National Aboriginal Economic Development Board

Discussion Paper

Roundtable on Northern Infrastructure and Economic Development

Whitehorse, Yukon

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About the National Aboriginal Economic Development Board

Established in 1990, the National Aboriginal Economic Development Board is a Governor in Council appointed board mandated to provide strategic policy advice to governments on issues related to Aboriginal economic development. Comprised of First Nations, Inuit, and Métis business and community leaders from across Canada, the Board helps governments to respond to the unique needs and circumstances of Aboriginal people in Canada.

http://www.naedb-cndea.com

Overview

Canada's North is particularly underdeveloped in infrastructure. A large land mass and small population make traditional infrastructure financing challenging; the North's rugged terrain and short building season make the region costly for development; and an existing deficit of core community infrastructure is absorbing funds for infrastructure leaving little room for strategic or long-term infrastructure investment.

Inadequate public infrastructure is a threat to long-term economic growth. Inadequate infrastructure lowers economic potential in a direct and obvious way according to this simple progression:

- *Inadequate public infrastructure results in increased costs for business.*
- *Increased costs result in a lower return on private investment.*
- *Lower returns – profits – mean less money for business to reinvest.*
- *Less investment means fewer jobs and less productive labour.*
- *Lower productivity means less economic output and lower personal incomes.*

Source: Canada West Foundation, At The Intersection.

Yet the potential for positive economic impact from infrastructure investment in the North is great. Not only would infrastructure investment contribute to economic development but it would also support important social development goals. Enhancements to transportation infrastructure would mean better access to Northern communities, improved connectivity would mean functional access to tele-health and e-health services and engage Northerners in the digital economy, and improvements to energy infrastructure would result in significantly decreased costs to local governments and improve the investment climate in the North. By any measure, adequate infrastructure is critical to economic development and quality of life in Northern Aboriginal communities.

The National Aboriginal Economic Development Board has and continues to study the issue of infrastructure as it relates to Aboriginal economic development. The Board's study on *Addressing the Infrastructure Needs of Northern Aboriginal Communities*[1] provides an overview of key infrastructure issues across Inuit Nunangat and the territorial North. It summarizes infrastructure deficits in each region and discusses the role of 'economic' infrastructure – the infrastructure that is most strongly linked to economic development outcomes – namely energy, telecommunications, and transportation infrastructure. For the purposes of this work we are defining the North as including Inuit Nunangat, Yukon, Northwest Territories, and Nunavut.

[1] Available at: http://www.naedb-cndea.com/reports/northern-infrastructure-report.pdf

Canada's North: Key Facts

- Canada's North is 25% of the global Arctic, 40% of Canada's land mass, but home to only approximately 110,000 people – a significant portion of whom are Aboriginal.
- The North has the youngest and fastest growing population in Canada, many of whom live in isolated communities with limited infrastructure and a high cost of living.
- Overall economic growth in the Territories over 2014-2016 is expected to outpace growth in most other Canadian regions, driven principally by resource extraction, but with significant growth generated by new sectors in the economy.
- Infrastructure in the North is significantly lacking. Lack of adequate infrastructure (including port facilities, runways, roads, bridges, telecommunications, housing, energy, et cetera) poses significant challenges to resource development, socio-economic growth, emergency management, and the development of sustainable economies. Much of the current stock of infrastructure is in poor shape and is being further pressured by the impacts of climate change.
- Broadband service offerings in Canada's North are generally slower and more expensive than in Southern Canada. Connectivity challenges in the North are limiting Northerners access to emerging telecommunications options.
- Capacity challenges in the Northern labour market can be linked to poor K-12 educational attainment among Northerners.
- The NAEDB's *Study on Addressing the Infrastructure Needs of Northern Aboriginal Communities* estimates the infrastructure deficit in Aboriginal communities among Canada's North to be as low as $ 50 billion and as high as $ 570 billion.
- There is a crowding-in of non-Arctic players in the North; the increased international interest strengthens incentives for cooperation among Arctic states with shared concerns such as the environment, search and rescue, and sustainability of resource extraction.
- The majority of land in the North is covered by Land Claim Agreements. As of June 2015, twenty-nine comprehensive land claim and/or self-government agreements have been ratified and brought into effect since 1973; the majority of these are located in the North.
- Development corporations are a significant part of the business landscape across the North. In most cases, development corporations are the for-profit arms of land claims organizations. Development Corporations in the North have assets in the billions of dollars and are projected to grow considerably in coming years.
- World demand for resources has brought global attention to Canada's North. In 2011, total mineral exploration expenditures in the three territories were approximately $914 million, representing an 85 percent increase from the previous year.

