Recommendations on Northern Infrastructure to Support Economic Development

National Aboriginal Economic Development Board
January 2016

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 Indigenous 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 Indigenous people in Canada

Information about the NAEDB can be found online at: **http://www.naedb-cndea.com**.

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Message from the Chair and Committee,

Canada's North is facing a significant infrastructure deficit – one that is a major barrier to improving the quality of life in northern Indigenous communities and acts as the predominant barrier to economic and business development in the region. Increased infrastructure investment in the North would contribute to not only economic development but would support important social development goals in the North as well. 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 increase the potential to 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.

The National Aboriginal Economic Development Board has and continues to study the issue of infrastructure as it relates to Indigenous economic development. The Board's studies *Addressing the Infrastructure Needs of Northern Aboriginal Communities* and *Business Case for a Northern Economic Infrastructure System*, and consultation with Northern leaders at a roundtable on infrastructure and economic development, provide the groundwork for this report and the recommendations contained within it. Among other things, the Board's work on infrastructure in the North identified that each dollar spent on Northern economic infrastructure has the potential, if invested wisely to generate $11 of economic benefits for individuals and $11 of fiscal benefits for governments. Investment in Northern infrastructure has the potential to result in significant positive benefits for Northerners through both the positive impacts on communities that increased investment in infrastructure would bring, but also through the development of job opportunities and strong and diverse economies that support community well-being.

New approaches and renewed investment in infrastructure are needed – across the country in Indigenous communities and particularly in the North. And it will not be enough to just patch up the existing stock of infrastructure – infrastructure that does not even adequately meet current needs. Bold investment in large, nation-building infrastructure is required alongside increased investment in community level infrastructure to support Northern communities.

Most importantly, as investment and development in the North occurs Indigenous people must be engaged as true partners in the planning, decision-making and business development opportunities along the away.

Sincerely,

Hilda Broomfield Letemplier

Chief Clarence Louie, Chair

Hilda Broomfield Letemplier, Northern sub-committee

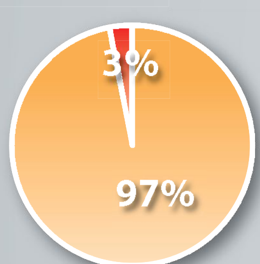
Canada's North: Key Facts

- Canada's territorial 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 Indigenous.
- For these recommendations we are defining the North as including Yukon, the Northwest Territories, and Nunavut, as well as Nunavik and Eeyou Istchee in Northern Québec (taken as a whole), and the coastal region of Nunatsiavut, in Newfoundland and Labrador.
- 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 also with significant growth generated by new sectors in the economy.
- Capacity challenges in the Northern labour market can be linked to poor K-12 educational attainment among Northerners.
- 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.

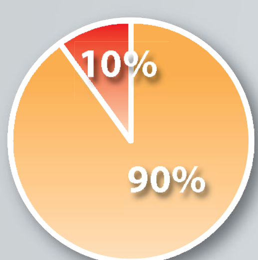
Canada's North: A Spotlight on Community Infrastructure

- The lack of adequate infrastructure in the North (including port facilities, runways, roads, bridges, telecommunications, housing, energy, et cetera) poses significant challenges to community 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 at risk of also being impacted by climate change.
- Three types of infrastructure are closely connected to economic development in the North: transportation infrastructure – that is multi-modal and creates connectivity; communication infrastructure – of adequate speed, reasonable cost, and that is reliable; and energy infrastructure – that is scaleable and of adequate capacity.
- 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. About 50% of communities across the North are currently dependent on satellite internet instead of a terrestrial backbone (supported by land based infrastructure such as microwave towers or fibre optic cables).
- Each of the regions has different infrastructure endowments and infrastructure challenges.
- Of communities in Yukon: 97% have all-season roads, 85% have access to a regional energy grid, 90% have suitable housing, and 93% have access to a terrestrial backbone for internet communications.
- Of communities in the Northwest Territories: 36% have all-season roads, 50% have access to a regional energy grid, 84% have suitable housing, and 69% have access to a terrestrial backbone for internet communications.
- Of communities in Nunavut: none have all-season roads (or adequate port infrastructure), none are on a regional energy grid, 62% have suitable housing, none have access to a terrestrial backbone for internet communications.
- Of communities in Nunavik: 0% have all-season roads, 0% are on a regional energy grid, 58% have suitable housing, and 35% have access to a terrestrial backbone for internet communications.
- Of communities in Nunatsiavut: 0% have access to all-season roads (but do strong ferry access), 0% have access to a regional energy grid, 84% have suitable housing, and 100% have access to a terrestrial backbone for internet communications.

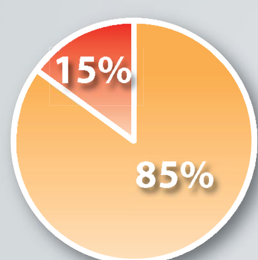
Infrastructure in Yukon Communities



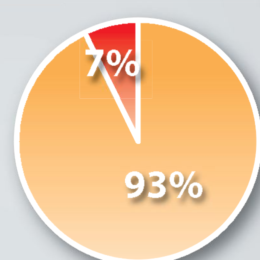
Access to
all-season roads
Yes 97%
No 3%



Population living in
suitable housing
Yes 90%
No 10%

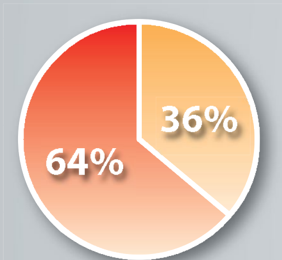


Access to regional
energy grid
Yes 85%
No 15%

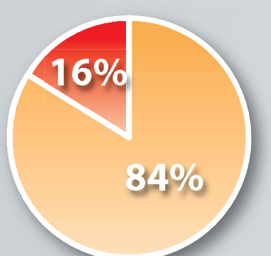


Access to terrestrial
backbone for internet
Yes 93%
No 7%

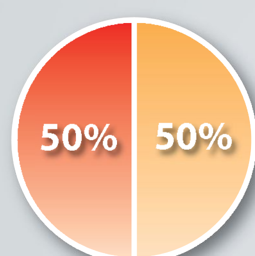
Infrastructure in Northwest Territories Communities



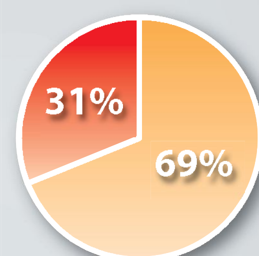
Access to all-season roads
Yes 36%
No 64%



