

Making Room for the Nagoya Protocol in Nunavut

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Abstract

This chapter focuses on the regulation and governance of genetic and non-genetic resources and the conduct of research in Canada's resource-rich northern territory of Nunavut. It examines the existing and developing legal frameworks in Nunavut, with a focus on the *Nunavut Land Claims Agreement*, the *Nunavut Scientists Act* and the *Nunavut Wildlife Act*, identifying gaps in the operations of the existing legal regimes over ABS and examines the extent to which the implementation of the Nagoya Protocol could complement or enhance a better ABS in Nunavut. It inventories over 300 decisions made by the Nunavut Impact Review Board over the course of 20 years and situates an analysis of these decisions within Nunavut's larger legal framework and within evident climate change patterns – namely melting Arctic sea ice – and the increased opportunities for scientific research in the Arctic amidst Canada's increasing appetite for resource exploitation.

INTRODUCTION

As the world and its inhabitants continue to grapple with climate change and its effects, Arctic sea ice continues to melt at a fast rate.¹ Although the subjects of climate change and melting sea ice demand further scientific and legal attention in their own right, the focus of this chapter is, from a legal point of view, on some of the genetic resource rights challenges that melting sea ice exacerbates in the Canadian Territory of Nunavut – a jurisdiction rich in natural resources and the source of increasing scientific research interest.² That is to say, while the *Nunavut Land Claims Agreement* (NLCA or Agreement)³, a modern-day treaty executed by the Government of Canada and the Inuit of Nunavut, already provides for some land, wildlife, water, natural resources and Inuit Qaujimagatuqangit (Inuit traditional

knowledge) management and protection through a complex web of inter-related administrative processes of its various Institutions of Public Government (IPG), and contemplates impact and benefit-sharing agreements for natural resource extraction under certain conditions, little in the NLCA or in Nunavut statutes is contemplated in the way of providing for extant (and emerging) *genetic* resource management, protection and benefit-sharing. Altogether, the access and benefit-sharing regime with respect to genetic resources in Nunavut is rather inchoate.

The *Scientists Act*, a statute of Nunavut, which unlike the NLCA, does not enjoy constitutional status, only requires scientific researchers to obtain an ‘access licence’ and does not legally mandate any consent requirements or form of benefit-sharing emanating from any research conducted. Other acts, both territorial and federal, provide similarly in terms of licence requirements, but most are silent with respect to consent requirements and benefit-sharing. In the context of melting sea ice, this legislative chasm is therefore a significant concern as extant and hitherto inaccessible and unknown genetic (as well as non-genetic) resources underneath the ice emerge for scientific exploration, research and exploitation.

On the one hand, the administrative processes of these IPGs may provide a paradigm by which to approach this chasm created by the NLCA, but any implementation of the paradigm would require amendment to the NLCA – a sufficiently thorny endeavour. On the other hand, Canada’s ratification of the *Nagoya Protocol*, a supplementary agreement to *Convention on Biological Diversity* (CBD),⁴ would also bridge this chasm created by the NLCA and, if necessary, provide a concrete legal basis for Nunavut to amend its statutes, such as the *Scientists Act*, or to enact new ones, to include consent and benefit-sharing provisions. Thus, while Nunavut has, through the NLCA, a *Nagoya*-like regime in place in respect of mandating and managing access and benefit-sharing with respect to non-genetic, or, simply, natural resources, there is still room for the *Nagoya Protocol* in Nunavut to address access and benefit-sharing with respect to genetic resources without displacing the existing regime that the NLCA has normalized. It is my position that Canada’s ratification of the *Nagoya Protocol* could fit neatly into and complement Nunavut’s constitutional order and is an auspicious step towards ensuring the territory’s sustainable development, management and protection of its genetic resources.

Part I of this chapter summarizes Nunavut’s legal history and framework. Part II more narrowly briefly explains Nunavut’s existing environmental impacts assessment regime and reveals some of its deficiencies in respect of genetic research. Part III reviews how impact benefit agreements with respect to natural resources currently come into being and illustrates why genetic resource (and scientific) research does not conform to these requirements. Part IV summarizes the statutory regime in Nunavut respecting scientific research and further illustrates how this regime leaves consent and access and benefit-sharing unaccounted for. Similarly, Part V reviews how Article 5 of the NLCA also leaves consent and access and benefit-sharing with respect to genetic resources unaccounted for. Finally, in Part VI, over 300 scientific

research projects which have taken place in Nunavut over, approximately, the last 20 years are discussed, revealing that, for the most part, genetic resource research is occurring in Nunavut at a very modest level and that the time to ratify and implement the *Nagoya Protocol* is ripe, before this legislative chasm presents any serious legal problems to the territory.

BRIEF HISTORY OF NUNAVUT

The territory of Nunavut, Canada's newest jurisdiction, carved out of the hitherto then-eastern portion of the Northwest Territories, was created in 1999. The *NLCA*, executed by the Inuit of Nunavut and the Government, was concluded in 1993, and given legal force and effect in 1999.⁵ The *Nunavut Act*, another federal statute, legally created Nunavut and gave it existence as a territory within the Canadian federation of provinces and territories.⁶ The *NLCA* is considered a treaty within the meaning of the section 35 of the *Constitution Act, 1982*, and is therefore constitutionally protected as such. None of these statutes, however, provided to the Inuit of Nunavut a form of ethnic self-government; thus, Nunavut is governed by a public government. This public government operates as a consensus-based one. The vast majority of land in Nunavut is Crown-owned, with the Inuit of Nunavut owning approximately 19 per cent of surface lands and approximately 2 per cent of subsurface rights.⁷ Nunavut is inhabited by approximately 36,000 people or approximately one one-hundredth of the national population, across a territory which constitutes approximately 20 per cent of Canada's total land mass.⁸

