on amount of material dispatched from each mine or exported from the state.

The Euratom Treaty also established the European Supply Agency (ESA), which was given the exclusive right to conclude contracts for the supply of ores and source materials generating from inside or outside of the Community. The ESA has a right of option on materials produced within the Community, meaning that it has to have the first offer of uranium before a member state can sell it to a third party. According to Commission Regulation (EURATOM) No. 66/2006, all transfers, exports and small quantities of ores and source materials also need to be reported to the ESA, with exemptions for quantities not more than 1 tonne of uranium and thorium within a 5 tonnes/year limit.

Natural uranium and its related technologies for conversion are included on the Nuclear Suppliers Group (NSG) export trigger list with guidance that States report UOC exports for nuclear purposes that exceed 500 kg. From a safeguards perspective, the NSG guidance states that suppliers should transfer natural uranium to a non-nuclear weapons state only when the receiving State has brought into force an agreement with the IAEA requiring the application of safeguards on all natural uranium to current and future peaceful activities (Nuclear Suppliers Group, 2013). The NSG does not bar the export of UOC in small quantities or even large quantities if the supplier has reasonable assurance that the material will not be used for nuclear purposes. The NSG currently has 48 participating states, including Denmark. Although Danish implementation is done through EU regulation, the NSG’s export controls do extend to Greenland.

6. A mixed kingdom membership

Denmark, Greenland and the Faroe Islands all became party to INFCIRC/193 – the safeguards agreement between the non-nuclear weapons States of Euratom, Euratom and the IAEA on 1 January 1973 – when the former joined the European Economic Community (EEC). In 1985, Greenland withdrew from the EEC (and Euratom) and returned to the safeguards agreement (INFCIRC/176) that the Kingdom had with the IAEA previously. Denmark has had an Additional Protocol with the IAEA in place since 1998, but up until 2013, it did not apply to Greenland. Although Denmark and Greenland have different agreements with the IAEA, both are comprehensive safeguards with the Additional Protocol and thus the same reporting requirements on natural uranium. The main difference between Denmark’s and Greenland’s safeguards requirements is that provisions related to the European Supply Agency do not apply to the latter. This allows the Rigsfællesskab to report on Greenlandic uranium directly to the IAEA in Vienna, rather than through Euratom in Luxembourg.

The main complication with mixed membership lies in export controls: Copenhagen gets its control lists and policies from Brussels whereas Greenland is not bound by them. Denmark’s export controls in practice are guided by EU regulation 428/2009 on setting up a Community regime for the control of exports, transfer, brokering and transit of dual-use items. However, the EU regulation is in some ways more stringent than the NSG controls, extending controls to smaller quantities (exempting four grams or less ‘contained in a sensing component of instruments’) of yellowcake. While the NSG does apply to Greenland and EU dual-use exports do not, it is conceivable that the former may in the future ship its yellowcake for conversion to the latter (i.e. France), in which case, it will need to be aware of (and follow) Euratom’s rules along with the EU’s transport regulations (transhipment/transits through EU however are not subject).

Another complication arises when looking at Denmark’s ratifications of five other nuclear conventions that are not yet applicable to Greenland and the Faroe Islands. Accordingly, nuclear safety, security and non-proliferation requirements are mixed across the Kingdom, providing disparities and confusion within the legal non-proliferation architecture for which Copenhagen is internationally responsible. The Rigsfællesskab’s mixture of nuclear safety, security and safeguards commitments are shown in Table 1.

This mixed membership is further complicated by Greenland’s status as a self-governing territory within a state in the post-2009 Rigsfællesskab. While the task is complex and layerd, Greenland and Denmark have an opportunity to put together a common system to ensure that non-proliferation reporting and international safeguards obligations are met. It will require a regulatory system of export controls and inventory management that meet their mixed – and collective – membership requirements.

7. Danish–Greenlandic Uranium Working Group

In February 2013, Greenland and Denmark established the Uranium Working Group (UWG) with representatives from Danish and Greenlandic ministries to look at the relevant foreign, security, fiscal and legal implications of mining and exporting radioactive minerals. This included identifying which international and national obligations apply to Greenland and those which only apply to Denmark, as well as what steps, if any, should be taken for international obligations to apply in the entire Kingdom.