CURRENT CHALLENGES

Canada's North is facing a significant infrastructure deficit that acts as an impediment to economic growth in the region. Good infrastructure is critical for the long-term economic development of a region. Key infrastructure assets create additional economic benefits by supporting industrial growth and re-investment in both economic infrastructure – namely transportation, energy, and telecommunications – but also in community infrastructure that supports a diversified economy and good quality of life for community members.

Building and maintaining infrastructure is more costly in the North

Building and maintaining Northern infrastructure is a significant challenge. The harsh environment, short construction season, lack of building resources, and changing climate conditions are all challenges to building and maintaining infrastructure. The lack of transportation infrastructure also negatively impacts the cost of infrastructure in the North. As a result of these factors, infrastructure costs are roughly 150% higher in the North than in the rest of Canada[2].

> The Territorial North, makes up about 40% of Canada's land mass, has about 0.3% of Canada's population. The result? A very small tax base to support a large number of infrastructure assets.

A 2015 study by the Mining Association of Canada and others[3] found the cost to build a new mine in the North to be as much as 2.5 times higher than the cost to build an equivalent mine in southern Canada.[4] Further, the study found that operating costs are 30% to 60% higher for mines in the North. The study linked the increased cost to build and operate Northern mines to the lack of critical infrastructure in the North (including power plants, winter and permanent roads, ports and airstrips).

A complex, multi-jurisdictional policy environment makes infrastructure investment in the North challenging

The challenging physical environment for infrastructure in the North is compounded by a complex, multi-stakeholder policy environment. The variety of public and private actors in the North contributes complexity to infrastructure development in many Northern jurisdictions. Financing and programming needs to be flexible enough to address both community needs and stimulate resource infrastructure development. In other words, 'Made in the North, for the North' program and funding options that respond adequately to the unique circumstances and conditions

[2] Available at: http://www.naedb-cndea.com/reports/northern-infrastructure-report.pdf
[3] Including the Prospectors & Developers Association of Canada, the Association of Consulting Engineering Companies – Canada, the NWT & Nunavut Chamber of Mines, and the Yukon Chamber of Mines.
[4] The Mining Association of Canada, *Levelling the Playing Field, Apr 2015.* Available at http://mining.ca/documents/levelling-playing-field.

of Northern communities are needed. Currently, funding practices are not flexible enough to address the varied infrastructure needs of individual Aboriginal communities.[5]

In addition, there is only limited evidence of infrastructure and expenditure coordination among Northern, Aboriginal and federal governments to support resource development. Instead of being considered in a coordinated fashion, in most instances, infrastructure investment is considered by different actors in relation to their particular stakeholders and goals. Potential efficiencies in terms of infrastructure investment may not be realized in the absence of a mechanism to coordinate these investments. This mechanism would ensure that the maximum economic and job benefits are realized, and that maximum re-investment in infrastructure leverages further economic development.

Infrastructure is particularly vulnerable to market failures

Infrastructure investments are potentially hugely profitable for the economy as a whole, but they are also especially subject to market failures. As a result, it can be difficult to match investment demand with financing supply – in other words, accessing capital to support infrastructure projects can be challenging because of their inherent risk. The quality of the governing institutions and their stability are often determining factors in the supply of infrastructure finance, even when a project by itself appears to be financially viable[6].

