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Conservation Economies in Nunavut

Aviqtuuq Case Study



Smart Prosperity
Institute

About Smart Prosperity Institute

Smart Prosperity Institute is a national research network and policy think tank based at the University of Ottawa. We deliver world-class research and work with public and private partners to advance practical policies and market solutions for a stronger, cleaner economy.

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Key Messages

Co-benefits from investments in the Aviqtuuq Guardians are estimated to have generated \$12 million since 2016.

Inuit Guardians benefit their communities by increasing youth and Elder engagement, supporting the sharing of local traditional knowledge (Inuit Qaujimagajatuqangit), improving community health by ensuring access to nutritious country food, and sustainably managing marine ecosystems.

The country food economy in Taloyoak is valued at \$6.6 million a year.

The community harvests more than 33,000 kg of country food protein in Aviqtuuq per year and the protein replacement cost of sourcing country food from commercial distributors is \$198.70 per kg.

The Niqihaqt country food processing facility could generate as much as \$1.9 million in its first year of operation.

Assuming that the Niqihaqt facility can process (i.e., butcher, dress, and package) 27 kg of country food a day—which represents less than ten percent of community demand—the replacement value of country food made available is estimated to be \$1.9 million.

Investing in tourism can generate significant revenues for the community.

The community's existing tourism infrastructure can be bolstered by investments into additional tourism facilities. Wildlife viewing and birding have the potential to generate millions in tourism revenues. Sport hunting could generate more than \$382,000 per year for local guides and outfitters.

Developing a regional market for furs and hides is a promising investment.

Investing in regional infrastructure, such as a tanning facility in a neighbouring community, could encourage the harvesting and sale of furs, hides, and pelts as an offshoot of local country food harvesting and the Niqihaqt processing facility. This would create more job opportunities and improve the efficiency of current harvesting practices.

A growing number of environmental impacts from natural resource development in Nunavut represents a catastrophic financial risk for the community.

Recent growth in Nunavut's natural resource extraction sector has caused a substantial increase in ship traffic around Aviqtuuq, which poses a risk to marine ecosystems at the center of the local conservation economy. A study examining ship-based oil spills in marine areas around Rankin Inlet estimated that a single oil spill represents an uninsured risk of \$7.9 billion. With 30% of all chemical spills in Taloyoak having occurred within the last 10 years, increasing protection and monitoring efforts can help reduce the risk to the local conservation economy.



Photo: Talha Awan, Smart Prosperity Institute

Introduction

In late 2022, the Government of Canada announced ambitious targets to conserve 30% of the country’s land and oceans by 2030 (30 by 30). For Indigenous communities, this commitment signaled an opportunity to advance community development and reconciliation efforts. Since 2018, \$1.35 billion has been dedicated to Indigenous-led conservation initiatives, including \$800 million announced in December 2022. These announcements encourage a new way of thinking about economic development in northern coastal communities, one that prioritizes the stewardship of natural resources. As a result, coastal communities in Nunavut can invest in the development of local conservation economies (see Box 1) to accelerate community development and reinforce Inuit language and culture.

Taloyoak is located on the Boothia Peninsula — locally known as Aviqtuuq — in the Kitikmeot region of Nunavut. The community struggles with accessing nutritious food, a lack of local job opportunities, and the loss of Inuit language and culture.

Investing in Taloyoak’s local conservation economy would address persistent socio-economic challenges by integrating the local economy with the stewardship of local natural resources. These types of investments help support the community by:

Box 1

What is a conservation economy?

A conservation economy generates economic wealth for a region using its local natural resources. It does so in a way that meets the needs of the local community while conserving and restoring (not depleting) natural resources. In Nunavut, this includes land-based activities like hunting, trapping, fishing, arts and crafts, and nature-related tourism.

- Improving access to nutritious country food,
- Creating culturally appropriate employment opportunities,
- Leveraging traditional skills and knowledge (Inuit Qaujimagatuqangit),
- Advancing community development based on local priorities.

Currently, there is no formal protection for Aviqtuuq—the geographic hub of Taloyoak’s conservation economy—however, the community is proposing to develop an Inuit-led protected and conserved area. Led by the Taloyoak Umarulirijigut Association (formerly the Spence Bay Hunters and Trappers Association), formal protection for the Aviqtuuq Peninsula is an opportunity to develop a resilient conservation economy that can support the long-term health and well-being of the community.

A key challenge for the community is how to make the business case for a modern Inuit-led conservation economy in Taloyoak. Conservation continues to be undervalued as a catalyst for community development. To address this challenge, our report builds a compelling profile of the local conservation economy in Taloyoak and presents ways to drive socio-economic development in the community. Our profile draws on local and regional economic and ecological data, as well as interviews with community leaders and key stakeholders, to better understand how investing in the local conservation economy can drive community development in Taloyoak.

We achieve this by:

1. **Identifying the limitations and risks of current approaches to economic growth** — i.e., limitations of the wage-based economy and the potential risks of extractive economic development.
2. **Establishing the business case for investing in the Aviqtuuq Inuit Protected and Conserved Area** as a driver of socio-economic development in Taloyoak.
3. **Reiterating community-identified opportunities and value streams for investing in the local conservation economy** as a driver of future economic development.



Identifying the Limitations and Risks of Current Economic Development

The current model of economic development in the Canadian context includes a reliance on heavy industrial extraction (such as mining, forestry, and oil and gas), consumerism (production and sale of consumer goods to local populations), and technological advancements to drive growth. In Nunavut, this type of growth represents a deviation from traditional ways of life and presents risks and challenges for Inuit communities, including long-term environmental damage, local boom-and-bust economies, reliance on wages to pay for imported goods, and loss of community traditions and resilience.

Since the 1970s, the push for economic development in the Kitikmeot region has threatened the balance of conservation economies in coastal communities like Taloyoak, resulting in significant socio-economic challenges.

Three persistent challenges were identified by community leaders during a visit to Taloyoak in January 2023:

1. **A lack of accessible and nutritious food sources.**
A lack of consistent access to nutritious food affects 50 to 80% of households in Nunavut—ten times higher than the Canadian average—and the situation in Taloyoak is no different.¹ A decrease in traditional hunting and food sharing programs has reduced options to support vulnerable community members. Households in Taloyoak have reported adopting maladaptive coping strategies, including

skipping meals, selling assets to afford food, and switching to “cheaper” and less nutritious alternatives. Single mothers, Elders, and the homeless, are routinely the hardest hit by not having enough nutritious food.