In October 2013, the UWG issued a joint Report on the extraction and export of uranium: Working Group on the consequences of lifting the zero-tolerance policy (Danish and Greenland Governments, 2013), essentially providing a ‘mapping and scooping’ of what has become a relatively complicated and layered Rigs legal system. The 180-page report provides intermediate conclusions on how this system applies to Danish and Greenlandic authorities, with the disclaimer that far more discussion and investigation remains. The report initially identified areas related to the environment and nuclear safety as under the competence of Naalakkersuisit (Greenland Government), including the storage and transport of mining products and the handling and responsibility for radioactive waste. It identified transport and emergency preparedness and response as a rigsanliggende (‘matter of the Rigsfællesskab’) and therefore a competency of Denmark, along with exports controls.

Table 1

<table>
<thead>
<tr>
<th>The kingdom’s mix of nuclear safety, security and safeguards.</th>
<th>Denmark</th>
<th>Greenland</th>
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<tbody>
<tr>
<td>Convention on Assistance in Case of a Nuclear Accident or Radiological Emergency</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>Convention on Nuclear Safety</td>
<td>✓</td>
<td>-</td>
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<tr>
<td>International Convention for the Suppression of Acts of Nuclear Terrorism</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management</td>
<td>✓</td>
<td>-</td>
</tr>
<tr>
<td>Convention on the Physical Protection of Nuclear Material and 2005 Amendment</td>
<td>✓</td>
<td>✓ (not amendment)</td>
</tr>
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Radiation protection (health), security and safeguards landed in the space between where Greenland does not have an administrative system for dealing with them, and because radiation protection and international non-proliferation commitments are within Copenhagen’s remit, the intermediate conclusion is for both to cooperate on future regulation and administration. Using the UWG’s first report as a starting point, the scope of negotiations ahead and potential overlap are depicted in Fig. 1.

It is important to note that the report handles transport in terms of nuclear safety to Greenland while Denmark is responsible for transport on roads, sea and land; therefore, there is an overlap on uranium transport that will need to be addressed. The report also stresses that safeguards are fundamental to foreign, defense and security policies as they are the means for the IAEA to ensure that international obligations under the NPT are met and uranium trade does not contribute to the proliferation of weapons of mass destruction. Safeguards however are located in the space between Denmark and Greenland as the former’s ability to implement safeguards will depend on both Copenhagen and Nuuk establishing a jointly administered system for sharing information. Safeguards are thus dependent on a robust export control system, and while export controls were identified in the report as an area under Danish authority, it also underscored the need ‘for establishing a new and comprehensive export control set-up, which includes the provision of new legislation for Greenland and the building of necessary human skills and administrative systems and procedures for cooperation’. It accepts that establishment of such a legal framework will be ‘a complex and complicated task’ and that ‘there is no experience in Denmark in relation to the administration of these obligations is particularly true for export of uranium there will be a need to conduct feasibility studies in order to clarify the content of the forthcoming legislation’ (Danish and Greenland Governments, 2013: 69–70).

A follow-on status report will be issued by the UWG in the latter half of 2014, which will address the conclusions of the October 2013 report and provide an intermediate snapshot of progress by the UWG in identifying and building an administrative system across the Kingdom to control uranium production and export. Thus, the 2014 report will not be a final report. The UWG has been given a mandate of two years (until Spring 2016) to complete its task of framing a cooperation agreement between Denmark and Greenland, which will include mechanisms for information sharing and jointly administered safeguards for controlling extraction and trade.

The UWG report included in its annexes a legal opinion by the Lett Advokatfirma which was requested by the Greenland Government (Naalakkersuisut) almost a year prior to look at the consequences of lifting the zero tolerance policy. On the division of authorities, the Lett Report (Lett Advokatfirma, 2013: 20) concluded that the Kingdom’s defense and security policy generally may not be affected when the use, export and sale of uranium is accompanied by a contract for peaceful uses. According to the report, Naalakkersuisut is, therefore, able to conclude such agreements without the involvement of Denmark. It concluded, however, that if uranium was being used for weapons purposes, then international agreements would qualify it from the exemption rule of Paragraph 12 of the Self Government Act.