Many infrastructure investments generate cash flows only after many years and the initial phase of an infrastructure project is subject to high risks. In addition, the uniqueness of infrastructure projects in terms of the services they provide makes infrastructure investment less liquid[7]. These three elements – the time profile of cash flows, high initial risks and illiquidity – make purely private investment unlikely. In addition, mismatches between the useful life of an infrastructure asset (20 to 50 years, on average) and the life of the project that requires the asset (15 to 30 years, on average) impacts the rate of return on investment because the capital outlay needed to build the

> Markets alone will often fail to provide infrastructure services – either because an infrastructure project would not be profitable on its own, or because the associated risks are too large or too costly to insure. As a result, infrastructure investment from the private sector in many cases cannot be realized without some form of public support. In turn, the necessary involvement of a wide range of parties in infrastructure projects – construction companies, operators, government authorities, private investors, and the citizens most directly affected – make it a complex but essential task to design an efficient set of contracts to ensure a fair distribution of risks and rewards and that the public interest is preserved.
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> *Bank for International Settlements Working Papers, 2014*

[5] NAEDB, *Recommendations on Financing First Nations Infrastructure*
[6] Ehlers, T, 2014. Understanding the challenges for infrastructure finance, *Bank for International Settlements Working Papers*
[7] Ibid

infrastructure, in general, is too large for an individual project to tackle on its own.

Infrastructure projects tend to be complex and involve a large number of parties. Infrastructure often comprises natural monopolies such as highways or water supply for which governments retain control in order to ensure benefit to the public. The interaction of the public sector and private sector in this way requires complex legal arrangements to ensure proper distribution of payoffs and risk-sharing to align the incentives of all parties involved[8].

Providing public financial support in the absence of adequate private sector investment on a specific project may not be desirable. In an environment where fiscal pressures mean that funding envelopes are limited, trade-offs in investment will necessarily pit community level infrastructure such as housing and water supply infrastructure against larger-scale, strategic infrastructure investment that primarily leverages economic development. For example, the choice between investing in a road to a mine versus investing in social housing is essentially a choice between investing in community infrastructure to support quality of life for citizens and investing in infrastructure to support trade and business growth.

As such, the risk taken by the private sector in financing infrastructure projects is paralleled by risk taken on by the public sector – namely should public funds be invested in an infrastructure project where the project encounters problems or does not achieve public benefit, this will have occurred at the cost of other potential infrastructure investment that could have resulted in benefits to communities or regional economies.

A significant infrastructure deficit puts the North in the position of having to play catch-up

Many of the existing program funding mechanisms available to communities and regional governments in Canada's North appear to be overwhelmed by the magnitude of their infrastructure deficits in core areas – such as housing, ground and air transport, water, sewage, and solid waste management – leaving little room for consideration of strategic investments in infrastructure to support economic development.

Usually, infrastructure endowment in most regions is the result of an investment cycle involving public sector investment leveraging private sector investment, which in turn leverages further public sector investment, and so on. In Northern regions where infrastructure is severely limited or does not exist, public investment in infrastructure can be important to start the investment cycle (even before private investment can take place).

This so called virtuous circle results in growth of both infrastructure assets as well as human capital and builds a strong economy. In the North, this circle is broken. Significant infrastructure deficits across the North mean that available infrastructure funding is being used to respond to urgent community needs rather than strategic investment in economic infrastructure. The

[8] Ehlers, T, 2014. Understanding the challenges for infrastructure finance, *Bank for International Settlements Working Papers*

infrastructure deficit reduces the attractiveness of the investment climate in the region, which results in less development in the region, and the economic potential of the North is not being realized.

By comparison, in the South, public investment in core infrastructure has historically predated the current development trend in the North. The Federal government provided the initial investment either alone or in partnership with provincial governments on many core infrastructure projects. Examples include the St-Lawrence Seaway, the National Highway System, the national railways, ports and airports.

The 'public use' criteria for infrastructure funding can act to restrict economic development in its effort to balance competing public goods.

The large funding envelopes currently available to support infrastructure development in the North, namely the New Building Canada Fund and the PPP Canada Fund are public infrastructure funds that are designed to support provincial, territorial and municipal infrastructure, specifically the development of such assets as water distribution, wastewater and solid waste management, public transit, and transportation infrastructure. The programs can provide support for resource-related infrastructure where that infrastructure has a public use component but support for major resource development is not the primary objectives of either program.

Because many of the infrastructure investments required to leverage development opportunities do not comprise a 'public use' component, project proponents then build and maintain this infrastructure themselves – assuming the project is still economically viable with the additional cost required for infrastructure development. The infrastructure, usually transportation or energy related, then becomes private infrastructure and unless it is transitioned to public use in some fashion, remains isolated with less potential to contribute to the overall economic development of the region. The 'public use' criteria for infrastructure funding thus may act to restrict economic development in its effort to balance to competing public goods or short-term community benefit or long-term economic benefit. Whether this balance has been appropriately met in the North is the subject of debate.