Population living in suitable housing
Yes 84%
No 16%

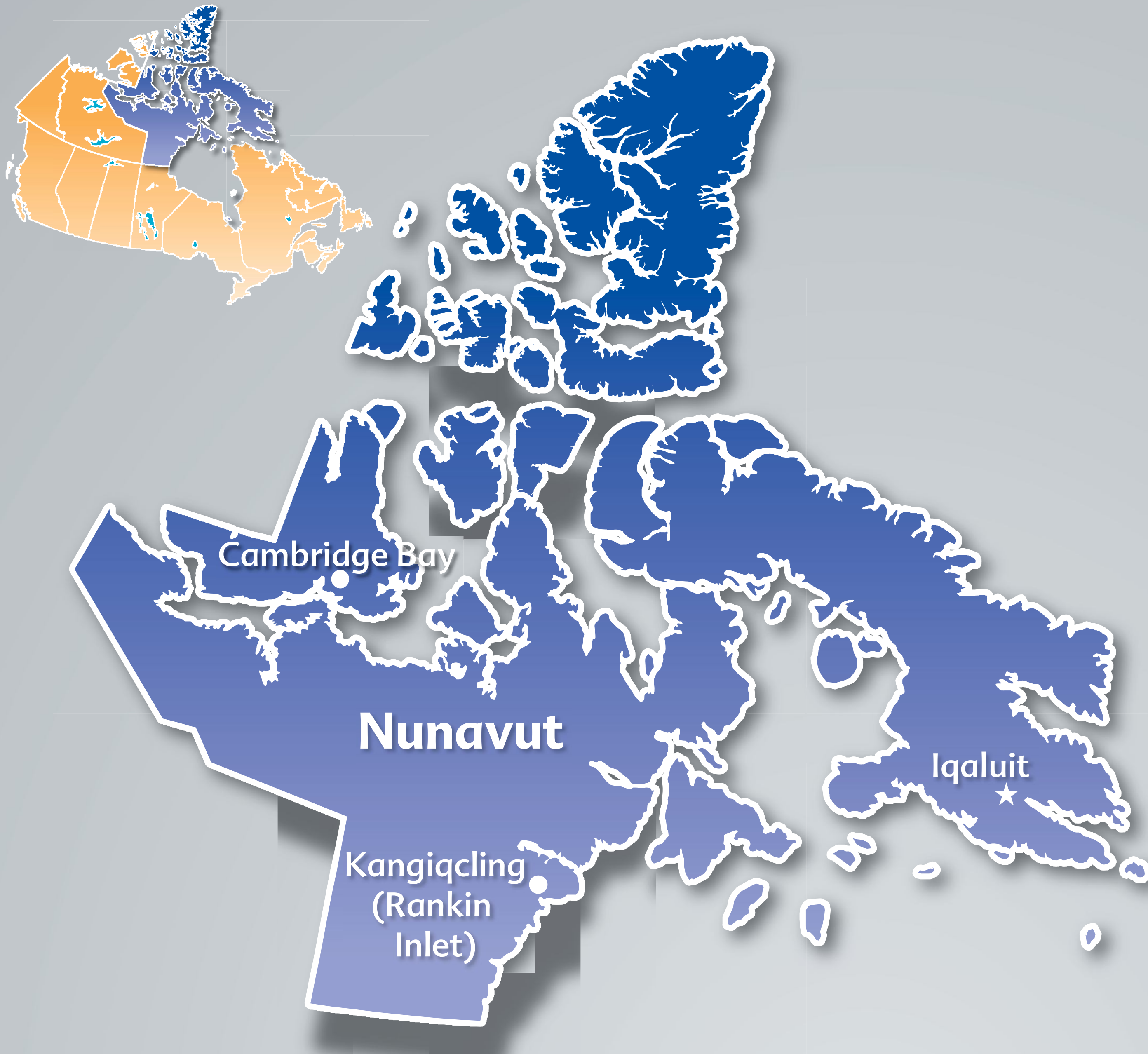


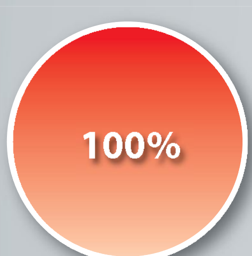
Access to regional energy grid
Yes 50%
No 50%



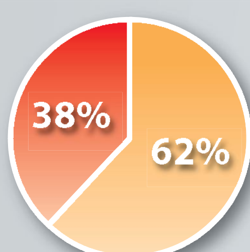
Access to terrestrial backbone for internet
Yes 69%
No 31%

Infrastructure in Nunavut Communities



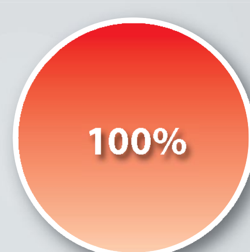


Access to all-season roads
Yes 0%
No 100%



Population living in suitable housing
Yes 62%
No 38%

Access to regional energy grid
Yes 0%
No 100%

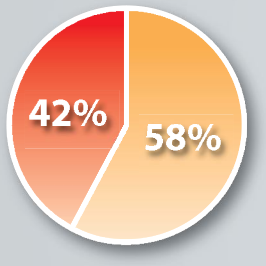


Access to terrestrial backbone for internet
Yes 0%
No 100%

Infrastructure in Nunavik Communities

Access to all-season roads

Yes 0%
No 100%

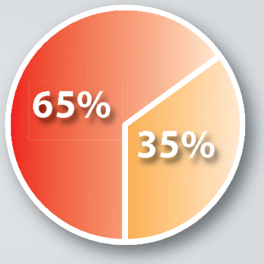


Population living in suitable housing

Yes 58%
No 42%

Access to regional energy grid

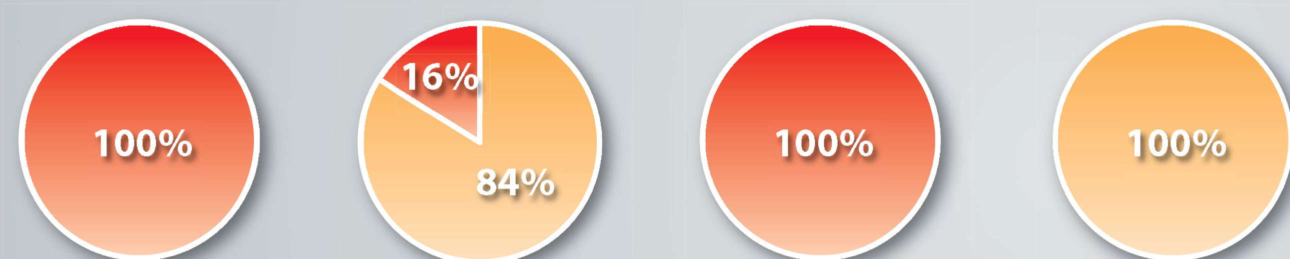
Yes 0%
No 100%



Access to terrestrial backbone for internet

Yes 35%
No 65%

Infrastructure in Nunatsiavut Communities



Access to all-season roads
Yes 0%
No 100%

Population living in suitable housing
Yes 84%
No 16%

Access to regional energy grid
Yes 0%
No 100%

Access to terrestrial backbone for internet
Yes 100%
No 0%

I. Context

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.