2. **Limited local job opportunities and insufficient wages.**
There are a limited number of quality wage-labour jobs available for community members in Taloyoak—unemployment in Taloyoak is close to 40%.² As a result, even as the community has “gone from using dog teams to iPhones”, a lack of jobs and access to nutritious food means many in Taloyoak continue to face tough choices in providing for their families.³
3. **A loss of local language and Inuit Qaujimaqatugangit (Inuit Knowledge).**
Inuit Qaujimaqatugangit is under threat in Taloyoak. In 2021, 28% of residents reported an Inuit language as their mother tongue, and 94% reported primarily using English at work. During a visit to Taloyoak in January 2023, community members said that they are losing Elders without their knowledge being passed onto younger generations. This is decreasing the number of traditional knowledge holders that can continue to provide for the community. Revitalizing the Inuit language and traditional knowledge was identified during the site visit as critical for improving community resilience.⁴

Limitations of wage-based economy

The wage-based economy is not meeting the needs of the local community—Taloyoak has the highest proportion (68%) of residents receiving social assistance, while also producing the third most highschool graduates in the territory.⁵ According to residents, the pressures of modernization challenge long-term community prosperity as it prioritizes earning an income above well-being.⁶ There are a limited number of sufficient wage-labour jobs available—unemployment is close to 40%⁷—and wages are often not high enough to purchase necessities, including food, clothing, and housing.

The lack of local, stable, and quality job opportunities means many families are struggling to access necessities.⁸ The reality is that many Inuit are being priced out of their own communities.

Participation in the local conservation economy by hunting, trapping, and fishing has become too much of a financial risk for many Inuit households. A two-day snowmobile hunt is estimated to cost a minimum of \$300.^{9,10} With a high cost of living and low incomes, households have very little remaining funds to invest in hunting. Hunting equipment has become increasingly expensive

and those without sufficient means are essentially cut out from pursuing subsistence activities. **An all-season hunting outfit in Nunavut can cost upwards of \$70,000,¹¹ more than double the average income in Taloyoak¹²** (see Figure 1). Even for those with access to equipment, operational costs and time demands can be prohibitive.

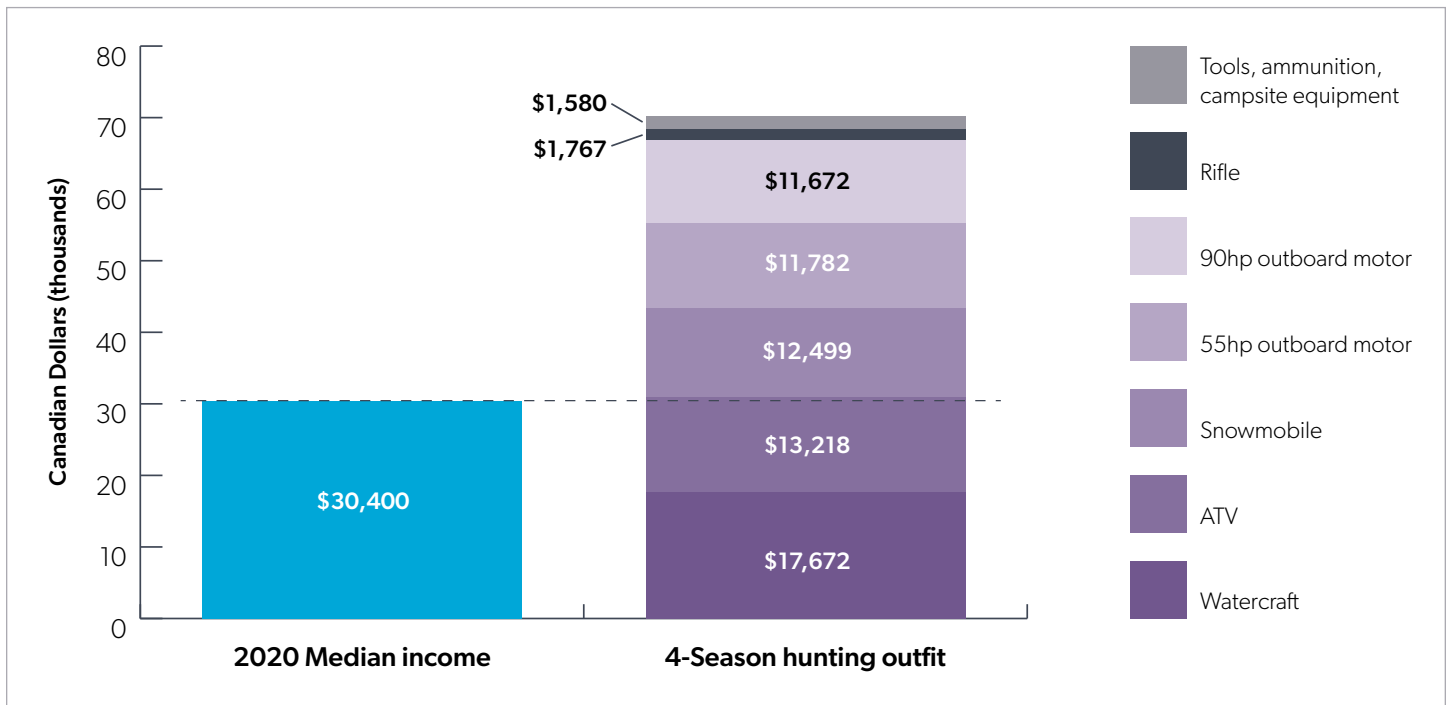
Risks of extractive development

The pressures of colonization and climate change have fostered the perspective that extractive economic development can create a path to prosperity for communities across Northern Canada.

Today, Nunavut is home to the fastest growing natural resource extraction industry in Canada. The industry has grown by more than 55% since 2018 and is currently valued at more than \$2 billion.¹³

High global prices for iron ore and gold are driving the mineral boom in the territory, and the Federal Government’s recent announcement of the critical mineral strategy means investments in the expansion and development of new mine sites are on the horizon.¹⁴ However, there are environmental and economic risks associated with extraction. Economic benefits are often short-term and volatile, whereas the environmental impacts are long-lasting and often irreversible.

Figure 1: Cost breakdown of a four-season hunting kit in Nunavut



Source: StatsCan & Action Canada Foundation

The short-term economic benefits of resource extraction, such as royalties and employment opportunities, are bound to production cycles. This creates the risk for a “boom-and-bust” scenario, where communities prosper temporarily, only to suffer sharp declines in the event of mine closures. Resource extraction may also divert investment and skills training away from other industries and traditional livelihoods.

Recent regional extractive development has translated into key infrastructure investments for Taloyoak through royalty disbursement. These investments have provided greater access to vital socio-economic services including education, health care, transportation, and recreation services. Over the last decade, investments in a new Hamlet office (\$6.7M),¹⁵ health center (\$30M),¹⁶ airport (\$6.3M),¹⁷ and arena upgrades (\$3M)¹⁸ have enhanced key pieces of community infrastructure. However, these investments have not translated into job opportunities for the local community.

The environmental risks of resource extraction are significant and often not adequately accounted for. Disturbances to regional ecosystems could be detrimental to the well-being of Inuit in Taloyoak, where many households depend on these ecosystems as a source of livelihood and nutritious country food.