The 'public use' criterion is sometimes interpreted as 'public access'. This can be a challenge to achieve in areas like the North where there is low population density and widely dispersed communities. In this regard, the concept of 'public benefit' may be a more appropriate consideration in a Northern context. Such a concept can be inclusive of public access, but include additional forms of use such as: use by industry to explore or develop resource projects beyond a single proponent, development of businesses that flow from the infrastructure (e.g. manufacturing of housing, construction, food and fuel distribution), lowered cost of living for nearby communities and improved delivery of government services, jobs and income (direct and indirect from the infrastructure), et cetera.

POTENTIAL OPPORTUNITIES

Sufficient and appropriate infrastructure is a prerequisite to economic development. The strong correlation between the availability and quality of infrastructure and economic development means that adequate infrastructure can be described as "as the single most important criteria for the attraction and growth of business in remote communities."[9] Infrastructure investment holds great potential as an avenue to address barriers to Aboriginal economic development in the North.

The debt market is looking for long-term, stable investment opportunities

Investors are looking to diversify their portfolios beyond the equity markets after recent financial market challenges. Infrastructure with its long life and strong demand platform can be a desirable option for investors – as long as it is structured correctly and has the right level of political support.

Private investors can not only provide financing but can also help to ensure that a project is run efficiently. If contracts are designed properly private investors will have an incentive to see that an infrastructure project is executed efficiently because it increased the likelihood that their investment is safe and profitable. These public-private partnerships (P3) offer significant potential to address infrastructure deficits in the North and have the private sector bring expertise to the design, building, operating and maintenance of a project[10].

It should be noted that investors will be prepared to commit large sums of financing at long horizons if they trust the legal and political procedures. Creating a predictable pipeline of well-structured projects that attract investment should be the goal of governments in the North[11]. Risks and returns must be distributed in an incentive-compatible way and governance structures must clearly create a stable investment climate for investors if public-private partnerships (P3) are to be successful[12].

There is potential for significant payoff from investment in infrastructure in the North

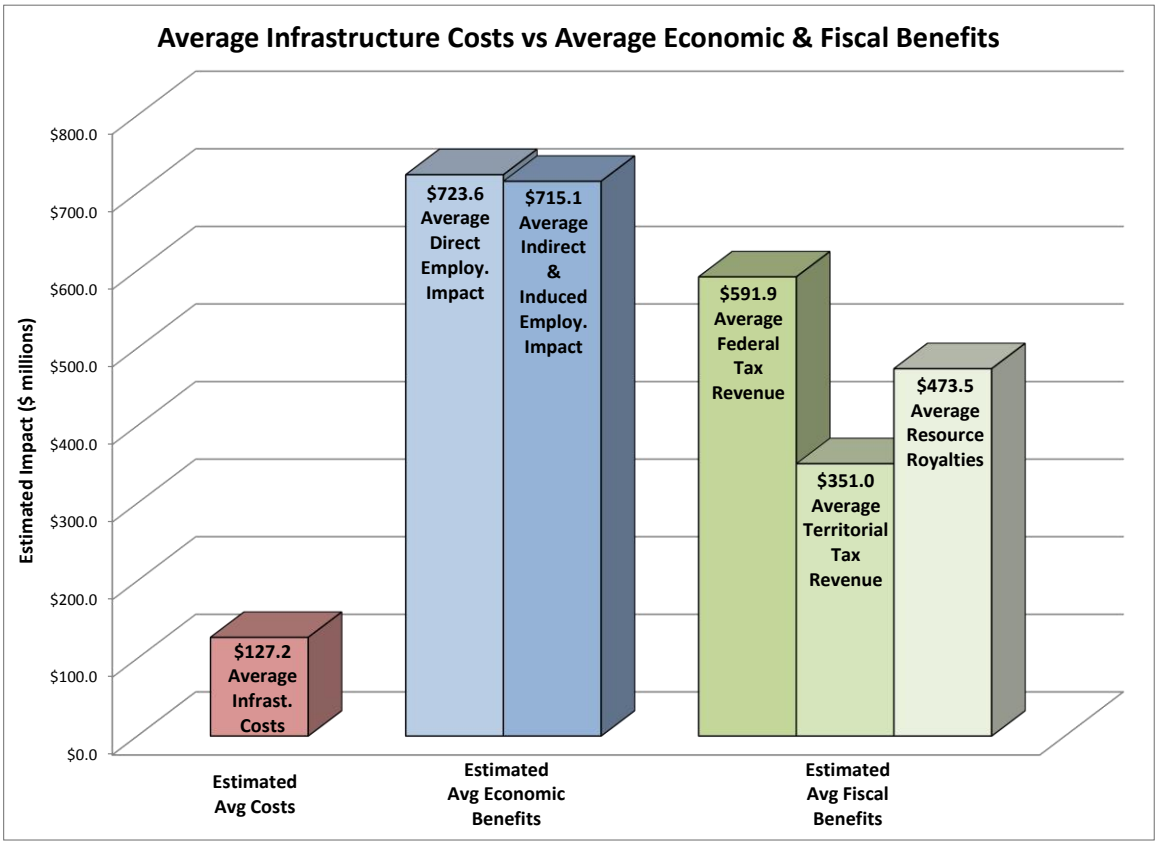
Major resource projects in the North have the potential to generate significant net economic and fiscal benefits. Major resource development is a key driver of employment and public revenues in the North. Not only are there economic benefits, but a fiscal premium is available for all governments from proposed major resource projects in the North. In addition, major resource