NUNAVUT IMPACT ASSESSMENT REGIME

As mentioned earlier, the *NLCA* provides for the majority of land, wildlife, water, natural resources and Inuit *Qaujimagatuqangit* management and protection through the various administrative processes of its various Institutions of Public Government, otherwise known as 'IPGs.' The regime is essentially an environmental impacts assessment regime created by various Articles of the *NLCA*. It is designed mainly with the intention of protecting the environment and maximizing socio-economic opportunities for *NLCA* beneficiaries and Nunavummiut. Assessing the environmental and socio-economic impacts of proposed projects in Nunavut is its pre-occupation. Adding to this regime is the federal *Nunavut Planning and Project Assessment Act*, otherwise known and referred to as 'NUPPAA', which came into force in July 2015.⁹ In the event of an inconsistency between the *NLCA* and NUPPAA, the *NLCA* prevails.¹⁰

In summary, the impacts assessment regime provides that any and all project proposals in Nunavut must first be sent to the Nunavut Planning Commission (NPC) for a conformity review. Conformity reviews conducted by the NPC determine whether the proposed project conforms to an existing regional land use plan of

which there are two currently in Nunavut.¹¹ Proposed projects must conform to a land use plan. The NPC continues to work on a Nunavut-wide land use plan, but has not completed it yet. When it is complete, all proposed projects will be reviewed for conformity under that plan.

If the NPC determines that the proposed project conforms to an existing land use plan, it forwards the project proposal to the Nunavut Impact Review Board (NIRB) for an impact assessment review. If the NPC determines that the proposed project does *not* conform to an existing land use plan, it does *not* forward the project proposal to NIRB. Instead, the proponent may, in order to bring the proposed project into conformity with the land use plan, seek a land use plan amendment, a minor variance, or a Ministerial exemption.¹² Of course, the project proponent may abandon the project as well. If any of the first three options are chosen, and granted by the NPC or the appropriate Minister (whatever the case may be), the project then reaches NIRB for the impact assessment review that would have taken place had the project originally obtained a positive conformity determination from the NPC. The NIRB is then tasked with reviewing the proposed project, as it would in the previous case, and under an NLCA Article 12 Part 5 or 6 review, making recommendations to (most typically) the federal Minister of Indigenous and Northern Affairs Canada (INAC), as to whether the proposed project should or should not proceed. The Minister may accept or reject the NIRB recommendation, whatever the case may be. If rejected by the Minister, the Minister will then provide comments to the NIRB and then the NIRB will review its recommendation and resubmit it to the Minister after considering those comments.

The Minister is again free to accept or reject the subsequent recommendation by NIRB. This process takes place until the proposed project has been approved by the Minister, following which the NIRB then issues to the project proponent a project certificate (which may contain various terms and conditions), or until another event outside of this process terminates the project proposal. Additionally, in some cases, the NIRB may determine that a project does not require an impact assessment review under NLCA Article 12 Part 5 or 6 and simply recommends that the project proceed.¹³ The majority of projects inventoried in this study proceeded in the latter fashion.

Nevertheless, this regime is relevant to understanding how the *Nagoya Protocol* might fit within Nunavut's constitutional order for the reason that every project, ostensibly including scientific research projects, must abide by these requirements explained above. Ostensibly because the NLCA does not define 'project' and instead only defines 'project proposal' – a definition that arguably *excludes* scientific and genetic research projects. Requirements that scientific researchers must adhere to are found elsewhere – mostly in the statutory regime – but either by convention or some undiscoverable law, scientific researchers still seek a project certificate from the NIRB, even though NIRB apparently lacks legal jurisdiction to review *scientific* project proposals. Article 12.2.2 provides that one of the primary functions of NIRB is

to screen *project proposals* in order to determine whether or not a review is required; however, as we will see in Part II, most scientific research projects do not meet the criteria contained in the definition of 'project proposal.' Stated another way, it seems that NIRB is generally without jurisdiction to screen, let alone, review *scientific* research project proposals.

Before examining this issue more closely, it is prudent to note that NUUPPA requires the NIRB to 'take into account any traditional knowledge or community knowledge provided to it' in the course of preparing a recommendation to the Minister.¹⁴ NUPPAA defines traditional knowledge as the 'accumulated body of knowledge, observations and understandings about the environment, and about the relationship of living beings with one another and with the environment, that is rooted in the traditional way of life of Inuit of the designated area.'¹⁵ Second, it is important to note that neither the NLCA nor NUPPAA empowers the NIRB with jurisdiction to establish requirements for socio-economic benefits when issuing project certificates and imposing terms and conditions.¹⁶ The latter point is particularly important because it illustrates that within the existing regime, the NIRB has no inherent jurisdiction to impose an access and benefit-sharing plan on a project proponent. The former point is important because unlike many statutes in Canada, NUPPAA provides a definition of the legally amorphous concept of traditional knowledge.

ARTICLE 26 OF THE NLCA: INUIT IMPACT BENEFITS AGREEMENTS

I have not argued in this chapter, or elsewhere, that the NLCA lacks entirely an access and benefit-sharing regime. Rather, it is my purpose in this chapter to illustrate that while the NLCA contemplates access and benefit-sharing with respect to natural resource extraction, little is contemplated by it in the way of providing for *genetic* resource management, protection and benefit-sharing. By reviewing Article 26, which provides what I refer to as a 'quasi access and benefit-sharing' regime, this assertion will become clearer.