Although local extraction activities are currently limited, the growing presence of this industry in the region is already impacting Taloyoak, as seen through increased ship traffic. Community members in Taloyoak have reported ships transiting key fishing and harvesting areas earlier in the spring and later in the fall, illustrating an increasing risk to marine species that are essential for the local economy.¹⁹

An increase in ship traffic also means more diversity in the types of marine activities—29 liquified natural gas tankers were reported to be operating in Arctic waters in 2019, up from zero just three years earlier.²⁰ A recent study estimated the long-term socio-economic cost of an oil spill in marine areas around Rankin Inlet to be upwards of \$9.4 billion. The *liability cap* in Canada (the amount that a company is legally responsible to provide for an oil spill cleanup operation) currently sits at \$1.5 billion, meaning a single oil spill represents an estimated \$7.9 billion in uninsured risk for the regional government and affected coastal communities.^{21 22}

The absence of comprehensive monitoring and marine spatial planning is a direct threat to the socio-economic value of the local country food economy in Taloyoak. Without adequate protection of the surrounding land and waters, the observed increase in marine-based activities poses new risks to the prosperity and well-being of community members. For instance, a 20% decrease in the availability of Arctic char would represent an annual loss of \$660,000 for the local economy—the equivalent of feeding 32 households for a year.^a The replacement cost to offset this loss would cost local community members \$500,000 and \$160,000 of extra demand for nutritious food subsidies.^b

In addition to increased shipping traffic, there has also been an increase in reported chemical spills from several sources. Over the past 50 years, 87 spills were reported in Taloyoak—26 of these occurring within the last decade.²³ These figures further underline the direct and irreversible risks that the recent economic development poses for the continued health and well-being of Inuit in Taloyoak.

The above-mentioned risks are based on current activities in the region. If more extractive development were to occur, ship traffic would increase further and associated damages and risks to the marine ecosystem would rise. Direct ecosystem and habitat impacts must also be accounted for, including the impacts of site disturbance, noise and light, pollution discharge, and other disruptions.

When considering the cost-benefit of different approaches to community growth and development for the community of Taloyoak, the cost of investing in natural resource exploration and extraction activities would need to account for the immediate loss of country food due to fewer hunters, as well as long-term disturbances to regional ecosystems.

a Estimates are based on Arctic char being identified as the second most important country food source for community members in Taloyoak through household surveys conducted in 2021 by ArctiConnexion. With the community producing 33,374kg of country food every year, half is assumed to be Arctic char. The loss of 20% would equate to -3,334kg at an unsubsidized replacement value of \$198.7 per kg.

b Governments subsidies to access similar protein content through commercial distribution networks would result in a price decrease per kg by \$48, resulting in a market cost of \$150/kg.



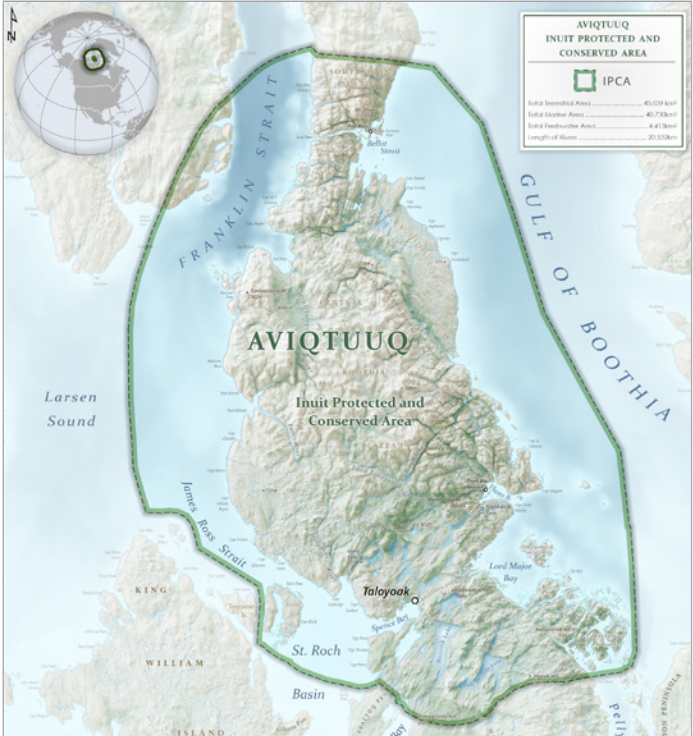
Establishing a Business Case for the Aviqtuuq Inuit Protected and Conserved Area

Taloyoak—meaning large caribou blind in Inuktitut—is the northernmost community on the Canadian mainland. The V-shaped blind that serves as the namesake for the community was first created by Inuit as part of a regional conservation economy that has followed the migration of caribou across the Arctic Tundra for more than 7,000 years.^{24 25}

Today, the archaeological and cultural importance of the blind site is similar to landmarks across Inuit Nunangat, such as Vuntut National Park in the Yukon, and it stands as an important reminder that Inuit around Taloyoak have long thrived by maintaining a close connection to regional biodiversity. For community members, the blind site is a constant reminder of their connection to land and water on the Aviqtuuq Peninsula as a means for more income opportunities, greater food sovereignty, and being able to take pride in Inuit language and culture.

Land and marine ecosystems on Aviqtuuq have long supported the well-being of Inuit communities across Inuit Nunangat. Today, Aviqtuuq continues to serve as key migration routes and seasonal ranges for unique regional biodiversity. The Peninsula is home to one of the world’s largest polar bear populations, as well as muskox, caribou, narwhals, belugas, ringed seals, and Arctic char.²⁶ For the Inuit community of Taloyoak, each of these animals represents a source of income, better access to nutritious food, clothing in a time of need, and an opportunity to feel pride in local culture and identity.

Figure 2: Proposed Aviqtuuq Inuit Protected and Conserved Area



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The Taloyoak Umarulijigut Association’s proposed Aviqtuuq Inuit Protected and Conserved Area (see Figure 2) recognizes that the well-being of the land and people are interconnected, and that protecting wildlife habitat is key to increasing investments in the local conservation economy. The protected area would consist of more than 90,000 km² of land and water resources—including 40,730 km² of ocean, 45,039 km² of land, and 4,413 km² of freshwater.²⁷ The project would consist of the Aviqtuuq Guardians program and the Niqihaqut country food processing facility—both of which will provide the local community with more jobs and greater access to nutritious food.

Establishing the Aviqtuuq Inuit Protected and Conserved Area is a long-term investment in the community in Taloyoak, and a significant contribution to national biodiversity targets by immediately adding more protected land (0.4%) and water (0.7%) to Canada’s targets.

Identifying community priorities and economic growth potential

Identifying innovative ways to connect emerging economic sectors with existing skills and knowledge from the local conservation economy is important to ensure that future growth can translate into sustained community development.