[9] GE Canada, *Towards a Remote Communities Investment Strategy*, 7.
[10] Ehlers, T, 2014. Understanding the challenges for infrastructure finance, *Bank for International Settlements Working Papers.*
[11] Ehlers, T, 2014. Understanding the challenges for infrastructure finance, *Bank for International Settlements Working Papers.*
[12] Ibid

development has the potential to generate employment that can significantly reduce costs to all governments associated with unemployed Northern residents.

The cost of infrastructure per major resource project is very much dependent on where the project is and the type of commodity. Base metals (e.g. iron ore, zinc) require significantly more infrastructure such as ports, roads, rail than precious metals (e.g. gold) and diamonds which can often be flown out of site. Additionally, if there is existing infrastructure in place that a project can tie into at some point, infrastructure costs will be lower.

The average estimated cost of required infrastructure per major resource project is about $130 million – this comprises mostly transportation and energy infrastructure. The average estimated economic benefit per major resource project is about $720 million (direct employment benefit) and about $715 million (indirect and induced employment impact), and the average estimated fiscal benefit is about $590 million (federal tax revenue), $350 million (territorial tax revenue), and $470 million (resource royalties)[13]. These numbers are illustrated in the chart below.



The short red bar on the left shows average estimated cost of required transportation and energy infrastructure. The tall blue bars in the middle show average estimated economic benefits. The

[13] National Aboriginal Economic Development Board, unpublished study. Anticipated publication date November 2015.