It is unclear in the Lett Report how the lawyers come to the opinion that uranium just as any other commodity, despite the fact that uranium is the only mineral that has an international body monitoring its processing and trade. The IAEA safeguards agreements apply to the uses of uranium trade in non-nuclear weapons states whether a contract for peaceful purposes is in place or not. The report does not offer further information on how a simple contract would supplant Copenhagen’s responsibilities for demonstrating to the international community that all nuclear activities in its territory of influence are for peaceful purposes. The assessment also failed to consider current global practice in nuclear trade where bilateral nuclear cooperation agreements (NCAs) are negotiated to frame uranium sales, transport, security, and non-proliferation safeguards (see next section). The Lett Report, however, did recommend that the Danish Government and Naalakkersuisut set objectives and terms related to the use, export and sale of uranium and safeguards (2013: 21).

In January 2014, Greenland published another legal assessment, this time by Ole Spielman (2014), a partner in Bruun & Hjejle law firm in Copenhagen who forwarded that under the Self Government Act, any area transferred to Greenland is under Nuuk’s sole jurisdiction, even if it entails foreign and security policy implications. Spielman argues that by handing over authority of natural resources to Greenland, the 2009 Act on Greenland Self-Government also transferred non-proliferation, safeguards, and NPT aspects to Greenland. In a press release accompanying publication of the assessment, the Greenlandic Government stated that the ‘opinion removes a wide range of uncertainties and generally make it clear that the Danish government cannot exercise its foreign policy powers with the aim to reverse or limit the Greenland
Self-government legislative and executive powers in the fields of responsibility as mineral resources’ (Naalakkersuisut, 2014).

Clarity in defined authorities is necessary for the post-2009 Rigsfællesskab. The Greenlandic-Danish Committee on Self-Government in Greenland (2008) published a 578-page report which addressed areas of foreign and security policy broadly. But it did not study the prospect of mining radioactive elements specifically. Uranium, therefore, is a test case of the provisions of the Self-Government Act with the legislative and regulatory system post-2009 still being defined.

Spierman (2014) does not clarify a number of safeguards and non-proliferation treaty issues such as how foreign and strategic policy implications of uranium trade are to be treated with respect to the Kingdom’s relationship to the IAEA and the NPT. His assessment is limited in its legal scope to the relationship between Greenland and Denmark within the Self-Government Act and therefore, an opinion on domestic delineations. The problem with his assessment is that is does not offer an opinion on how these delineations are affected by – and work within – the current international non-proliferation regime. Instead, the assessment implies a quasi-state status to Greenland on uranium which is a hard sell in a Westphalian state system in which nuclear issues are considered matters of high politics. As underscored previously, the only extraordinary relationship the IAEA has outside of its member states is the one with Taiwan, and that is one where the United States is also a controlling (factor).

For Denmark’s part, it argues that uranium not only triggers international treaties such as the NPT which Copenhagen is internationally responsible for, but also Danish non-proliferation, security and foreign policy which falls within Copenhagen’s remit (Discussions with Danish officials, 2014). In January 2014, Danish Prime Minister Helle Thorning-Schmidt stated: ‘It is clear that uranium is a special material, and therefore we should have a cooperation agreement on this area’ (Politiken, 2014). Despite the legal back and forth, both Greenland and Denmark have accepted the need for developing a cooperation agreement related to uranium and have extended the work of the UWG to advise on the elements needed to be emphasized in such an agreement. How the cooperation agreement will govern foreign policy, export controls and safeguards will depend on the political context and UWG momentum. Its implementation will also depend on the development of a specified common non-proliferation and ‘uranium policy’.

8. A common Rigs non-proliferation policy

Non-proliferation policy has been characterized as ‘much more like a large construction project’ that “may, to be sure, never follow the precise blueprints of its architects... But it is to be judged by whether it is in fact advancing towards the kind of result laid out as its long-term goal’ (Nye, 1978). Given the variety of international and regional obligations listed in this article, including the range of other treaties in existence that may impact the UOC trade such as nuclear weapons free zones (NWZFs), new supplier states are tasked with ensuring a clearly articulated non-proliferation policy and its implementation. This section of the paper outlines various policies and approaches to uranium for a number of supplying countries and then examines Denmark and Greenland’s historical approach with a view to what is next for the Rigsfællesskab.