Article 26 of the NLCA is titled 'Inuit Impact and Benefit Agreements.' Inuit Impact and Benefit Agreements are also known and referred to as 'IIBAs.' Article 26.2.1 provides that subject to two rare exceptions found in articles 26.11.1 to 26.11.3 'no Major Development Project may commence until an IIBA is finalized in accordance with this Article.'¹⁷ Article 26.3.1 provides that '[a]n IIBA may include any matter connected with the Major Development Project that could have a detrimental impact on Inuit or that could reasonably confer a benefit on Inuit, on a Nunavut Settlement Area-wide, regional or local basis.'¹⁸ Article 26.3.3 provides, among other things, that negotiation and arbitration of IIBAs shall be guided by principles that ensure benefits are consistent with and promote Inuit cultural goals, and are related to the nature, scale and cost of the project as well as its direct and indirect impacts on Inuit.¹⁹

Article 26 makes it clear, however, that IIBAs are executed only in relation to ‘Major Development Projects.’ ‘Major Development Project’ is defined as ‘any Crown corporation or private sector project that (a) is a water power generation or water exploitation project in the Nunavut Settlement Area, or (b) is a project involving development or exploitation, but not exploration, of resources wholly or partly under Inuit Owned Lands, and either entails, within the Nunavut Settlement Area during any five-year period, more than 200 person years of employment, or entails capital costs in excess of thirty-five million dollars (\$35,000,000), in constant 1986 dollars, including, where Government is the proponent for a portion of a development project or directly-related infrastructure, the capital costs and employment projections for the government portion of the project.’²⁰ This definition must be unpacked to understand the genesis of the legislative chasm which exists in respect of genetic resource research.

First, it should be noted that a ‘Major Development Project’ will only be one where either a Crown corporation or a body from the private sector is the proponent. Second, the project must be a water power generation or a water exploitation project, or, a project involving the exploitation (extraction, not exploration) of resources wholly or partly under Inuit Owned Land (IOL). Inuit own title to 19 per cent of the land in Nunavut, including mineral rights to 2 per cent of Nunavut. Further, that exploitation project must either occur within the Nunavut Settlement Area during any five-year period and contain more than 200 person-years of employment, or entail capital costs in excess of thirty-five million dollars (\$35,000,000). Major Development Projects and the IIBAs associated with them, therefore, tend then to be related to natural resource projects rather than scientific or genetic research or exploration projects. Moreover, Article 26 of the NLCA does not define ‘resources.’ Article 1 does, providing that “‘resources means,” for the purpose of Articles 25 to 27, coal, petroleum, precious and base metals and other naturally occurring substances that can be mined, but does not include specified substances.’²¹ Based on this definition, it seems that the NLCA’s contemplation of ‘resources’ is limited to substances *that can be mined*, and would therefore ostensibly exclude some, if not most, *genetic* resources.

Compounding the problem in this respect is that neither Article 26, Article 11 (Land Use Planning), Article 12 (Development Impact), nor Article 1 (Definitions) provide a definition of ‘project’ as an independent concept or one different from ‘Major Development Project.’ Article 1 does, however, define ‘project proposal’ and provides that it ‘means a physical work that a proponent proposes to construct, operate, modify, decommission, abandon or otherwise carry out, or a physical activity that a proponent proposes to undertake or otherwise carry out, such work or activity being within the Nunavut Settlement Area.’²² It is difficult to conceive of a scientific or genetic resource research project that meets this definition, though one could arguably make the case that such a project might be a ‘physical activity,’ although this would be a tenuous argument given how federal statutes and

regulations understand the term.²³ It seems then that genetic research projects do not comport with the NLCA's understanding and definition of 'projects proposals.' NUPPAA defines 'project' similarly as 'the carrying out, including the construction, operation, modification, decommissioning or abandonment, of a physical work or the undertaking or carrying out of a physical activity that involves the use of land, waters or other resources', but it does not define 'resources', leading us back to where we initially started: almost no contemplation of or clarity as to how – and even if – strictly scientific projects are to be screened in Nunavut.

Ultimately, however, my interpretation of and conclusion with respect to Article 26 and the NLCA, generally, although I shall revisit the NLCA and discuss Article 5 momentarily, is that there is no provision in the NLCA which explicitly provides for access and benefit-sharing with respect to genetic resources in Nunavut, unless the (genetic research) 'project' is a 'Major Development Project' as defined in the NLCA. Our inquiry does not end here, however; we must proceed to an examination of the statutory regime to further understand the legislative chasm which leaves the protection of genetic resources unaccounted for in Nunavut.

STATUTORY REGIME IN NUNAVUT

As mentioned in the introduction to this chapter, the access and benefit-sharing regime with respect to genetic resources in Nunavut is rather inchoate. The *Scientists Act*²⁴ and *Wildlife Act*²⁵ further illustrate why this is the case. Further illustrating this reality is the limited powers and jurisdictions of the Nunavut Research Institute, a scientific research regulatory body amalgamated with the Nunavut Arctic College when Nunavut was created out of the Northwest Territories.²⁶

Nunavut Scientists Act

Section 2 of the *Scientists Act*, a very short statute, provides that '[n]o person shall carry on scientific research in or based on [Nunavut], or collect specimens in [Nunavut] for use in scientific research, unless (a) he or she is the holder of a licence issued under this Act; or (b) the research consists solely of archaeological work for which a permit has been issued.'²⁷ The *Scientists Act* makes no provision to obtain the consent of Inuit or for 'benefit-sharing' of any sort when scientific research is undertaken in Nunavut. In short, it simply mandates that a scientific researcher obtain a licence issued under the Act, and nothing more.