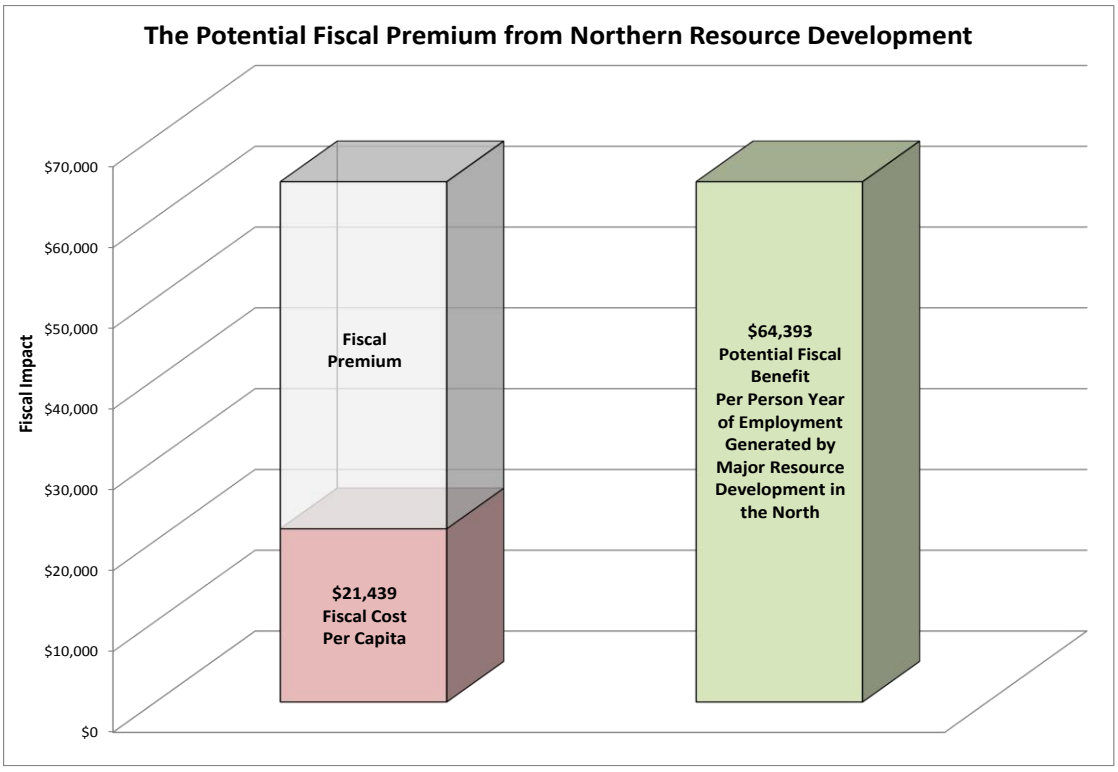
green bars on the right show the average estimated fiscal benefits. Based on the cost and benefit estimates among the projects included in our study, we estimate that about $11 in economic benefit and about $11 in fiscal benefit can be generated for every one dollar invested in transportation and energy infrastructure[14]. Clearly, the potential for economic and fiscal benefit due to infrastructure investment is notable.

Major resource projects in the North have the potential to generate $3 in government revenue, per worker, for every $1 government invests in them.

There is a cost to governments for every person in their region. The estimated total expenditures by federal, provincial, territorial, and local governments can be estimated at about $21,400 per capita.[15] This is the amount government spends on every Canadian annually. On the other hand, the average person year of employment created by a major resource project in the North has the potential to generate about $64,400 in government revenues.[16] This is the amount of fiscal revenue generated when someone is employed.

The chart below demonstrates how costs to government to support individual community members can be offset by fiscal premiums generated should that individual be employed in a resource development job.

[14] National Aboriginal Economic Development Board, unpublished study. Anticipated publication November 2015.
[15] *Based on Cansim table 385-0001, total expenditures by federal, provincial, territorial, and local governments for the period 2001 to 2009 (total government expenditure on a Financial Management System Basis) and Cansim table 109-5335 for the same period (estimated population on July 1). The average annual growth rate in all government expenditures per capita over this period was 3.26%. Projecting 2009 data (latest available) to 2015 with this growth rate yields an estimated $21,439 in all government expenditures per capita among all Canadians.*
[16] National Aboriginal Economic Development Board, unpublished study. Anticipated publication November 2015.