8.1. Supplier policies

The policies that accompany uranium in various countries are dependent upon a range of domestic, regional and international regulations. Australia, for example, views its uranium exports as a means to increase global energy security, strengthen the non-proliferation regime and reduce the risks of misuse and diversion of nuclear materials and technology to military purposes. It therefore requires bilateral nuclear cooperation agreements which attach specific ‘conditions of supply’ to the sale of Australian yellowcake. Other suppliers, however, are content with contracts from the likes of China and Kazakhstan while a country such as Brazil only uses its own reserves domestically and currently does not sell its UOC for use in nuclear reactors abroad.1

Bilateral nuclear cooperation agreements (NCAs) are widely employed by countries such as Canada, Australia, United States and Euratom. These nuclear bilateral agreements usually require specific reporting requirements and prior consent (where the state buying uranium needs prior approval from the supplier state before reprocessing, enriching uranium beyond 20% or transferring it to a third country). Canada has 27 Nuclear Cooperation Agreements in force covering a total of 44 countries (including Euratom), which are reciprocal and provide a policy framework for imports and exports. These NCAs are all slightly different, but the provisions on notifications, reporting, and request for prior consent for retransfer, consultations and fall-back safeguards provisions are found in all the NCAs. The Euratom-Canadian Agreement of 1959, for example, provides that neither side can transfer source or special nuclear material to a third party without prior consent (Article IX). In certain cases, additional reporting and/or verification measures are also in place.

In the case of Australia, Canberra requires export permits for any uranium-bearing ores and UOC – whether for nuclear or non-nuclear purposes – so that it can ensure the end user. Risk assessments are then performed by safeguards agencies, foreign ministries and other ministries as necessary. In Australia, these risk assessments are based on four factors: quantity of nuclear material; extractability of nuclear material; purpose of the export; and the nature of safeguards that would apply should uranium be extracted. This process is similar to how Australia approaches exports of dual-use goods under the Nuclear Suppliers Group. Australia then reports exports for nuclear purposes to the IAEA on a monthly basis, but does not report exports for non-nuclear purposes because it has an export control system in place to satisfy itself that these exports are for ‘specifically non-nuclear purpose’ (Everton et al., 2011).

Australia also tacks on additional requirements on which countries to sell to, along with supply of use: it limits exports to countries that are party to the NPT, signatory to the Additional Protocol and the Convention on the Physical Protection of Nuclear Materials (CPPNM) and which have a bilateral NCA with Canberra. Australia’s uranium then becomes ‘obligated’ as it moves through the different stages of the nuclear supply chain, and to any nuclear material generated through its use. Australia’s NCAs include provisions that IAEA safeguards will apply and requires prior consent from Canberra before Australian material is transferred to third parties, enriched beyond 20% or reprocessed (Australian Safeguards and Non-Proliferation Office, 2012: 35).

It should also be noted that some non-producing (but consuming) countries do tack on ‘conditions of purchase’ such as Japan where utility companies insist on uranium from Namibia because the purchase agreement is considered to be part of Japan’s development assistance to Africa (Anthony and Gripp, 2013: 9). Euratom with a common supply policy requires a diversification of sources (i.e. requires more than one country source) and recommends long-term (10-year) contracts and keeping inventories.

Whether it is formalized in a legislative act or in regulations, expressed non-proliferation policies (and their implementation) shape the non-proliferation profile of a state internationally.

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1 Brazil, however, does ship its yellowcake abroad for processing which is returned to Brazil in the form of UF6.
Australia’s policies, for example, were articulated publicly in 1977 and formalized in the 1987 Safeguards Act. The question for Greenland and Denmark then is: what kind of profile does the Rigsfællesskab already have? Should it be maintained, altered or strengthened? These questions are critically important for both Nuuk and Copenhagen as they move beyond the zero tolerance policy and towards a new policy on uranium production and trade.