Nunavut Wildlife Act

Similarly, subsection 117(1) of the *Wildlife Act* provides that '[n]o person shall conduct research on wildlife or collect wildlife specimens for research, without a licence authorizing it.'²⁸ The Government of Nunavut, Department of Environment issues

such licences.²⁹ This Act defines ‘wildlife’ as ‘the flora and fauna to which this Act applies under subsections 6(2) and (3), including all parts and products from wildlife’.³⁰ Subsection 6(2) provides that the *Wildlife Act* applies to ‘all terrestrial, aquatic, avian and amphibian flora and fauna that are wild by nature or wild by disposition; all parts and products from wildlife; and all habitat of wildlife.’ Subsection 6(3) provides that the *Wildlife Act* does not apply to ‘a species that is a fish, as defined in section 2 of the *Fisheries Act* (Canada); a marine plant, as defined in section 47 of the *Fisheries Act* (Canada); or a bacterium or virus.’ ‘Product’, however, is also not defined in this Act. Much like the *Scientists Act*, the *Wildlife Act* makes no provision to obtain the consent of Inuit or for ‘benefit-sharing’ of any sort. In short, it too simply mandates that a wildlife or scientific researcher obtain a licence issued under the Act. What is further problematic about these provisions in any event, is that the *CBD* and *Nagoya Protocol* do not apply to ‘commodities’ or ‘products’ as such.

Section 8 of the *Wildlife Act* is worth mentioning at the juncture. It makes provisions for the utilization of Inuit Qaujimajatuqangit principles and concepts under the Act; some key examples in the context of this chapter are: ‘[T]he obligation of guardianship or stewardship that a person may owe in relation to something that does not belong to the person . . . that people must work together in harmony to achieve a common purpose . . . and that people are stewards of the environment and must treat all of nature holistically and with respect, because humans, wildlife and habitat are inter-connected and each person’s actions and intentions towards everything else have consequences, for good or ill.’³¹ While these principles and concepts speak to the spirit and intent of the Act, they also do not mandate the consent of Inuit or provide for ‘benefit-sharing’ of any sort when wildlife research is undertaken in Nunavut.

Nunavut Research Institute

The Nunavut Research Institute (NRI), a body of the Nunavut Arctic College, is responsible for issuing licences under the *Scientists Act* in respect of physical, natural, social and health sciences research, although by virtue of the Act it is arguable whether it has the legal jurisdiction to do so. Notwithstanding, upon receipt of a scientific research licence application, the NRI will forward the application to various other bodies and organizations for review and comment such as, for example, the appropriate Government of Nunavut Department, Nunavut Tunngavik Inc. (NTI), the municipality where the proposed research will take place, and other agencies, if necessary. At a minimum, NTI will generally review every research licence application and provide comments to the NRI. Researchers may privately agree to a benefit-sharing plan with Inuit and NLCA beneficiaries (e.g. NIRB project number 10YN047 in Part VI below), but neither the NRI nor NTI may refuse to issue a licence on the basis that the research licence application or program does not provide any socio-economic benefits to Inuit or NLCA beneficiaries.

The NRI does not, however, hold a monopoly on scientific research in Nunavut. Various statutes and regulations enacted by the Government of Canada also control the issuance of licences, and researchers, based on the nature of their research, are tasked with identifying the appropriate licence issuing body and submitting licence applications to it; for example, under section 51 of the *Fishery (General) Regulations*³² enacted pursuant to the federal *Fisheries Act*, the Department of Fisheries and Oceans (DFO) issues a scientific research licence for studies of marine mammals and aquatic life.³³ Typically, such applications are accompanied by a letter of support from the Hunter and Trappers Organization (HTO) local to the area where the research will take place, although sometimes an NRI research licence permit is accepted by DFO as a substitute. As already noted, under the *Wildlife Act*, the Government of Nunavut, Department of Environment, may issue a research licence in respect of wildlife flora or fauna. Similarly, the Government of Nunavut, Department of Culture and Heritage may issue an Archaeology and Palaeontology research permit under the *Archaeological and Palaeontological Sites Regulations*, enacted pursuant to the *Nunavut Act*.³⁴

Finally, in addition to any statutory licence a scientific or genetic researcher might be required to obtain to conduct scientific or genetic research in Nunavut, NRI advises that researchers may be required to obtain several other clearances including a conformity decision from the NPC as well as land use permits from the Department of Indigenous and Northern Affairs; authorization to enter onto IOL from NTI or a Regional Inuit Association (RIA); development permits to build or install permanent research infrastructure in Nunavut communities, or an impact assessments review by the NIRB. However, as the earlier discussion of the impacts assessment regime revealed, the legal jurisdiction or basis for NIRB to conduct an impacts assessment of scientific projects is questionable. The same may be said of the NPC, given that Article 11 makes no mention of ensuring land use plan conformity for scientific research projects. NUPPAA is silent on these matters as well. Thus, it appears that any order NIRB (or NPC) was to make in respect of a scientific project proposal could be void *ab initio*, or at least, judicially reviewable on the basis of an absence of jurisdiction.

ARTICLE 5 OF THE NCLA: WILDLIFE

The last piece of the complex puzzle that forms the legislative chasm in Nunavut with respect to genetic resource research is Article 5 of the NLCA, which is devoted to wildlife. In reviewing Article 5, it is important to note that it addresses the Inuit of Nunavut and Canada's legal relationship respecting wildlife in Nunavut, not a relationship enforceable by Inuit against the whole world. Article 5.8.7 of the NLCA provides that Designated Inuit Organizations (DIO) (a DIO is essentially NTI or one of the RIAs) 'shall have the right of first refusal to market wildlife, wildlife parts and wildlife products in the Nunavut Settlement Area.'