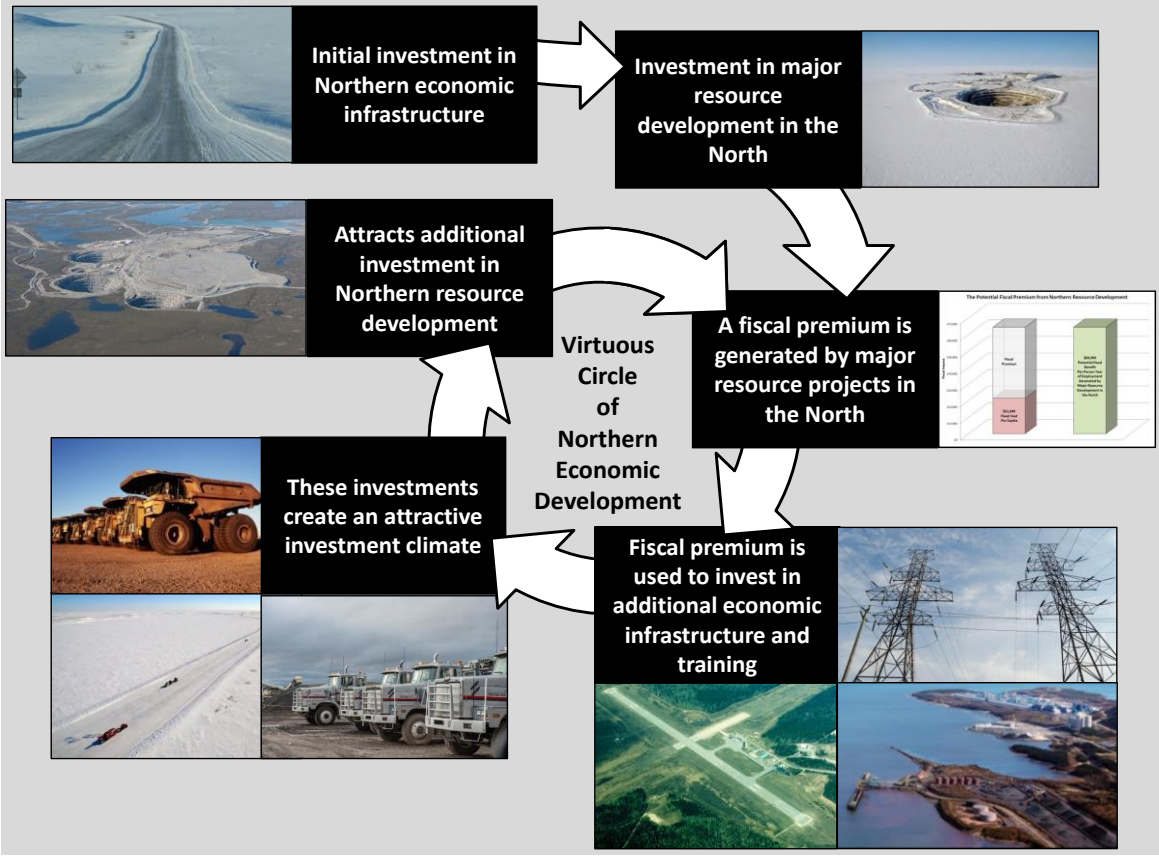


The short red column on the left shows the estimated fiscal cost per capita. The tall green column on the right shows the estimated fiscal benefit per person year of employment generated when people are employed in a major resource project. The difference between these two values is shown as the semi-transparent column stacked on top of the fiscal cost per capita.

Roughly speaking, this means that the proposed major resource projects in the North have the potential to generate three dollars in government revenue, per worker, for every one dollar government spends on workers.

A virtuous circle of infrastructure investment

The potential fiscal premium from major resource development can form the basis of a potential virtuous circle in the North. Major resource projects generate a fiscal premium. This fiscal premium can then be used to pay for economic infrastructure and education and training. This creates an attractive resource development investment climate and attracts additional major resource investment. In turn, this generates a greater demand for labor and even more resource fiscal premiums to build infrastructure and further improve social and economic outcomes. Through this virtuous circle, the fiscal premium from major resource development can increase the standard of living for Aboriginal communities in the North. This is illustrated in the figure below.



Settled land claims and strong economic development corporations create a strong base for economic development in the North

Settled land claims create a stable investment climate and certainty about use and ownership over lands and resources for much of the North. This certainty in the investment climate is a valuable asset to Northern regions in terms of infrastructure investment as it is a critical prerequisite to private investment.

The readiness of the North for economic infrastructure development is increased by the strength of the economic development corporations throughout the North. The economic development corporations create a strong base for business development and have the potential to both participate as equity partners in infrastructure development as well as to capture spin-off business development opportunities and reinvest these benefits back in Aboriginal communities.

DISCUSSION QUESTIONS

1. Traditional public sector resources are not substantial enough to respond to all the infrastructure needs in the North. At the same time, private sector investors seek long-term, stable investment opportunities that provide good returns. Can these two things be connected in a way that protects the public interest and also provides value for money?

2. Infrastructure projects in the North need to be "investable" from the private sector perspective in order to attract investors. How can a pipeline of well-structured projects be generated that attracts private investment and results in increased infrastructure investment in the North?

3. Coordinating infrastructure investment opportunities among various actors could increase fiscal revenues and enhance infrastructure in the North to the benefit to Aboriginal communities in the North? How would this best be achieved? Are there any risks to considering this option?

4. What structural changes are required in programs or policies in order to effect greater investment in infrastructure in the North? What changes in jurisdictional roles and responsibilities will result in greater infrastructure investment in the North?