To develop an inventory of the current and future potential of the local conservation economy in Taloyoak, our report uses an exploratory qualitative research design to identify community priorities and how they intersect with local economic development potential. We visited Taloyoak in January 2023 to engage with community members and conduct interviews to learn about the challenges and opportunities associated with the proposed Aviqtuuq Inuit Protected and Conserved Area.

Each interview lasted two hours and was conducted in an open-ended conversational format. Those interviewed included board members and staff of the Taloyoak Umarulijigut Association, the Aviqtuuq Guardians, and other community leaders. Additional information obtained during interview preparations and through conversations with local youth and community Elders has also been used to support the findings in this report.

Each interview was also used to contextualize which additional benefits and investment needs are in line with the community’s vision for the Aviqtuuq Inuit Protected and Conserved Area. This information was then referenced against available economic data to provide an overview of the potential impact that investing in the local conservation economy can have for community members in Taloyoak.

The priorities for investment identified by the community include:

1. **Investing in the Aviqtuuq Guardians program** to provide culturally appropriate job opportunities for community members and to connect youth with sources of traditional knowledge,
2. **Providing better access to food and jobs by establishing a processing facility** called Niqihaqut (“our food” in Inuktitut) to cut and wrap country food (including caribou, muskox, seal, and Arctic char),
3. **Diversifying the local conservation economy** by investing in the production of textiles, clothing, and other items using the hides and by-products of the processing facility,
4. **Reviving the local tourism and recreation economy** such as hunting and fishing excursions, which has suffered since the COVID-19 pandemic, by capitalizing on Nunavut’s burgeoning tourism industry.

Table 1 provides an overview of investment opportunities and compares their anticipated socio-economic impact for the community of Taloyoak with an alternative industrial-led economic development model.

Table 1: Current economic value and anticipated socio-economic impact from further investment by economic sector in Taloyoak

Economic activity	Current economic value	Potential revenues with investment	Potential community co-benefits	Community development*
Mining	\$620,000 in job income ^c	• \$16 million in development and jobs ^d	• Limited high-skill jobs with few links to community skills, training, and culture	
Oil & Gas	\$165,000 in job income ^e	• >\$225 million in royalties and jobs ^f	• Limited high-skill jobs with few links to community skills, training, and culture	
Shipping & Non-local Tourism	\$3,000–\$13,000 in income from cruise ship visits	• \$12,000–\$30,000 in income from cruise ship visits ^g	• Limited high-skill jobs with few links to community skills, training, and culture • Support small-scale arts and crafts	
Guardians	\$12 million per year in co-benefits \$905,000 in job income	• \$395,000 in additional job creation • \$63 million in data collection for IPCA over several years	• Nine full-time and four part-time local job opportunities • Role models for youth to engage in hunting and stewardship of traditional land • Funding for local programs (e.g., intergenerational workshops, young hunters) to strengthen community ties and reinforce Inuit Qaujijajatuqangit • Greater food sovereignty and community self-determination • Capacity building in environment and wildlife monitoring • Community empowerment in wildlife-related decision-making (e.g., hunting quotas, endangered species, etc.)	
Niqihaqut	\$6.6 million per year	• Short-term: > \$7-8 million per year • Long-term: >\$20 million	• Twenty new hunting, processing, and administrative job opportunities • Better access to nutritional food and reduced reliance on food subsidies • Positive impact on food sovereignty and community self-determination • Selling food in neighboring communities (Kugaaruk and Gjoa Haven) and acting as a model of a regional country food business	
Textiles and Clothing	\$185,000 ^h	• \$750,000 per year in art sales • \$150 per muskox hide • Developing local qiviut market	• Reducing waste from harvesting • Reinforcing traditional knowledge, language and culture • Improving social welfare and building community resilience • Enhancing Inuit storytelling through art and craft making	
Tourism & Sport Hunting	\$10,000 from cruise ships	• \$12,000–\$30,000 ⁱ • \$300,000 from sport hunting • Wildlife tours • Cruise ship excursions	• Creating local job opportunities and diversify the local economy • Expanding the local arts and crafts market by improving relationships with southern tourism operators • Reinforcing Inuit language and culture • Encouraging greater youth engagement	
	<p>*Legend</p> <p>1 Short-term revenues (<15 years), few local jobs and connections to Inuit culture, large investment needed. High environmental risk.</p> <p>2 Short-term revenues (<15 years), few local jobs and connections to Inuit culture, moderate investments needed. Moderate-to-high environmental risk.</p> <p>3 Potential for long-term revenues (>15 years), many local jobs and good connections to Inuit culture, moderate investment needed. Low-to-moderate environmental risk.</p> <p>4 Proven long-term revenues (>15 years), many local jobs and good connections to Inuit culture with immediate potential to scale. Some further investment is needed. Low environmental risk.</p>			

c Estimates are based on 10 community members being employed in the mining, quarrying and oil and gas sectors, with a median employment income of \$62,000 a year.

d Estimates are based on a combination of existing IIBA agreements signed between KIA, Sabina mining—providing a \$16M investment in regional development—and TMAC resources—providing \$100,000 a year for local job training. The royalty amount was undisclosed under the TMAC agreement.

e Annual income estimates are based on the median natural resource sector income among Inuit in Inuit Nunangat of \$31,579 a year. The total economic value of employment from exploration activities assumes a pro-rated payment schedule for the 10 seasonal positions based on 90-day contracts (\$7,287 a year) and the creation of 5 additional full time employment positions during the test drilling phase.

f Estimate is based on the required investment for an oil and gas exploration project to pass to test drilling as outlined by the Qikiqtani Inuit Association

g Estimate is based on a four-fold increase in the number of cruise ships visiting Aviqtuuq under the status quo.

h Values are based on the total revenues generated by Taluq Designs Ltd. in 2019

i Estimate is based on a four-fold increase in the number of cruise ships visiting Aviqtuuq under the status quo.



Photo: Talha Awan, Smart Prosperity Institute

Opportunities for Investment

The following section provides an inventory of current and future opportunities being generated by the conservation economy in Taloyoak and elaborates on where investment may best suit the development goals of local community members. For each opportunity, we identify a diversity of economic outcomes and potential co-benefits, as well as areas where future investments are needed to accelerate local development.

Investing in a local conservation economy centered around the Aviqtuuq Inuit Protected and Conserved Area represents a cost-effective alternative for driving future community development. In Taloyoak, this approach can create more local job opportunities and have a direct positive impact on community members. Interviews with community members from a visit in January 2023 were used to outline the community's priorities for investing in a local conservation economy to create better access to nutritious food, provide more local job opportunities, and reconnect youth and Elders to traditional skills and knowledge networks.