Article 5.8.9 provides that DIOs ‘shall have the right of first refusal to carry out any venture aimed at the commercial collection or processing of non-edible wildlife parts and wildlife products ... and ... shall extend to non-edible wildlife parts and wildlife products available as a consequence of a kill or as recoverable in an inanimate form.’ Article 1 defines wildlife as ‘all terrestrial, aquatic, avian and amphibian flora and fauna *ferae naturae*, and all parts and products thereof’ and defines ‘flora’ as not including ‘trees suitable for commercial production of lumber or other building materials, but includes materials required by Inuit for local use, land-based activities and handicraft production.’ No distinction between commercial and non-commercial uses is made in Article 5.8.9, however. Unfortunately, neither Article 5 nor Article 1 defines ‘product.’ Moreover, the *Nagoya Protocol* excludes from its contemplated ambit of access and benefit-sharing commodities and so too, as a result, does the international legal community.³⁵ It therefore remains arguable whether ‘non-edible wildlife parts and wildlife products available as a consequence of a kill or as recoverable in an inanimate form’ constitute *genetic resources*.³⁶

Article 5.9.1 of the NLCA, which provides that any ‘legislation implementing an international or domestic interjurisdictional agreement shall be interpreted and administered to treat Inuit on at least as favourable a basis as any other aboriginal people in Canada,’ provides an interesting contrast to Articles 6(2) and 7 of the *Nagoya Protocol*. In short, in the absence of Canada’s ratification of the *Nagoya Protocol*, even a generous reading of these Article 5 provisions would likely leave genetic resources unaccounted for within the Nunavut regime. In totality, it seems very likely that Nunavut is without a regime – at least one grounded on any discernable laws – to govern access, use, and research regarding genetic resources.

NIRB DECISIONS RESPECTING SCIENTIFIC RESEARCH IN NUNAVUT

The absence of a regime to govern access, use, and research on genetic resources in Nunavut is not, however, a dire situation. The research conducted and data gathered for this chapter by reviewing and inventorying NIRB decisions revealed a somewhat startling historical portrait of scientific research since Nunavut’s creation in 1999 (and even as far back as 1997).

The Data and Collection Methodology

There are over 2,000 projects contained within the NIRB’s public registry, a NUPPAA-mandated document depository for project-related documents in project-related NIRB proceedings.³⁷ This registry contains, in many cases, most, if not all, of the documents during the lifecycle of any given project NIRB has screened or

reviewed. Given the very specific focus of this chapter, however, searches of this registry were tailored to identify scientific and genetic resource related research projects and yielded approximately 300 projects meeting this search criterion. These 300-plus projects were then inventoried in a database and coded with variables such as: (a) project name; (b) NIRB file number; (c) project year; (d) whether any project amendments occurred; (e) project type; (f) project description; (g) proponent's name; (h) whether a screening was required; (i) comments and concerns received from respondents and interveners; (j) whether the researcher was required to supply benefits to the community where the research was conducted; (k) key focus of the project; (l) whether the project was climate change related and, finally, (m), whether human subjects were involved in the research. After the database was built, using these variables, the projects were then classified into one of four categories: (1) projects involving traditional knowledge; (2) projects that have a genetic component or a potential for bio-prospecting; (3) projects that involve wildlife and, (4) other.

Findings

The 302 scientific research projects revealed to have taken place in Nunavut from 1997 to 2016 was assembled for the purposes of this study (see Figure 5.1). Nearly all projects were conducted by researchers from a broad section of Canadian, American, and international universities.

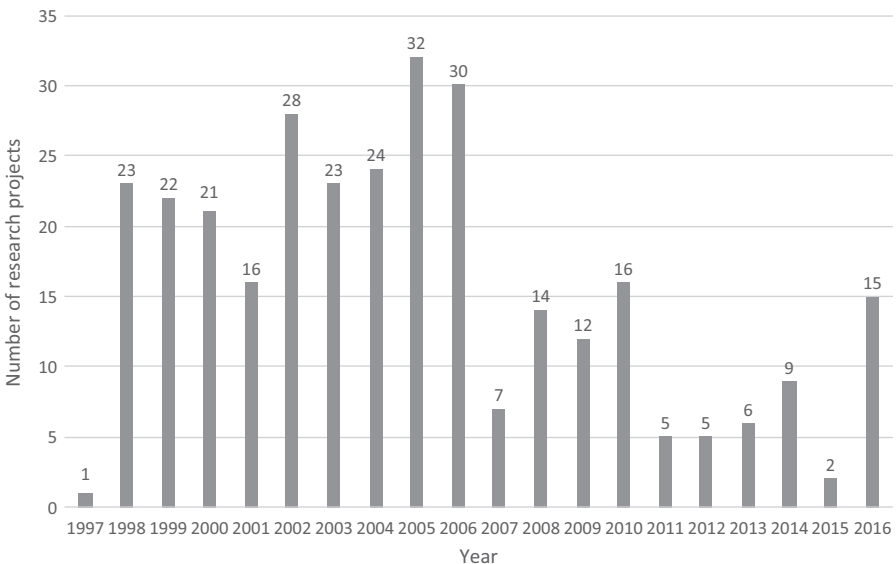


FIGURE 5.1 Scientific Research Projects in Nunavut

Using the ‘project type’ and ‘key focus’ variables, the next step in the parsing of this data was to identify trends that occurred within the data and to ultimately provide a coherent snapshot of scientific research which has occurred in Nunavut. In terms of classification outlook, 4 projects are concerned with traditional knowledge; 15 projects with potential for bio-prospecting; 14 projects with a focus on wildlife; 89 projects related to understanding climate change; 202 projects that required screening; 15 projects did not require screening; 33 projects were amended or renewed; 32 projects dealt with pollution and contaminants in the Arctic; 15 projects focused on Arctic vegetation and fungi; 36 projects concerned sampling rocks, minerals/ interest in geology; 14 projects concerned sampling sediment; 38 projects concerned with glaciers and ice; 28 projects dealt with collecting/sampling: algae, microbes, plankton, benthic organisms, insects and, finally, only 5 projects had a readily identifiable ‘genetic’ research component. 83 projects were missing documents.