Canada West Foundation, At The Intersection.

Canada's North is facing a significant infrastructure deficit that acts as an impediment to community well-being and social development in the region. Northern residents often do not experience the same level of access to services as other Canadians. Many communities experience significant deficits in the areas of emergency healthcare, clean drinking water, transportation, and telecommunications, which can be more than an inconvenience and can pose a threat to health and safety. These challenges have negative impacts on everyday quality of life, increasing the difficulty of living and doing business, and can also significantly impede disaster preparedness and response or relief efforts. Investing in the sustainable infrastructure needed in the North will make communities safer and more resilient, and will support the long-term development of the North. For the purposes of this work we are defining the North as including Yukon, Northwest Territories, and Nunavut, as well as Nunavik, Nunatsiavut, and Eeyou Istchee. It should be noted that the northern regions of the provinces may face many similar issues as the territorial North, including infrastructure deficits and isolated communities with small population bases; however they were not included in this study.

Good infrastructure is an important pre-requisite not only to the long-term development of a region but also for economic development. Investment in transportation, energy, and telecommunications infrastructure is most strongly connected to creating economic benefits by supporting industrial growth and re-investment in additional economic infrastructure. However, long term economic growth also relies on community infrastructure that supports a diversified economy and good quality of life for community members. Assets such as education infrastructure; health care infrastructure; water, waste water and solid waste disposal; and housing infrastructure, enhance quality of life in communities which increases the potential of a business to attract workers and acts as a disincentive to out-migration of community members. For example, businesses across the North struggle to attract and retain employees when there is a shortage of suitable housing. Community level infrastructure and large-scale infrastructure go hand in hand in supporting an investment-ready North.

The Northern infrastructure deficit is also critical to economic growth in the region. Due to the inadequate maintenance of existing infrastructure and insufficient investment in new infrastructure, the country now finds itself in the position of having to play catch-up with regard to its capital assets. The Canadian Chamber of Commerce estimates that Canada as a whole is facing an infrastructure deficit in the range of $50 and $570 billion.[1] If the quantity and quality of

[1] Canadian Chamber of Commerce, 2013, *Foundations of a Competitive Canada*, pg. 8

infrastructure is a challenge for Canada as a whole, this is especially true for much of Canada's Northern regions and the Indigenous communities located within them. Increased infrastructure investments in Canada's North will be vital for getting resources to market, and expanding prosperity for all, but currently limited transportation, communications, and energy infrastructure are features of many Indigenous communities located in Canada's North.

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. Notably, the lack of transportation infrastructure has a significant negative impact on the cost of all infrastructure types. As a result, infrastructure costs are on average roughly 150% higher in the North than in the rest of Canada.[2] Actual costs vary significantly by community, and the costs for building infrastructure in some more isolated communities may be even higher.

> A 2015 study by the Mining Association of Canada and others* 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.** 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).
>
> *Leveling the Playing Field, by The Mining Association of Canada, 2015*

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 of Northern communities are needed. Currently, funding practices are not flexible enough to address the varied infrastructure needs of individual Indigenous communities.[3]

In addition to the challenges of local and community level infrastructure, there is only limited evidence of infrastructure and expenditure coordination in the North for regional and economic infrastructure. Instead of being considered in a coordinated fashion, in most instances,

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[2] NAEDB, 2014, *Study on Addressing the Infrastructure Needs of Northern Aboriginal Communities*: http://www.naedb-cndea.com/reports/northern-infrastructure-report.pdf

*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

[3] NAEDB, 2012, *Recommendations on Financing First Nations Infrastructure*: http://www.naedb-cndea.com/reports/recommendations-on-financing-first-nation-infrastructure.pdf

infrastructure investments necessary to support private sector development, such as transportation and communications corridors, 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.

Infrastructure is particularly vulnerable to market failures

Infrastructure investments are potentially hugely profitable for the economy as a whole, but they are also vulnerable 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.[4]

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

> 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.
>
> *Bank for International Settlements Working Papers, 2014*

Large infrastructure projects tend to be complex and involve a large number of parties. In addition, they are often natural monopolies such as highways or water supply for which governments retain control in order to ensure benefits to the public. The interaction of the public sector and private sector in developing infrastructure requires complex legal arrangements to ensure proper distribution of payoffs and risks to align the incentives of all parties involved.[6]

Providing public financial support in the absence of adequate private sector investment on a

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

[5] Ibid

[6] Ibid

specific project may not be desirable. Given limited funding envelopes, trade-offs in investment will necessarily pit community level infrastructure such as housing and water supply 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 the immediate quality of life for citizens and investing in infrastructure to support trade and business growth, which could have quality of life impacts through job creation.

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 projected public benefits, this will have occurred at the cost of other potential infrastructure investment that could have resulted in immediately benefits to communities or regional economies.

In general, the willingness of private investors to be involved in a project hinges on both the expected profit from the investment and also the level of confidence they have in the legal and political procedures governing the area. Work needs to be done to ensure that communities in the North have the necessary supports to create an investment-ready climate for infrastructure development in their region.

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.

The chart below provides a summary of the comparative distribution of households across the North by availability of select critical infrastructure.

Regions		Percentage of Households by availability of infrastructure			
	House-holds	All season regional road	Regional energy grid	Interregional airport	Suitable housing
Nunat.	730	0	0	10%	84%
Nunavik	2,535	0	0	65%	58%
Eeyou	3,485	95%	95%	24%	74%
NU	6,820	0	0	75%	62%
NT	7,525	36%	51%	72%	84%
YT	3,575	97%	85%	55%	90%
Total	**24,670**	**38%**	**41%**	**61%**	**75%**

Source: AANDC 2014, Conference Board of Canada 2014, GeoSuite, 2011 Census, Statistics Canada Catalogue no. 92-150-XBB; Statistics Canada, 2011 National Household Survey, Statistics Canada Catalogue no. 99-011-X2011

Usually, infrastructure endowment 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. This investment cycle results in growth of both infrastructure assets as well as human capital and builds a strong economy.