Aviqtuuq Inuit Guardians Program

In late 2022, the Taloyoak Umarulirijigut Association secured an investment from the Department of Fisheries and Oceans, bringing the total investment for the Aviqtuuq Guardians program to \$4.8 million.^{28j} This has led to more than \$1 million in direct capital investments for the Guardians program to support

country food harvesting, improve ecological monitoring capacity, and enhance knowledge gathering across the Peninsula.^{29 30} Currently, the Guardians program is generating numerous economic and social benefits for the community.

The Aviqtuuq Guardians program has created an estimated \$12 million in community co-benefits.

These include direct socio-economic benefits, e.g., increasing access to country food, providing more job opportunities, and leveraging additional investments, as well as important cultural and environmental benefits such as having role models within the community, strengthening relationships with land and water, and increasing the local capacity for self-determination. In this respect, a typical cost-benefit analysis can capture the direct socio-economic benefits but is unable to compensate for the local community priorities attached to specific co-benefits such as reinforcing Inuit language and culture.

A social return on investment model (SROI) identifies a triple bottom line of socio-economic, cultural, and environmental benefits that are weighted for community identified priorities (see Box 2).

j Since 2016, the community of Taloyoak has been working with ArticConnexion and WWF-Canada to formalize a Guardians program for Aviqtuuq. The program draws on local knowledge and experience to enhance community stewardship of key land and water resources that are facing the pressures of climate change and increasing encroachment from mineral exploration, commercial fishing and shipping, and un-guided tourism.

Box 2

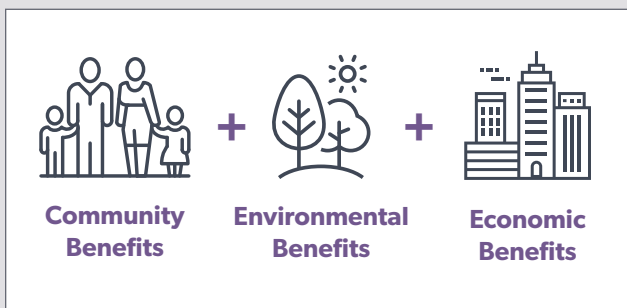
What is a SROI?

Social Return on Investment is a form of cost-benefit analysis that integrates social, environmental, and economic returns to understand the wider socio-economic impact of specific investments also known as the triple bottom line.

SROIs compare the net present value of project benefits with the net present value of costs, and then calculate the value of co-benefits by assigning an economic value to environmental and social outcomes using financial proxies and combining these values with those of economic benefits, e.g., the value of reinforcing Inuit language and culture in addition to the creation of job opportunities.

Where SROIs differ from comparative investment return methods is that they integrate stakeholder perspectives to prioritize specific co-benefits and in estimating their monetary value for the local community.

Triple Bottom Line



Using a similar rate of SROI as observed for the Thaidene Nëné Guardians program in the Northwest Territories—a return of \$2.50 for every \$1 invested—we estimate that initial investments of \$4.8 million (from the Department of Fisheries and Oceans and other sources) in the Aviqtuuq Guardians program have generated a SROI of \$12 million.³¹ Key co-benefits identified by community members include:

1. **Increasing youth engagement.** Young people in Taloyoak are being inspired by their local Guardians and expressing a renewed interest in hunting, working for the Taloyoak Umarulirijigut Association, and taking part in the Guardians program. The newest member of the Guardians is just 16 years old and was selected from a long list of candidates vying for the position.
2. **Facilitating the transmission of Inuit Qaujimagatuqangit.** Aviqtuuq Guardians have emerged as key connection points to facilitate the transfer of traditional

knowledge from Elders to youth, i.e., how to survive on the land and knowing Inuktitut names for hunting tools and animals. With more resources, the Aviqtuuq Guardians have expressed an interest in working with the local school to develop programs where youth can learn from Elders on the land.

3. **Improving community health.** The Guardians promote community health in several fundamental ways: a) harvesting and providing nutritious country food to vulnerable residents like single mothers, low-income families, and Elders; b) supporting the health of Elders by providing opportunities to be on the land outside the community, a key part of Inuit life that they are rarely afforded.

The Aviqtuuq Guardians program is intended to support the creation of jobs for local hunters and improve local food sovereignty. The following paragraphs highlight the anticipated overall socio-economic benefits that investments in expanding the local Guardians can provide for the community in Taloyoak.

Guardians have the capacity to collect ecological data with an estimated value of \$700/km² being generated for local conservation initiatives.

The Guardians are involved in a variety of activities as part of their monitoring and stewardship responsibilities. Equipped with Ulefone® smartphones, they collect vital ecological data and document changes in the landscape, including migration patterns of key land and marine species and the growing impacts of climate change. Data being collected by the Guardians can also be linked to international efforts to protect bird species that spend their summers on the Peninsula and are listed as endangered under Canada's *Species At Risk Act*, i.e., the Red-necked Phalarope and the Red Knot.

The value of the data being collected by the Guardians on the Aviqtuuq Peninsula depends upon the:

- Purpose for which the data is being collected,
- Rarity of the dataset, including species diversity and the unique geographic and ecological characteristics of where the data is being collected, and
- Sustainability of ongoing data collection and the ambition of targets that are being used to inform decision-making around conservation efforts.

Using a cost approach,³² **the value of ecological data being collected by Aviqtuuq Guardians is estimated to yield \$700 per km² of land.**^k For conservation efforts, this method of data collection is often more cost effective than using aerial surveys or satellite imaging in that the former can identify high-priority conservation areas that other methods are unable to capture, e.g., nesting sites of at-risk species.³³

k Estimate is based on returns on investments for ecological data being collected for conservation initiatives identified by Field and Elphick 2019 (<https://www.doi.org/10.1088/1748-9326/ab5cae>) and Rodewald et al., 2019 (<https://www.doi.org/10.1038/s41598-019-52241-2>)

Although it will take years and continual efforts to collect ecological data on the Aviqtuuq Peninsula, under the right conditions, the actions of local Guardians could contribute to the generation of valuable ecological datasets. Considering that investments for the establishment of Vuntut National Park in the Yukon amounted to \$2.4 million over the first three years, and \$21 million over the last 30 years, the data being collected by the Guardians can be viewed as an investment in the establishment and management of a future Aviqtuuq Inuit Protected and Conserved Area.³⁴

Investing in local Guardians can create job opportunities valued at \$1.3 million a year.

Currently, the program provides full-time employment to five full-time Guardians, two youth Guardians, and four support staff. With the amount of land and water under their jurisdiction, a need for at least twice the number of Guardians has been identified to continue serving the local community. The Guardians act as guides for regional expeditions and provide vital search and rescue functions across the Peninsula. At the current level, the Guardians program represents a direct socio-economic benefit for the community of \$905,000 in employment income a year. Expanding investments in the program to increase the number of Guardians in line with the needs of the community would increase the number of full-time jobs to at least 18, generating close to \$1.3 million in annual income, with an anticipated annual SROI of \$3.25 million.³⁵

Improving local food sovereignty

Hunting, trapping, and fishing are central to life in Taloyoak and Aviqtuuq forms the geographic base for the local country food economy that continues to support the socio-economic well-being of residents. The health of local ecosystems is inextricably linked to the community's access to nutritious country food. With access to food identified as a key measure of socio-economic development, country food can be a pillar in developing the local conservation economy.