8.2. A policy that never was

The genesis of the zero tolerance policy is mostly one of speculation. Some give its starting point around the time of Greenland’s Home Rule in 1978–79; others say it was an indirect result of the 1985 legislative decision to not include nuclear energy as an indigenous power source for Denmark; and then there is a 2008 report on The social aspects of the use of uranium in Greenland (Government of Greenland, 2013a,b), issued by the Siumut coalition government, which states that the joint Committee on Mineral Resources under the Ministry of Greenland and subsequently, the Ministry of Energy (Fællesrådet) elected not to grant permission for uranium exploration and exploitation in Greenland in 1988. A similar statement was made by Greenland’s Parliament in August 2013 (Greenland Parliament, 2013). The Fællesrådet, however, had no decision-making necessity and hence an advisory committee consisting of five members from Greenland and five from Denmark with all final decisions on minerals made by the Greenland Home-Rule and the Danish Ministry of Greenland/Energy.

Minutes from meetings in 1988 from Fællesrådet also reflect that no decision for a ban on uranium mining be put forward to Danish or Greenlandic authorities (Fællesrådet, 1988). Indeed, a meeting of the Joint Committee in 1989 suggests that no decision in principle was made since the Committee recommended three companies to collectively explore for radioactive elements in Sarfartoq (along with a range of other minerals) from March through to December that year. Fællesrådet’s 1989 annual report covering the period 1 July 1988 to 30 June 1989 notes that environmental, archaeological and technical issues were discussed in the minutes of the Committee’s January 1989 decision; but there is no reference to a moratorium or zero tolerance policy on uranium mining (Fællesrådet July 1988–June 1989). The position of the Fællesråd on uranium mining was further tested as the companies did not proceed beyond exploration at the time. In fact, the Committee’s common position was not tested until 2008 when advanced studies in Kvanefjeld required clarification on how uranium should be handled when considered a significant part of a deposit’s mined product. The Fællesråd evaded clarifications at its May 2008 meeting, leaving the issue in limbo until the Inatsisartut’s ‘Law nr. 7 of 7 December 2009 on Mineral Resources and their activities’, when Greenland achieved Self Government status and with it, full authority over its natural resources. In 2010, Naalakkersuisut amended the standard licensing terms to allow Greenland Minerals and Energy (GME) an exemption to explore (but not exploit) beyond normal background radiation in Kvanefjeld. Three years later, the zero tolerance policy was then put to a vote in Naalakkersuisut with a vote 15–14 (with two abstentions) in favour of lifting a policy that never really was.

That said, while the term ‘zero tolerance policy’ does not show up in the archives before the 2000s, historically, Greenland has been opposed to mining uranium and the predominant common practice has been to exclude uranium and thorium from mining licenses. In comments to the 1965 Law on Mineral Resources in Greenland, the first mining law specific to Greenland, certain commodities or groups of commodities, including uranium and thorium, were inappropriate to exclude but that there may be concessions to take such decisions as based on existing international agreements (Bemærkninger, 1965). In other words, while exploration for radioactive elements was not officially banned, there was space for considering uranium and thorium as resources that were accompanied by a range of international conventions and therefore resources of a different sort.

With the introduction of Home Rule in 1979, a new Mineral Resources Act for Greenland came into force which was later replaced by the 1991 Mineral Resources Act. Both acts embedded the principles of co-decision (or common veto) powers in the raw materials sector. As before, licenses have stated explicitly that ‘an exploration [or mining] license covers all mineral raw materials with the exception of hydrocarbons and radioactive elements, unless otherwise detailed in the relevant permit’ (Kåstoftolvallningen, 1986). Over the 2000s, the concept of a ‘zero tolerance’ appeared and somehow became understood as a ban on exploring and mining ‘beyond normal background’ radiation. ‘Background radiation’ levels, however, were not identified. Although the first time the term ‘zero tolerance’ is debatable, the concept appears to be a relatively new one which seems more intertwined with Greenland’s 2009 Self Governance than any other historical event.