In the South, public investment in core infrastructure 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.

By comparison, there has not yet been a significant period of sustained public investment in the kind of core infrastructure that has enabled economic development in Southern Canada. Therefore, the cycle is broken in the North. 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 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 not being realized. However 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).

II. Opportunities

There is an indisputable strong link between investment in the core public infrastructure of roads, transit and utilities and productivity performance in all sectors of the Canadian economy. Equally clear are the consequences of underinvestment.

Canadian Chamber of Commerce, The Foundations of a Competitive Canada.

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 "the single most important criteria for the attraction and growth of business in remote communities."[7] Infrastructure investment holds great potential as an avenue to address barriers to Indigenous economic development in the North and to support needed improvements in quality of life and community wellbeing.

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 increases the likelihood that their investment is safe and profitable. Private investment also has the result of bringing expertise to the design, building, operating and maintenance of a project.[8]

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.[9] Risks and returns must be distributed in an incentive-compatible way and governance structures must clearly create a stable investment climate for investors.[10]

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

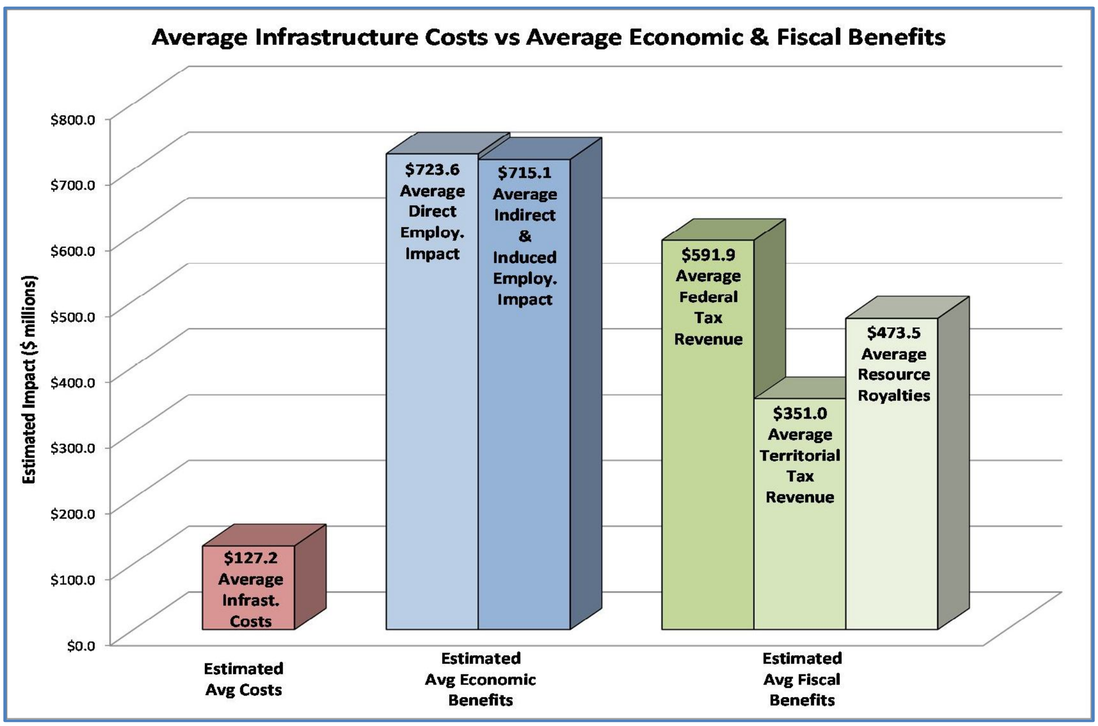
Major resource development is a key driver of employment and public revenues in the North. Major resource projects in the North have the potential to generate significant net economic and fiscal benefits, and will likely continue to be a key piece of developing sustainable economies moving forward. Not 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

[7] GE Canada, 2011, *Towards a Remote Communities Investment Strategy*, pg.7.
[8] Ehlers, T, 2014. Understanding the challenges for infrastructure finance, *Bank for International Settlements Working Papers.*
[9] Ibid.
[10] Ibid

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

It is important to note that the cost of infrastructure per major resource project is very much dependent on where the project is and the type of commodity. With the variety of projects and locations, some have costs a great deal higher than this estimate while others have much lower costs, affecting the estimated benefits of any individual project. Base metals (e.g. iron ore, zinc) require significantly more infrastructure, such as ports, roads, and rail, than precious metals (e.g. gold) and diamonds which can often be flown out from the mine site. Additionally, if there is infrastructure in place that a project can tie into at some point, infrastructure costs could be significantly lower. These and other factors contribute to the vast variability of costs and impacts of a project.

Notwithstanding the significant variability, the cost of required infrastructure per major resource project can be estimated at an average of about $130 million, comprised mostly of 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).[11] 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

[11] NAEDB, 2015, *The Business Case for a Northern Economic Infrastructure System*: http://www.naedb-cndea.com/reports/business-case-northern-economic-infrastructure-system.PDF

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.[12] The actual economic benefit may vary significantly from project to project, but 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.

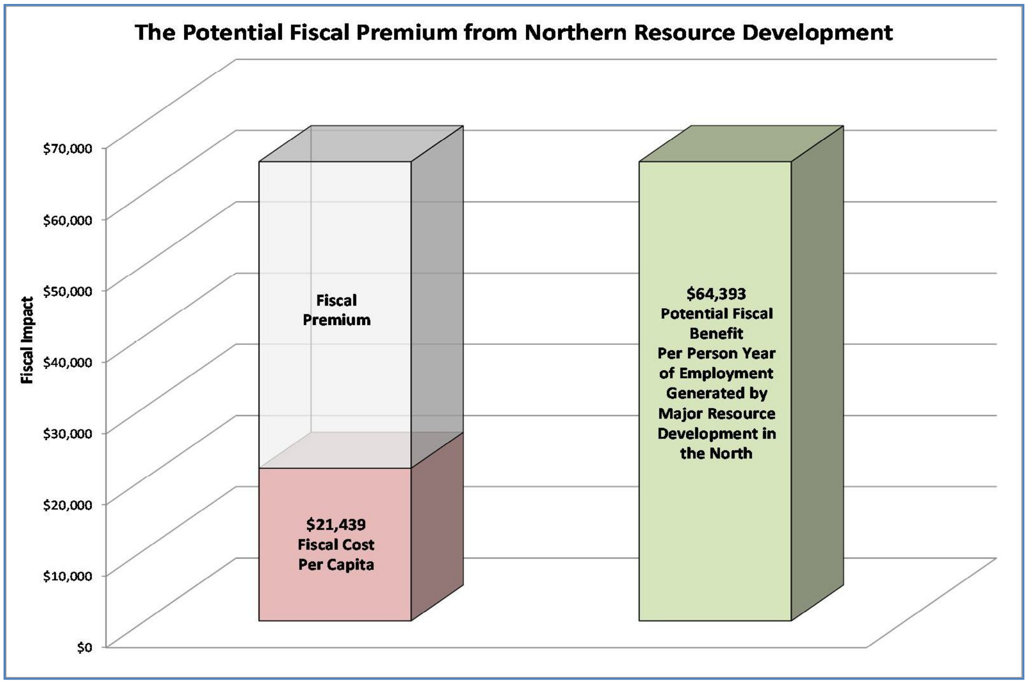
There is a cost to governments for every person in their region. Though there is a large amount of variability from region to region, the average of total expenditures by federal, provincial, territorial, and local governments can be estimated at about $21,400 per capita.[13] This is the amount government 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.[14] This is the amount of fiscal revenue generated when someone is employed.