The value of the country food economy in Taloyoak is estimated at \$6.6 million a year.

The three most harvested species are caribou, ringed seal, and Arctic char, while muskox is also a commonly harvested species. In Taloyoak the protein replacement cost of sourcing country food from commercial distributors is \$198.70 kg⁻¹ and the community harvests approximately 33,374 kg of country food protein annually—about 35 kg per resident.³⁶ Therefore, the country food harvested in Taloyoak has an estimated value of \$6.6 million a year—\$5 million in market value plus an additional \$1.6 million in avoided government subsidies.³⁷

The value created by harvesting country food has not translated into food security for the community. Broader economic forces are threatening the integrity of regional ecosystems as well as

the ability of many community members to fully participate in country food harvesting activities. An increase in the subsidies by Nutrition North Canada helped stabilize supply chains for essential goods and nutritious foods at the start of the COVID-19 pandemic in 2020, but these programs have done little to move the needle for households on the margins of affordability.

The Niqahaqut facility will help achieve greater local food sovereignty.

With access to nutritious country food identified by the community as a key measure of socio-economic development, reliable access to country food is being considered a pillar in the future development of the local conservation economy. With the support of ArctiConnexion³⁸ the Niqahaqut facility, meaning “our food” in Inuktitut, aims to provide better access to nutritious food while also improving community health, creating jobs, and providing opportunities for training and cultural engagement. Capital expenditures to set up Niqahaqut have been partially funded by a \$451,000 Arctic Inspiration Prize awarded to the community in 2021.³⁹

The immediate goal of the facility is to sell affordable and nutritious traditional food within the community and, once local food security has been achieved, to expand operations and develop supply chains linked to external markets. The following paragraphs highlight several economic benefits that are linked to recent investments in the Niqahaqut facility, most of which can similarly scale in parallel with the production capacity of the facility.

The annual value of country food to be processed by Niqahaqut is estimated at \$1.9 million.

The facility aims to process, i.e., butcher, dress, and package, a variety of country food to sell in the community. This will consist of traditional food resources that are abundantly available across Aviqtuuq such as caribou, muskox, seal, and Arctic char.

In Inuvik, a similar country food facility processes 45 to 90 kg of meat and fish per day to serve the 3,137 residents of the region.^{40,41} This represents a supply that equates to less than ten percent of local demand.

With a population of 934, and an estimated annual demand of 135 kg of country food per resident, the Niqahaqut facility would need to process 27 kg of country food a day to meet similar levels of demand.^{42,43} With an anticipated total annual production capacity of 9,855kg (less than ten percent of community demand) the replacement value is estimated at \$1.9 million in annual revenues for the facility.⁴⁴

This excludes any assumed expansions in local supply and efficiency improvements in harvesting and processing techniques that can be expected as the result of the facility working to formalize local supply chains.

1 The cost of protein replacement for subsidized store bought food in Taloyoak is \$150 kg⁻¹.

Formalization of these supply chains is also likely to increase annual revenues not included in the estimate above by:

1. **Incentivizing greater harvesting efficiency and community participation** by providing stable income opportunities for local hunters and processors, and,
2. **Improving resilience in the local food system** by using a portion of revenues to subsidize access to nutritious food for vulnerable community members. Increasing access to local food markets for households suffering from the greatest barriers to accessing nutritious foods can reduce unnecessary expenditures on store bought foods, as well as random hunting (non-sustainable, without proper equipment, and without adherence to Inuit Qaujimagatuqangit) which has been identified as a source of food waste in the community.⁴⁵

As a cornerstone of the local conservation economy, the Niqihagut project aims to both increase the amount of nutritious food available to the community in the short-term while also achieving long-term conservation goals by improving efficiency in local harvesting techniques. The facility aims to provide hunters with a stable source of income to reduce the need to process harvested animals on the land and thereby reduce the risk of producing unnecessary waste such as food resources left on the land because there are no existing market opportunities to justify the costs of transporting them to town. A sustainable

harvest plan is currently being developed to help minimize any long-term impact on wildlife populations and further incentivize the need to eliminate harvesting waste.

Investments in Niqihagut are also anticipated to generate an additional \$1.1 million in co-benefits assuming an SROI like those observed for other Guardians programs in Northern Canada. Co-benefits will include enhancing the transmission of traditional skills and knowledge, reinforcing the Inuit language and culture, and creating viable, local job opportunities for youth.

Scaling investments could create a \$23-million-a-year local country food economy.

Nunavut’s country food system harvests 5 million kg of protein-rich food per year—the equivalent of 135 kg per person—and is valued at \$200 million per year.⁴⁶ In the absence of constraints on local production capacity, scaling Niqihagut to meet 100% of local demand would result in 119,785 kg of country food produced annually at a replacement cost of \$198.70 per kg, the equivalent of \$23 million in direct market revenues and an additional \$6 million in avoided government subsidies.^{47m}

Table 2 outlines estimated cost-saving scenarios based on the Niqihagut facility being able to scale to meet an increasing proportion of local demand.

m Nutrition North Canada is a retail subsidy focused primarily on perishable, nutritious foods and transferred directly to southern northern retailers, who pass on the full subsidy to consumers at the point of purchase. Subsidy payments are made to recipients based on the weight of eligible items shipped to eligible communities.

Table 2: Niqihagut production scenarios with corresponding replacement values and avoided government expendituresⁿ

Production scenario	Local demand met (%)	Processed country food (kg)	Replacement value (\$ 000 ¹)	Avoided subsidy (\$ 000 ¹)
Start-up	<10	9,855	1,951	473
	15	18,913	3,744	907
	20	25,218	4,993	1,210
Medium	25	31,522	6,241	1,513
	35	44,131	8,737	2,118
	45	56,740	11,234	2,723
High	55	69,349	13,731	3,328
	75	94,567	18,724	4,539
	95	119,785	23,717	5,749

n Production scenarios are estimated by using a comparison of the production capacity for the Inuvik cut and wrap facility, as well as the understanding that scaling the capacity of Niqihagut has been defined as a community priority.

Niqihaqut will likely create an additional 20 jobs in country food processing, seasonal hunting, and administration.