9. Conclusion: possible policy pathways

Denmark and Greenland have the opportunity to reconcile their non-nuclear self-image with their potential future as a uranium supplier state. In moving ahead, they need to ensure that domestic legislation is in line with their collective non-proliferation commitments as that of the NPT, Additional Protocol, and NSG, but also to consider how they will employ Greenland’s large uranium reserves to forward specific foreign policy objectives. Their cooperation will frame not only their relations for the years to come, but also prepare the regulatory foundation so when Greenland eventually does vote for independence, it will already have a well-functioning nuclear regulatory system in place.

Denmark and Greenland are in a unique position to move up the learning curve quicker and apply a higher set of standards for natural uranium than other new suppliers given their ties to the EU. Granted, Denmark’s EU membership binds it to a common, regional policy and export control system that does not apply to Greenland; but it is hard to imagine that the provisions that apply to UOC in the EU would not be accepted by Naalakkersuisut as a Greenlandic standard to follow, particularly since any Greenlandic yellowcake processed in Europe would be recorded as an import under that regulation. Greenland’s non-EU membership means that Euratom’s Supply Agency will not be involved in any Danish-Greenlandic decisions or bilateral agreements with third countries (unless it is a Euratom country). The ESA does, however, have a long experience with nuclear supply (and consumer) contracts, which may be of use to both Greenland and Denmark as they come to understand how they want their own nuclear cooperation agreements and contracts to be framed. Greenland’s overseas and country (OCT) status with the EU can also be leveraged to support non-proliferation safeguards, security and export controls training and education on the overseas island.

There is also a joint need for agreement on which countries the two are prepared to export uranium. Greenland and Denmark might adopt conditions of supply similar to Australia and require NPT, Additional Protocol, and CPPNM memberships along with a number of prior consent provisions. They will also need to consider the best method for ‘following their flags’ through the nuclear supply chain to provide assurances that Greenlandic UOC is used for peaceful purposes. Nuuk and Copenhagen may also consider whether additional treaty memberships should be tackled on such as the Comprehensive Test Ban Treaty (CTBT) which bans all nuclear testing but will not enter into force until China, Egypt, India, Iran, Israel, North Korea, Pakistan and the United States (so-called
‘Annex II’ states) ratify it. Given the long-standing positions and aversions to nuclear testing by both Greenland and Denmark, are they willing to sell to states that have not categorically renounced nuclear testing? There is also the Convention on Nuclear Safety – a treaty that does not yet apply to Greenland, but which commits parties operating nuclear power plants to maintain a high level of safety by setting international benchmarks. What about the other four treaties that Greenland is not party to?

The list of supply conditions can be long or short and will depend on how Greenland and Denmark will balance non-proliferation considerations with commercial ones. Indeed, according to Lellouche (1981: 49) ‘history has shown that… a coincidence of [economic and non-proliferation] interests is crucial to the successful implementation of a state’s foreign nuclear policy’. Once they reach that balance, the pathway will be paved more smoothly and likely move more quickly when politically aligned as was witnessed with Greenland’s membership of the Additional Protocol on 22 March 2013, which occurred within six months of Denmark and Greenland being reminded that Inatsi-sarutt increased in the Additional Protocol in May 2004 (Parliament of Greenland, 2004).

Whether pulled out of the ground as a byproduct or not, the potential of uranium for electricity generation is matched by its potential to yield the ultimate weapon of mass destruction. It is, therefore, incumbent on states to ensure adequate controls and evaluate the risk that uranium will be extracted for nuclear purposes. The task ahead for Greenland and Denmark in building a ‘Kingdom-appropriate’ uranium export policy and regulatory control system is monumental. With no safeguards administrative system currently in place in Greenland, and with both Greenland and Denmark inexperienced in the uranium trade, there is a steep learning curve coupled with a complex post-2009 Rigsfælleskab. Pragmatically, neither side can meet their international non-proliferation requirements without the other. Greenland, on the one hand, has no administrative system for safeguards in place and is not recognized as a ‘state’ by the IAEA. Denmark, on the other hand, cannot provide IAEA reporting unless it has a mechanism for information sharing and reporting with Greenland. It is within their common interests, therefore, to develop jointly managed systems to demonstrate and ensure compliance with international treaty obligations.

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