The chart below demonstrates, on average, 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.

[12] Ibid.

[13] 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.

[14] NAEDB, 2015, *The Business Case for a Northern Economic Infrastructure System*: http://www.naedb-cndea.com/reports/business-case-northern-economic-infrastructure-system.PDF



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.

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. Twenty-nine comprehensive land claim and/or self-government agreements have been ratified, covering over 40 percent of Canada's land mass, much of it in the North. See map below of modern treaties.[15]

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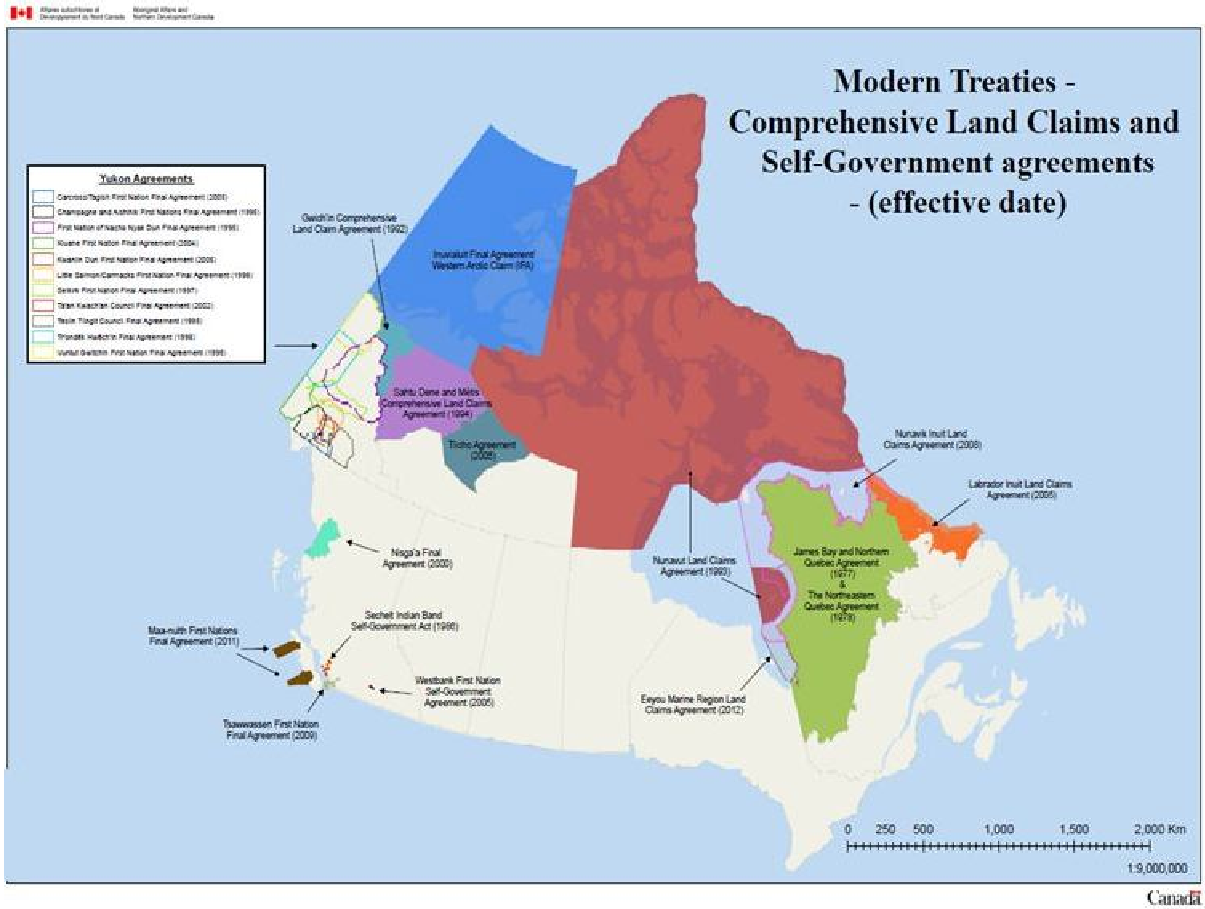
[15] Indigenous and Northern Affairs Canada, Available at: http://www.aadnc-aandc.gc.ca/DAM/DAM-INTER-HQ-AI/STAGING/texte-text/mprm_pdf_modrn-treaty_1383144351646_eng.pdf



The readiness of the North for economic infrastructure development is increased by the strength of the economic development corporations throughout the North. Indigenous development corporations have been set up by land claim organizations in Canada's North to manage the assets from land claim settlements and foster Indigenous business opportunities in their respective regions. Development corporations are essentially the the economic and business development arm of Indigenous governments. They invest in, own, or manage subsidiary businesses and encourage joint ventures and partnerships with the goal of benefiting their community members and providing skills training and jobs for their members.

The economic development corporations create a strong base for business development. They have the potential to both participate as equity partners in infrastructure development as well as to capture related spin-off business development opportunities and reinvest these benefits back in Indigenous communities. There are 20 economic development corporations in the study region with business holdings across a wide variety of sectors including: mining, manufacturing, insurance, construction, transportation, real estate development, oil and gas, security, and fisheries. Makivik Corporation for example, which represents the Inuit of Nunavik, reports an approximate net worth of $180 million.[16] Makivik owns six subsidiary businesses in their region, including the regional airline, a civil and residential construction company, and a rock crushing facility that provides heavy equipment rentals.