Overall, these findings show that much scientific research is occurring in Nunavut amidst little, *genetic* resource research, with only 5 such projects – or 33 when the projects relating to collecting/sampling: algae, microbes, plankton, benthic organisms, insects are included. This number is likely to change, however, as global warming progresses and Arctic sea ice continues to melt.

Notable Examples

Because of space limitations, it is impossible to provide a summary of each of the 302 projects in the inventory of scientific research projects amassed for this study. Instead, a few examples are selected, over the course of the study period, and presented here merely to provide an illustration of the kinds of scientific research projects which occurred in Nunavut, and those which reflect the potential for a genetic component. Despite being able to identify many of the projects, the largest obstacle to overcome in understanding and obtaining the value and potential of this scientific research, however, is to discover the actual or final output of many of these projects. The NIRB registry does not capture this information.

In 2016, for example, the University of Colorado undertook research involving ‘lake sediment sampling at three separate study sites for testing of benthic organisms.’³⁸ For the purposes of this chapter, this project was classified as one having a potential for bio-prospecting.

In 2015, Université de Montréal undertook research ‘to monitor permafrost degradation on Bylot Island via thermo-erosive processes; to reconstruct past climatic environments of Bylot Island; and to complete vegetation studies of Bylot Island in regards to carrying capacity for herbivores, berry productivity, and environmental change.’³⁹ NIRB recommended that the proponent ‘should, to the extent possible, hire local people and to consult with local residents regarding their activities in the region.’⁴⁰ For the purposes of this chapter, this project was classified as one related to climate change.

In 2014, Université Laval undertook research aimed at improving ‘understanding of the processes that control the Arctic phytoplankton spring bloom as it expands northward and to determine its fate in the food web by investigating related carbon fluxes.’⁴¹ NIRB recommended that the proponent ‘should, to the extent possible, hire local people and to consult with local residents regarding their activities in the region.’⁴²

Also in 2014, Wilfrid Laurier University undertook research to ‘assess the biological and limnological characteristics of Arctic lakes and streams in Nunavut.’⁴³ The NIRB again recommended that the proponent ‘should, to the extent possible, hire local people and consult with local residents regarding their activities in the region.’⁴⁴

In 2013, Memorial University of Newfoundland undertook research involving ‘clam habitat and submerged shoreline features along the Broughton Channel coast through bathymetric surveys and benthic sampling between August and September 2013.’⁴⁵ On this file, which illustrates the various jurisdictional problems I described in Part II of this chapter, NIRB determined that a project screening was not required. Noting that a conformity determination from the NPC was not required, as the proposed project was located within a region that does not currently have an approved land use plan in place (South Baffin Region), the project proposal was received by the NIRB from the NRI on 22 May 2013 and was screened by the Board in accordance with Part 4, Article 12 of the NLCA.⁴⁶ On 25 June 2013 the NIRB issued an NLCA 12.4.4(a) screening decision to the Minister Responsible for Nunavut Arctic College, Government of Nunavut, which indicated that the proposed project could proceed subject to the NIRB’s recommended project-specific terms and conditions.⁴⁷ Again, as discussed earlier, NIRB may lack the jurisdiction to impose any such terms and conditions on scientific projects.

In 2008, York University undertook research involving the sampling of soft sediments and collecting of water quality data, moss, algal, and aquatic insect samples from ponds, lakes and rivers.⁴⁸ According to the proponent, ‘the intent of this research [was] to contribute valuable new information on recent changes in water flow, pond chemistry and the status of aquatic insect populations changes that may be occurring due to recent climate warming.’⁴⁹ NIRB again concluded that the proposal would be processed without a review under NLCA Part 5 or 6, and recommended that the proponent ‘should, to the extent possible, hire local people and to consult with local residents regarding their activities in the region’ and encouraged the proponent ‘to present the results of their research to the local community once . . . complete.’⁵⁰

In 2006, the University of New Brunswick undertook research studying ‘the effect of sea-run char on contaminant concentrations in Arctic lakes.’⁵¹ The aim of the research was to ‘investigate whether sea-run Arctic char transport pollutants from the ocean into lakes through their annual migrations . . . Sample fish and insects that represent whole food webs. Pollutants in fish [were] to be compared between

systems that do and do not support sea-run char. The results [were expected to] help . . . understand how levels of pollutants vary among fishing locations and [to] be useful for predicting how pollutant levels respond to climate change.' Again, the project proposal was processed without a Part 5 or 6 review.

In 2005, Bishop's University undertook research involving the collection of 'insects to study their biodiversity and biogeography, focusing on insects around water as well as those associated with flowering plants.'⁵² NIRB encouraged the 'Permittee' to 'hire local people and to consult with local residents regarding their activities in the region' and encouraged the 'Permittee' to 'provide the local community with a reference collection of insects for educational purposes, as mentioned in the NRI permit application.'⁵³

In 2005, the University of Newfoundland, St. John's, undertook research involving changes 'in snow and ice conditions [that] can limit Inuit access to marine resources.' The proponent also stated that '[c]hanges in ocean conditions may also affect the viability and sustainability of the marine ecosystems and the resources Inuit depend on. Having used the land for thousands of years, the Inuit have generated a unique knowledge that can be used to understand, respond, and monitor changing environmental conditions. Inuit knowledge can also be used to identify baseline conditions (i.e. the presence or absence of certain species over time) that will enable more informed management decisions to be made. Recognizing the value of Inuit knowledge, [the proponent proposed to] develop and implement a marine monitoring programme for Auyuittuq National Park. Building on Inuit environmental knowledge, [the proponent] set out to learn about marine and coastal ecosystems, identify valued ecosystem components, and develop, test and implement monitoring protocols.'⁵⁴ Again, NIRB encouraged the 'Permittee' to 'hire local people and to consult with local residents regarding their activities in the region [and to] present the results of their research to the local communities once . . . complete[d].'⁵⁵ For the purposes of this chapter, this project was also classified as one having a potential for bio-prospecting but it could have been also classified as one involving traditional knowledge.