Country food processed in the facility is intended to be harvested in Aviqtuuq by local hunters. The number of hunters able to sell to the facility will depend on the processing capacity once the site is up and running. For the sake of comparison, the country food processing facility in Inuvik employs five full-time staff, and Cambridge Bay employs six full-time and 14 full-time seasonal staff.^{48,49} Based on this, Niqihaqut is likely to create five full-time processing positions, between 10 and 15 seasonal hunting jobs, and a number of necessary administrative positions for the local community. Considering that the median total income in Taloyoak in 2020 was \$30,400, at a minimum five new full-time staff positions would be expected to create \$152,000 a year in local job opportunities.⁵⁰ The seasonal jobs would add between \$172,800 and \$230,400 a year.^o These figures are anticipated to be considerably higher based on the intention of the facility to provide high-paying jobs for their employees, indicating a greater potential positive impact for the community.

Textiles and clothing

In the traditional conservation economy in Taloyoak, harvested animals were as much a source of nutritious food as they were a source of clothing, building materials, and a way to enhance storytelling through the creation and sharing of arts and crafts.

Today, Inuit art generates significant revenues for communities across Nunavut (\$37 million in 2015).⁵¹ However, much like country food, the value of clothing and materials created by harvesting animals has been challenging to channel into sustainable community development. Currently, markets for the sale of animal hides mainly involve furbearers, especially polar bears, that are actively hunted and trapped due to their high value. With few established local markets for the sale of animal by-products, there are limited opportunities to earn income from transporting hides, pelts, bones, and antlers of animals harvested in Aviqtuuq into Taloyoak. As a result, many hunters are leaving these types of materials on the land as waste and local artisans in Taloyoak are facing a dual challenge of both a limited local supply of materials and lagging demand. Even though traditional clothes making is still popular among the local community, most of the materials are being sourced from tanneries and distributions in the South.

As a potential offshoot of the Niqihaqut project and the Aviqtuuq Guardians program, the community wants to formalize a regional textile and clothing industry using hides and pelts of animals that are already being harvested. Interviews with community members identified that hides, pelts, bones, and antlers could have significant economic benefits for a local clothing and arts economy, but that most of these resources were being unnecessarily left on the land as waste.⁵²

The perception of these resources as waste or having low-to-no economic value is driven by three main influences:

1. **A lack of an economic incentive to harvest hides, pelts, bones, and antlers of the animals.** Current channels in the community to offer compensation for the collection of these resources are limited. There is a market for some species such as polar bear fur but not for others such as caribou, muskox, and seal. As a result, hunters and harvesters are faced with additional upfront costs such as time and resources to harvest and transport with few clear ways to generate benefits for themselves or their community.
2. **The loss of traditional skills and knowledge** is increasing the risk of improper harvesting techniques, which could decrease the value of these resources for the community. As a result, the opportunity cost of harvesting these additional items is high. More fuel and resources are needed to transport the items, but there is no certainty that they can provide income.
3. **A lack of a tanning facility where harvested hides can be processed.** Hides and pelts that undergo a tanning process have better longevity and require less care than home-tanned hides and pelts which require storage in cold conditions to prevent decomposition. The absence of a tannery discourages hunters from retrieving hides and pelts while local artisans have to purchase extremely expensive hides from southern tanneries (e.g., Newfoundland seal fur) to make traditional clothing.

In each case, uncertainty of the value of these resources during harvesting, as well as the high transaction costs of selling these resources in local markets, means many hunters have no choice but to discard these resources.

Having a plan to make use of the by-products from country food harvesting represents a return to local hunting practices rooted in Inuit Qaujimagatuqangit and has been identified as a priority of the community to build further resilience in the local economy.⁵³ This plan can involve a regional partnership whereby a tannery could be established in a neighboring community (Kugaaruk or Gjoa Haven) to process the by-products from harvesting and create market value for the hides, pelts, bones, and antlers of animals.

Establishing the market value for different parts of the animal can help maximize the socio-economic benefits of each individual animal harvested and, consequently, reduce the number of animals that will need to be harvested to support the community.

Developing a qiviut market from muskox harvested in Aviqtuuq represents a viable avenue for future investment. Several market opportunities exist for textiles and clothing in the Kitikmeot region, but those with the least number

^o Annual income estimates are based on a prorated payment schedule for the 15-20 seasonal harvesting positions with assumed 90-day contracts being paid at the territorial minimum wage of \$128 a day (\$16hr for 8 hours)

of distribution concerns when connecting to lucrative markets in the South and internationally are for *qiviut*, the underlining of muskox hide that can be used to make yarn similar to merino wool. Unlike merino wool, *qiviut* is lighter, provides more warmth, and is not at risk of shrinking—unprocessed *qiviut* has three times the market value when compared to cashmere.⁵⁴

A market for *qiviut* was established as an offshoot of country food harvesting in the Hamlet of Kugluktuk—hunters are paid \$150 per muskox hide.^{55,56} A similar, although larger and commercialized market for *qiviut* has also been established in Alaska. For the Alaska market, muskox are farmed for their hides, with each animal fetching up to US\$6,400 (CAD\$8,600).⁵⁷ While the establishment of a similar market in Taloyoak would be unlikely to compete with the Alaskan market, working to coordinate with operations in Kugluktuk could build further resilience in a regional *qiviut* economy.

Tourism

Tourism in the Canadian Arctic is a growing industry with significant potential to contribute to socio-economic development in the region. In 2018, Nunavut welcomed 23,701 visitors^p who traveled for holiday, leisure, or recreation generating \$96 million in annual revenues.^{58,59} In the Kitikmeot region, Cambridge Bay was the most visited community, accounting for 12,400 visits.

Community leaders in Taloyoak are looking to capitalize on this burgeoning tourism industry by creating immersive experiences for marine, wildlife, and Inuit cultural tourism. The community has a lot of experience hosting sport hunting expeditions across the Peninsula, while the accommodation and food services industry has traditionally provided employment for a small number of residents. However, since the start of the COVID-19 pandemic, the industry has struggled and it currently needs investment to relaunch as a tourist destination.

The community has existing tourism infrastructure but it has been rarely used since the COVID-19 pandemic.

In 2020, the Boothia Inn and restaurant employed 10 people in Taloyoak, representing an estimated community benefit of more than \$300,000, given the median local income.⁶⁰ Before the pandemic, the Inn hosted business travelers, seasonal construction workers, and a small number of tourists. The Inn has eight rooms and a fully equipped kitchen but needs investments to update facilities and help establish Taloyoak as a tourism destination for wildlife viewing and sport hunting.

Cruise ships visit Aviqtuuq but few excursions are organized with the local community. Interviews with community leaders revealed that one to five cruise ships visit Aviqtuuq per year, representing between \$3,600 and \$18,000 for the local economy.^{61 q} These types of visitors typically spend a few hours walking around Taloyoak, purchasing a small souvenir, and then leaving the town for their next destination.