[16] Makivik Corporation, 2015, *Financial Investments*: http://www.makivik.org/history/financial-investments/

III. Recommendations

A. Coordinated investments in economic development infrastructure

i. A System to Identify Priority Investment Areas and Coordinate Investment

Infrastructure development in the North also involves the challenge of coordinating development between various different levels of government including Indigenous governments. Currently, there is only limited evidence of infrastructure and expenditure coordination among Northern, Indigenous, and federal governments; instead of being considered in a coordinated fashion, most infrastructure investment is considered by different actors in relation to their particular constituents and goals.

Given that the funding available to invest in Northern infrastructure development is limited, an investment coordination function should be considered to find efficiencies. Investments must be synchronized not only between territorial governments and Infrastructure Canada, but coordination must also be facilitated between other federal agencies, Indigenous governments, communities, and organizations, and private investors, with a system to incorporate the input of researchers as well. Models such as FPInnovations, a research hub for the Canadian forestry industry, and the Centre for Northern Innovations and Mining, Yukon College's training and network centre, provide examples of mechanisms for coordination among numerous stakeholder groups. Both organizations bring together key players in academia, industry, and government to productively foster strategic planning, training, research, and coordination.[17] An analogous mechanism to facilitate collaboration on infrastructure development across the North would serve to maximize infrastructure investment and related economic development.

One outcome of a multi-partner coordination table should be the generation of a pool of well-structured, ready to start projects to attract private investment and supplement public investment. This pool of projects could be modeled on the work of the Infrastructure Project Preparation Facility, which is used in the developing world to facilitate critical infrastructure development by providing capacity support to ensure projects are investment ready.[18]

The Infrastructure Project Preparation Facility (IPPF) is a multi-donor trust fund managed by the African Union through their program New Partnership for Africa's Development. The purpose of the IPPF is to provide support to development organizations and regional institutions for the preparation of 'bankable' infrastructure projects in the telecommunuications, energy, and transport sectors in Africa. 'Bankable' projects are those which have gone through high-quality project preparation processes, which include support for feasibility and engineering studies, legal analysis, environmental impact assessments, structured financing plans, and financial transaction plans. The IPPF provides grant resources for: (i) preparing high-quality, viable regional or continental infrastructure projects with a view to requesting financing from public and private sources; (ii) developing a partnership for project implementation; and (iii) promoting infrastructure projects and programs aimed at enhancing regional integration and trade.

[17] FPInnovations, 2015: https://fpinnovations.ca/about-us/organization/Pages/default.aspx; Yukon College, 2015: http://yukoncollege.yk.ca/programs/pages/centre_for_northern_innovation_in_mining
[18] NEPAD-IPPF: New Partnership for Africa's Development, 2015: http://www.nepad-ippf.org/about-ippf/

In addition, a coordination table for to support infrastructure development in the North could provide the additional input required to determine the best way to incorporate public use into proposed infrastructure projects, either via a process to convert private infrastructure to public or a decision to build shared-access infrastructure initially. Multi-party coordination and decision-making is already well established in the North. Co-management governance mechanisms are in place for many planning and decision making bodies. New entities set up in the North should build on this tradition.

Recommendation 1

It is recommended that the Government of Canada fund a system to facilitate coordination in infrastructure development: including identifying the priorities of communities, conducting research and development regarding needs assessments and feasibility studies, coordinating investments for the highest rates of return, and generating a pool of investment-ready projects. This system should use a co-management governance mechanism.

ii. Infrastructure Development as an Investment Opportunity for Indigenous Governments

Infrastructure can be an attractive alternative to conventional investment funds. Governments can diversify their investment portfolios by financing infrastructure, which can provide stable returns while simultaneously supporting infrastructure development. Specific types of infrastructure have strong investment suitability – particularly infrastructure where needs are ongoing, such as water and wastewater infrastructure, and power supply.

The First Nations Finance Authority (FNFA) is a not-for-profit organization under the *First Nations Fiscal Management Act* that provides investment options, capital planning advice, and access to long-term loans with preferable interest rates. In 2013, the FNFA obtained an A3 credit rating from Moody's Investor Services, and issued its inaugural bond of $90 million, representing a major breakthrough for member First Nations. $50 million was added to the bond in July 2015, and 23 First Nations are participating in the bond. By using a pooled borrowing model, the cost of borrowing is significantly reduced, making capital more affordable to First Nations. The strength of the pool is based on its size and on the strength of the revenues available to repay the debt, which is maintained by the independent quality assessment of the First Nations Financial Management Board, the institution responsible for overseeing participation and creditworthiness. The proceeds of the bond issues are used by First Nations for community infrastructure, housing, and economic development projects.

By investing in infrastructure, either as financiers or owners, Indigenous governments in the North could generate profits while simultaneously contributing to local communities. The profit from the investments could then be reinvested in the next revenue-generating infrastructure project, creating a feedback loop of infrastructure growth and economic development. If there is a pool of well-structured projects that are ready for investment, as soon as profit is generated from one project it can be invested in the next. The overall profits can then be used to pay for social infrastructure, education, and training. In turn, this builds an attractive community for citizens and external investment, which leads to new economic development opportunities.

Many Indigenous communities do not have reliable, long-term revenue streams making it a challenge to access the initial capital for investment in infrastructure and other projects. Enhancing access to capital would allow Indigenous governments' greater access to economic development opportunities including investing in infrastructure. The First Nations Finance Authority is an established borrowing mechanism that enables First Nations to access capital at competitive rates. However, this regime is not currently accessible to self-governing First Nations and Inuit or Metis governments. The Board urges that it be expanded to establish an additional financing option for Indigenous governments across the North.

Infrastructure Ontario (IO) is responsible for overseeing the financing and construction of public works in Ontario. IO plays a key role in the province's long-term infrastructure plan to repair, rebuild and renew the Province's roads and highways, bridges, public transit, post-secondary institutions, and hospitals. IO uses public-private partnership models called Alternative Financing and Procurement (AFP), and Direct Delivery (DD) models for infrastructure projects. According to the Track Record Report, as of March 31, 2015: 98% of AFPs were delivered on budget, and 73% of AFP were delivered on time; 71% of DD were delivered on budget, and 86% of DD were delivered on time.

Infrastructure Ontario also has a Loan Program which provides long-term financing to eligible public sector clients, in order to help renew infrastructure and deliver value to customers and residents. To date, Infrastructure Ontario (IO) has completed $12 billion in projects and committed to the financing of over $6 billion in infrastructure.