In 2004, the University of Quebec undertook research on 'how vegetation changes in the Arctic in relation to the climatic conditions as well as to activities of animals (including geese and lemmings) . . . how biotic interactions, both positive (e.g. mutualism, facilitation) and negative (e.g. competition, herbivory), influence the vegetation.'⁵⁶ NIRB here also encouraged the proponent 'to hire local people and services, to the extent possible' and 'strongly advise[d]' the proponent to 'consult with local residents regarding their activities in the region and that the results of the research be presented to the community in the community's preferred language.'⁵⁷ For the purposes of this chapter, this project was also classified as one having a potential for bio-prospecting.

In 2003, Duke University undertook research on 'Diversity and Evolution of Fungal Endophytes in Plants and Lichens.'⁵⁸ Here, NIRB encouraged the proponent to

'hire local people and services, to the extent possible' and 'strongly advise[d]' the proponent to 'consult with local residents regarding their activities in the region . . . that the results of the research be presented to the community in the community's preferred language, as well as, a written report submitted to NIRB.'⁵⁹ For the purposes of this chapter, this project was also classified as one having a potential for bio-prospecting.

In 2001, Université Laval undertook research understanding how 'microbial communities are structured, and how key microbial processes will respond to global change.'⁶⁰ NIRB encouraged 'the proponent to hire local people and services, to the extent possible' and 'strongly advise[d]' the proponent to 'consult with local residents regarding their activities in the region and that the results of the research be presented to the community in the community's preferred language.'⁶¹

Despite these general snapshots that stray from engaging access and benefit-sharing principles and consultation with traditional knowledge holders, there are two particular projects that stand apart from the rest because of their advertence to access and benefit-sharing principles. First, in 2001, a Queen's University Master's student undertook research investigating 'tundra vegetation health, diversity, and distribution as indicators of climate change' and intended to 'relate field studies and measurements to satellite images of the Lord Lindsay River watershed, Boothia Peninsula, and [to] discuss issues of tundra ecology with community members of Taloyoak.'⁶² In this project, the researcher noted that a 'combination of scientific investigations and [traditional ecological knowledge (TEK)] may be important to increase scientific efficiency, while also bridging cross-cultural boundaries,' that consent would be obtained and confidentiality given in the TEK compilation. The researcher also stated that 'it will be clearly stated in any release of TEK information that this is strictly the intellectual property of the Inuit individual(s) who shared this knowledge.'⁶³

Encouragingly, in a 2010 project, conducted by Dr. Russell Kerr of the University of Prince Edward Island, which focused on collecting 'marine sediment samples, isolate and culture microbes, and assess the microbial community of Baffin Island in the current pristine condition to provide a baseline for future comparison of potential climate change impacts,' was a partnership among NTI, the NRI and UPEI in which the partners voluntarily 'entered into a Access and Benefit Sharing arrangement with Dr. Russell Kerr.'⁶⁴

CONCLUSION

Overall, this modest study conducted of scientific research projects occurring in Nunavut for the purposes of supplementing the argument for the ratification of the *Nagoya Protocol* in Canada revealed that there are few specific examples of genetic resource research projects in Nunavut, and that some projects would not be captured within the *Nagoya Protocol's* scope. A proper legal regime respecting scientific and genetic resource research has not quite fully crystallized in Nunavut,

vis-à-vis the NLCA or its statutory regime. As I have attempted to illustrate in this chapter, the extant regime is generally an inchoate patchwork. Interestingly, while the federal and other governments in Canada continue to undertake policy research respecting ratification of the *Nagoya Protocol*, it appears that the Government of Nunavut has not.

The *Nagoya Protocol*, if ratified/implemented by Canada, could and would complement existing regimes within Nunavut via the NLCA, as it would for all jurisdictions in Canada. But implementing the Protocol could be legally problematic given the complexity of the NLCA and existing regime, and the difficulty of enforcing compliance in existing natural resource projects. The *Nagoya Protocol* would perhaps be beneficial to the Inuit of Nunavut because it would promote the obtaining of free, prior and informed consent of Inuit in respect of genetic resource research in Nunavut and ensure benefit-sharing in respect of the way the existing regime promotes access to natural resources. But it remains questionable whether there are many genetic resource benefit-sharing opportunities in the immediate short-term, given the low quantum of such projects currently being undertaken in Nunavut. It seems inevitable that as climate change and Arctic melting progress, new genetic resources research opportunities will emerge and perhaps simply make ratification of the *Nagoya Protocol* necessary in the long-term (Oguamanam & Koziol, Chapter 7).

The objective of the *Nagoya Protocol* is to provide for ‘the fair and equitable sharing of the benefits arising from the utilization of genetic resources.’⁶⁵ It seems that Canada’s ratification of the *Nagoya Protocol* would at least set the basis for the ‘fair and equitable sharing of the benefits arising from the utilization of genetic resources’ in Nunavut without threatening or diluting the regime which Nunavut has already normalized in other areas. Also, Canada’s accession to the Protocol would provide Nunavut with a definitive legal regime to protect its extant and emerging genetic resources and associated traditional knowledge, which the NRIB continues to endorse through the recommendations provided for several project proposals to ‘hire local people and to consult with local residents regarding their activities in the region.’