The community is open to the idea of increasing tourism activities around Taloyoak but has identified a lack of local involvement, e.g., tour guides, impact monitoring, and enforcement, as presenting a substantial risk from potential environmental damage without offering any direct benefits such as jobs and opportunities. Investing in opportunities that improve the coordination between community members and visiting cruise ships could be a way to increase existing revenues being generated by tourism activities in Taloyoak. These investments could build upon the cruise ship related training already provided by the Government of Nunavut such as the “Cruise Ready! Community Preparedness Workshop” and the “Nalunaiqsijit: Inuit Cruise Training Initiative,” which includes a paid internship component.⁶²

As part of a wider strategy linked to the local conservation economy, the community plans to invest in tourism activities that feature the unique landscape and wildlife experiences from across Aviqtuuq. In the short-term, Taloyoak is well-located to host day trips for small cruise-ship visitors who may be interested in experiencing a variety of local activities, including:

1. **Wildlife tourism** – photography, birding and animal watching, or sport hunting.
2. **Local cultural experiences** – tasting country food, visiting archaeological and spiritual sites, igloo-making, or storytelling.
3. **Inuit art and clothing** – locally sewn clothes, carvings, and culturally relevant souvenirs.

Over the long-term, by connecting these activities to the core principles of the conservation economy in Taloyoak, further investments in local tourism infrastructure could lead to more community-led activities to support future socio-economic growth.

p Of these, 12,698 (53.6%) were Nunavummiut, spending \$2800 per visit on average (including transportation costs); 5,902 (24.9%) were Canadian residents from other provinces and territories, spending \$5,000 per visit on average; and 5,101 (21.5%) were visitors from abroad, spending \$6,700 (excl. airfare) per visit.

q Estimates are based on an observed value of \$3,614 per cruise ship for the local economy in Cambridge Bay and Gjoa Haven.

The following represents a preliminary scan of potential socio-economic benefits from investing in the revitalization of Taloyoak's tourism industry and linking it to the further development of the local conservation economy:

Investments in tourism facilities can help attract more visits from cruise ships.

Between 2009 and 2019, Nunavut experienced a 70% increase in cruise tourism and 400% increase in pleasure craft (e.g., yacht) tourism.⁶³ Transits have increased most dramatically in the Northwest Passage,⁶⁴ which is relatively close to Aviqtuuq, yet over half (59%) of all cruise ship visitors to Nunavut disembark in Pond Inlet.⁶⁵

Investments in tourism infrastructure to accommodate longer and more frequent visits could help the community leverage the natural beauty of Aviqtuuq to increase annual tourism revenues. These investments could also help stimulate tourism adjacent business, such as artisan workshops, tourism information centers, guided excursions, and country food restaurants.

Wildlife viewing and birding could generate millions in tourism revenues.

Visitors to Aviqtuuq can view the unique animal and bird species in the region through activities such as wildlife photography, bird watching, whale watching, and polar bear viewing trips. In Churchill, Manitoba, which provides tourism access to the Western Hudson Bay subpopulation, a single polar bear tour generates between \$3,000 to \$8,000 for the local economy. Taloyoak could provide similar access to a subpopulation with twice the number of polar bears.^{66,67}

In Alaska, 294,500 visitors engaged in bird watching in 2016, spending \$378 million and supporting approximately 4,000 jobs.⁶⁸ Given the right infrastructure investments such as expanding accommodation and restaurant infrastructure, investing in local birding guides, and offering local excursions to cruise visitors, wildlife viewing in Aviqtuuq could provide similar socio-economic benefits to the community in Taloyoak. Given the remote location of Aviqtuuq, it is unlikely the wildlife viewing economy can scale to the levels seen in Alaska, however, the unique Inuit cultural history in Taloyoak provides an additional draw for potential visitors. Fewer capital-intensive investments than those used in Churchill, e.g., snowmobile-led excursions rather than large expedition tourist buses, could provide a niche adventure tourism economy that is able to compete with other operations in northern Canada.

Sport hunting could generate more than \$382,000 for local guides and outfitters.

Recreational hunting provides financial benefits to Inuit communities that host and stage the hunt. There are connections between the Taloyoak Umarulirijigut Association, which employs certified big game guides, and Edmonton-based outfitters to host sport hunts in Aviqtuuq. The most sought-after sport hunting involves polar bears,^r but it can include other animals like muskox and fishing expeditions—76% of foreign visitors to Nunavut (5,912) reported fishing as their most frequent activity in 2018.⁶⁹

The average recreational hunt for polar bears generates between \$20,497 to \$35,138 in direct revenues for local guides.⁷⁰ The local communities are typically able to further benefit from the meat and pelts, which can range in value from \$1,650 to \$3,114 per bear.⁷¹ Taloyoak has an annual polar bear quota of 20, from which 10 are used for sport hunts.⁷² As a result, we estimate the direct economic value of polar bear sport hunting in Aviqtuuq to be between \$221,470 and \$382,000 every year (an average of about \$300,000). This value excludes recreational hunting of other species and fishing, which likely increase the total value of sport hunting in the region to well over \$382,000.

^r Sport hunting of polar bears is legal in Nunavut, provided strict conservation and hunting guidelines are followed. All hunters must be accompanied by Inuit hunters and the number of polar bears eligible for sport hunting are determined by local Hunters and Trappers Associations (HTAs)—a maximum of 50% of the annual quota can be dedicated for sport hunting and the revenues of these hunts provide vital sources of income for local hunters.



Photo: Talha Awan, Smart Prosperity Institute

Conclusion

The business case for investing in the local conservation economy in Taloyoak is clear. These investments can be from multiple sources including both private funds (e.g., impact investing firms) and public funds (e.g., Inuit Impact and Benefits Agreement). These investments are a way to create jobs connected to the Inuit language and culture, and are a way to build community resilience by connecting with traditional knowledge and skills as sources of health and well-being.

The Aviqtuuq Guardians program and the Niqihagut country food processing facility represent cost-effective alternatives to industrial-led development. This vision of community-led development prioritizes local needs for greater access to nutritious foods, more culturally relevant jobs, and a better way to engage youth and Elders. Together, these opportunities are already estimated to be generating \$8.3 million in annual benefits for community members in Taloyoak—\$6.6 million from the country food economy and \$1.7 million in co-benefits from local Guardians.

Investing in a local art and textile market and greater local tourism capacity can be a way to further catalyze growth and development. Investments in these areas can provide both direct revenues for community members, in the form of job opportunities and avoided waste from traditional harvesting, as well as several key co-benefits such as improving social cohesion, youth engagement, and access to country foods and sources of traditional knowledge.

With the Federal Government committing to conserve 30% of Canada’s land and oceans by 2030, the community of Taloyoak has an unparalleled opportunity to pursue a community development model that better reflects local priorities and leverages the existing value of the local conservation economy. Establishing the Aviqtuuq Inuit Protected and Conserved Area needs to be considered as an investment in the long-term economic growth of the Inuit community in Taloyoak.

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