The Indigenous governments with land claims have settlement funds and many of them have development corporations to manage those funds and invest in economic, community, and business development. However in order to take advantage of economies of scale, coordinating infrastructure investment opportunities among various actors could increase fiscal revenues and enhance infrastructure in the North to the benefit to Indigenous communities in the North. This pooled approach would increase the opportunities for equity participation in major projects and facilitating the development of more large-scale infrastructure, allowing the funds to have a potentially greater impact. The creation of a new Indigenous investment fund or corporate entity to use a pooled approach to invest in infrastructure in Northern communities and address the infrastructure deficits in multiple northern regions holds promise. The entity would be based on partnerships between multiple Indigenous groups, and set up similar to Infrastructure Ontario as a revolving fund whereby the capital is replenished through the returns on investment, so that it may continue to make investments repeatedly to a series of projects.[19]

The management of this entity must account for the variety of contributors to the fund, and can do so by building on the success of many co-management boards in the North. Co-management boards are multi-party cooperative agreements between the territorial government, federal governments, Indigenous governments and organizations, public, and/or industry representatives that have been developed primarily for the management of lands, the environment, and resources.

[19] Government of Ontario: Infrastructure Ontario, 2015: http://www.infrastructureontario.ca/

Such a model could be developed to manage the pool of resources for investment in economic infrastructure, generating revenue and coordinating investment for economic development.

Recommendation 2a

- It is recommended that the Government of Canada work with the First Nations Fiscal Management Act institutions to ensure access to the First Nations Finance Authority borrowing mechanisms for self-governing Indigenous Peoples, to allow them access to financing to support infrastructure investment.

Recommendation 2b

- It is recommended that the Government commission a feasibility study on establishing a Northern Indigenous investment entity, examining the potential benefits of a pooled approach to create a pan-Northern development fund.

B. Infrastructure Funding and Financing

In a survey conducted by GE Canada which involved Northern business and community leaders, infrastructure was ranked by 70% of those surveyed as "the single most important criteria" for attracting investment and facilitating business development in remote communities.[20] The state of Northern infrastructure will play a vital role in determining the varying strengths of industry sectors, and in defining the extent to which these sectors will contribute to the economic development of Canada's Northern Indigenous communities. Increased funding from government to create a lasting endowment of infrastructure in the North could is critical to sustainable economies and quality of life in Northern communities.

The unique context in the North necessitates a 'Made in the North, For the North' approach to facilitating investment in the region. New and innovative models need to be developed in order to respond adequately to the needs in the North.

iii. Creating a Dedicated Northern Infrastructure Investment Fund

While funding is available to support investment in Northern infrastructure, the size of the funding envelope currently allocated is not sufficient relative to the need in this region. Increased investment is needed to address urgent deficits in Northern economic infrastructure. In addition there are challenges related to the criteria for accessing funding. For example, while the funding given to the Canadian Northern Economic Development Agency's Strategic Investments in Northern Economic Development (SINED) program can be used to support the research and planning for multi-user infrastructure, any construction activity related to large engineering works (such as roads, bridges, airports, rail roads, ports, dams, commercial buildings, et cetera) is ineligible for funding.[21]

Similar challenges exist with Infrastructure Canada's New Building Canada Fund (NBCF), which was launched in 2014, and provides $14 billion for infrastructure funding over a 10-year period across Canada.[22] All projects over $100 million are required to go through a Public-Private Partnership (P3) Screen, to assess whether the project could be successfully procured through a public-private partnership to generate better value for money. The $14 billion from the NBCF is divided into different funds: $4 billion for the National Infrastructure Component, which provides funding for projects that have broad public benefits, and $10 billion for the Provincial-Territorial Infrastructure Component (PTIC). The PTIC provides a base amount of $25 million per year to each province and territory, plus a per capita allocation based on the 2011 Census. This per capita allocation means that the territories receive less infrastructure funding due to their lower population sizes. Of the $10 billion, $1 billion is set aside for projects located in communities of fewer than 100,000 residents across Canada, however *all* of the communities in the territories are under that threshold. Since the majority of infrastructure funding is based on a per capita formula, it puts the North at a disadvantage compared to the South due to a substantially lower population.

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[20] GE Canada, 2011, Towards a Remote Communities Investment Strategy, pg. 8.

[21] Canadian Northern Economic Development Agency, 2015, *Strategic Investments in Northern Economic Development (SINED)*: http://www.cannor.gc.ca/eng/1385477070180/1385477215760

[22] Infrastructure Canada, 2015, *The New Building Canada Fund*: http://www.infrastructure.gc.ca/plan/nbcf-nfcc-eng.html

However, the North's vast land base arguably creates an increased need. As such, an alternate methodology, such as allocating funding on a per hectare basis in the North, should be considered to determine Northern infrastructure funding if the deficits are to be addressed.

In addition to the limited nature of the funding, the criteria for accessing it can restrict its use in the Northern context. For example, the National Infrastructure Component supports projects that can demonstrate "broad public benefits"[23] which means their benefit extends beyond the provinces or territories where the project is located, for example key interprovincial highways, major bridges, and airports. The public benefit criteria of infrastructure can sometimes interpreted as public use, such as a public transit system. Public use can be a challenging standard to achieve in areas like the North where there is low population density and widely dispersed communities. In this regard, the concept of the public benefit of infrastructure may need to be expanded for more appropriate consideration in a Northern context. Public benefit can be inclusive of public access to and use of infrastructure, but there is a need to 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. Due consideration should be given to how the criteria for public use and benefit should be applied in the North and in the context of infrastructure needed to leverage economic development in the region. While these criteria make good sense in many contexts, their application in the North will undoubtedly ensure that the current infrastructure deficit in the North will persist.

When increased funding and projects start to flow, it is important to consider how to best undertake projects. The **Canadian High Arctic Research Station (CHARS)**, a science and technology research station being constructed in Cambridge Bay, Nunavut, provides an example of development that is integrated into the community. Prior to construction, numerous community consultations were held to ensure the development would best address the community's needs. To involve Indigenous and Northern businesses in the construction, and to encourage local jobs and skills development, the construction work packages of CHARS have been sized appropriately to make them more accessible to local companies. An estimated 150 jobs will be created locally, across the North, and in more specialized sectors in other parts of Canada. An Inuit Benefits Plan was included as a tool to meet the obligations of the Nunavut Land Claim Agreement. As of July 2015, approximately 59% of the 31 awarded tender packages for construction went to Inuit registered firms (approximate value of $46.7 million). The construction manager provides routine updates about the plan and is on track to meet outlined targets.