NOTES

- 1 Joel Berger, ‘How is rapid warming in the Arctic affecting animals adapted to cold? Scientists track muskoxen to find out’ 20 February 2017, *Salon* online: Salon www.salon.com/2017/02/20/scientist-at-work-tracking-muskoxen-in-a-warming-arctic_partner/.
- 2 Thomas Au et al., ‘The Arctic Ice Melt: Emerging Resources, Emerging Issues’ (2013) 38 *Can-US LJ* 195.
- 3 *Agreement between the Inuit of the Nunavut Settlement Area and Her Majesty the Queen in Right of Canada*, 25 May 1993, online: www.collectionscanada.gc.ca/confederation/023001-7143-e.html [NLCA].
- 4 *The Convention on Biological Diversity*, 1760 UNTS 79; 31 ILM 818 (1992) online www.cbd.int/convention/text/.

- 5 *Nunavut Land Claims Agreement Act*, SC 1993, c 29.
- 6 *Nunavut Act*, SC 1993, c 28.
- 7 See Daniel W Dylan, 'The Complicated Intersection of Politics, Administrative and Constitutional Law in Nunavut's Environmental Impacts Assessment Regime' (2017) 68 *UNBLJ* 202 at 205 [Dylan].
- 8 *Ibid.*
- 9 *Nunavut Planning and Project Assessment Act*, SC 2013, c 14, s 2 [NUPPAA].
- 10 *Ibid.*, s 2(3)(1).
- 11 See Nunavut Planning Commission, 'Approved Plans,' (August 2017), Nunavut Planning Commission (blog), NPC online, www.nunavut.ca/en/approved_plans.
- 12 See Dylan, *supra* note 7.
- 13 *NLCA*, *supra* note 5, art 12.4.4(a).
- 14 NUPPAA, *supra* note 9, s 103(3).
- 15 *Ibid.*, s 73(1).
- 16 *NLCA*, *supra* note 5, art 12.2.3; NUPPAA, *supra* note 9, s 24.
- 17 *NLCA*, *supra* note 5, art 26.2.1.
- 18 *Ibid.*, art 26.3.1.
- 19 *Ibid.*, art 26.3.3.
- 20 *Ibid.*, art 26.1.1.
- 21 *Ibid.*, art 1.
- 22 *Ibid.*
- 23 See *Canadian Environmental Assessment Act*, 2012, SC 2012, c19, s 52; *Regulations Designating Physical Activities*, SOR/2012-147.
- 24 *Scientists Act*, RSNWT 1988, c S-4.
- 25 *Wildlife Act*, SNU 2003, c 26.
- 26 See Nunavut Arctic College, online: NAC www.arcticcollege.ca/locations/item/5096-about-nunavut-research-institute.
- 27 *Scientists Act*, *supra* note 24, s 2.
- 28 *Wildlife Act*, *supra* note 25, s 117(1).
- 29 The Government of Nunavut has very little discretion to incorporate its own terms and conditions in the issuance of a license.
- 30 *Wildlife Act*, *supra* note 25, s 2.
- 31 *Ibid.*, s 8.
- 32 See *Fishery (General) Regulations*, SOR/93-53.
- 33 See Fisheries and Oceans Canada, online: www.pac.dfo-mpo.gc.ca/fm-gp/licence-permis/sci/index-eng.html.
- 34 *Nunavut Archaeological and Paleontological Sites Regulations*, SOR/2001-220.
- 35 See Union for Ethical BioTrade, *Frequently Asked Questions*, online: http://ethicalbiotrade.org/dl/benefit-sharing/ABS_FAQ.pdf.
- 36 Article 3 *Nagoya Protocol on Access to Genetic Resources and the Fair and Equitable Sharing of Benefits Arising from Their Utilization (ABS) to the Convention on Biological Diversity*, 29 October 2010, online, www.cbd.int/abs/doc/protocol/nagoya-protocol-en.pdf (I say arguable because the Nagoya Protocol 'also covers traditional knowledge associated with genetic resources within the scope of the [CBD] and to the benefits arising from its utilization.')

- 37 NUPPAA, *supra* note 9, s 202(1).
- 38 Nunavut Impact Review Board, Project Certificate, Project No 16YN010, online: NIRB Public Registry, www.nirb.ca/application?strP=r.
- 39 *Ibid.*, Project No 15YN017.
- 40 *Ibid.*
- 41 *Ibid.*, Project No 14YN040.
- 42 *Ibid.*
- 43 *Ibid.*, Project No 14YN002.
- 44 *Ibid.*
- 45 *Ibid.*, Project No 13YN018.
- 46 *Ibid.*
- 47 *Ibid.*
- 48 *Ibid.*, Project No 08YN023.
- 49 *Ibid.*
- 50 *Ibid.*
- 51 *Ibid.*, Project No 06YN045.
- 52 *Ibid.*, Project No 05YN083.
- 53 *Ibid.*
- 54 *Ibid.*
- 55 *Ibid.*, Project No 05YN042.
- 56 *Ibid.*, Project No 04YN057.
- 57 *Ibid.*
- 58 *Ibid.*, Project No 03YN087.
- 59 *Ibid.*
- 60 *Ibid.*, Project No 01YN073.
- 61 *Ibid.*
- 62 *Ibid.*, Project No 01YN013.
- 63 *Ibid.*
- 64 *Ibid.*, Project No 10YN047.
- 65 *NP*, *supra* note 36, art 1.