To address the infrastructure deficit in the North, additional funding to what has already been committed is needed. This funding envelope must be dedicated to the North, with a tailored North-specific approach, available to territorial, Indigenous, and local governments and Indigenous development organizations to access. This infrastructure investment fund should be committed to the creation of energy, telecommunications, and transportation infrastructure to support economic

[23] Infrastructure Canada, 2015, *New Building Canada Fund: National Infrastructure Component:* http://www.infrastructure.gc.ca/alt-format/pdf/nbcf-nic-guide-nfcc-vin-eng.pdf

development in the North. Such a fund would provide a significant return on the investments, creating a measurable economic benefit to the Canadian economy as a whole.

Recommendation 3

It is recommended that the Government of Canada designate additional funding to establish a new North-specific infrastructure investment fund, in order to invest in infrastructure to support economic development in the North. The fund would focus on key investments in transportation, energy, and connectivity to strengthen Northern communities, and create the conditions whereby they may be able to support community and business development.

iv. Addressing challenges in implementing private investment models in the North

Leveraging private investment in infrastructure offers the potential to increase infrastructure development in the North and to bring to bear private sector expertise on projects. A variety of private investment models have potential to generate increased investment in infrastructure in the North, but there can be challenges when applying these models in the North. Public-Private Partnerships (P3) involve a government service that is funded and operated through an agreement between government and a private sector company whereby the public sector authority contracts the financing, construction, and servicing of a project to the private party in whole or in part.

In certain cases, a P3 may be the best option for public infrastructure. In a P3, the private sector incurs the bulk of the financial, technical, and operational risk of the project while ensuring effective performance and efficiencies by harnessing the expertise of the private sector.[24] One such example is the southeast portion of the Edmonton Ring Road, which was built through a public-private partnership. The Auditor General of Alberta determined as a P3, the project saved $4 million and was completed two years earlier than if it had been conventionally procured.[25]

However not all situations are suited to P3s, and the Northern context provides specific difficulties. Successful P3s tend to be large, complex projects and so the low population base and vast areas of wilderness greatly limit the applicability of the P3 model in the North. According to P3 Canada, a suitable project includes:

- High cost and long asset life;
- Availability of clear output and performance specifications;
- Well understood lifecycle costs and operational and maintenance requirements;
- Ability to effectively transfer risks to the private sector;
- Integrating design, build, finance, operation, and maintenance elements into one contract;
- Potential for revenue generation, including through innovation and efficiency gains; and
- Sufficient private sector knowledge, capacity, and experience to deliver.[26]

[24] PPP Canada, 2015: http://p3canada.ca/en/about-p3s/
[25] Auditor General of Alberta. “Anthony Henday Drive.” *Annual Report 2013-2014*; Alberta Treasury Board
[26] PPP Canada, 2015: http://p3canada.ca/en/about-p3s/frequently-asked-questions/

In rural and remote areas these considerations are often not met for public infrastructure projects. In the North, only a small portion of the required infrastructure projects fit the criteria and scale necessary for a P3 to be successful. Additionally, it takes a great deal of technical, administrative, and expert capacity for the jurisdiction to be able to handle a P3 project, as implementing them is transactionally heavy, costly, and cumbersome. A 2006 study conducted by the New Zealand Treasury found that there is little reliable empirical evidence about the costs and benefits of P3s, and that the P3 has unique disadvantages which include the contractual complexities and rigidities and the large tendering and contracting costs, compared to traditional procurement models.[27] Many Northern governments simply do not have the capacity to effectively manage and enforce complex long term contracts, often on a 30-40 year time scale. However, the New Canada Building Fund requires that all large projects applying for federal funding go through a P3 Screen to decide if a public-private partnership would generate better value for money. If it is determined that a P3 could successfully procure the project at better value for money, this decision is binding.

Developing a North-specific private investment model should be examined. The model should support the private financing, construction, and management of infrastructure projects in small and remote communities. Having contracts for private investment bundled at an appropriately scale for local Indigenous and Northern business may be one tactic to develop a North-specific private investment model. This has been shown to work effectively in the North for the Canadian High Arctic Research Station, which used a construction management approach for procurement that facilitated the use of local private partners by splitting the construction tenders into multiple packages and procuring multiple service providers.[28] By scaling contracts smaller, it allows a wider variety of players to successfully bid on these smaller packages, rather than larger businesses solely.

Recommendation 4

It is recommended that further work be undertaken by governments and key Northern leaders to examine alternate private investment models that apply to the North. The Government of Canada should take immediate steps to explore ways of generating a model that can support private financing, construction, and management in small and remote communities.

v. Creating Tax Structures to Encourage Infrastructure Development in the North

To facilitate private investment in infrastructure, incentives ought to be considered. Increased operating costs in the North can pose a challenge to projects in the region. This puts industry in a Northern location at a disadvantage compared to other, more cost-effective, locations. The remoteness, severe weather, under developed infrastructure, and (in many cases) sparse

[27] Katz, D. 2006, *Financing Major Infrastructure Projects: Public Private Partnerships*, New Zealand Treasury: http://www.treasury.govt.nz/publications/research-policy/ppp/2006/06-02/tpp06-02.pdf
[28] Indigenous and Northern Affairs Canada, 2014, Canadian High Arctic Research Station: http://www.aadnc-aandc.gc.ca/eng/1404915541744/1404915688603

populations make economic development substantially more expensive than in other parts of Canada. This can make it difficult to attract the investment necessary in the North to sustain the economic opportunities generated by the industry. There is a public benefit of creating an strong investment climate; removing barriers to resource development creates a public benefit that extends beyond the North and benefits all of Canada.

The tax structure is set up so that individuals living in the North can claim a Northern Resident Deduction in order to help ease the added financial burden of the high costs of living in the North. An individual who lives in a prescribed northern zone can claim $8.25 for each day they lived there, and an individual who lives in an intermediate northern zone can claim half of the above amount.[29] However a comparable accommodation does not exist for industry despite the higher costs of operating in the North. A 2015 study by the Mining Association of Canada (MAC) and others[30] concluded that construction costs in the North are two and a half times higher than in Southern Canada and operating costs are 30-60% higher, in large part due to the lack of critical infrastructure in the North.[31] To address this, tax structures could be shaped to create incentives for industry to operate in the North.

Additional northern tax credits could help level the playing field between businesses wishing to operate in the North with those operating in the South. MAC suggests that one such credit to consider is the federal Mineral Exploration Tax Credit. Currently, junior mineral exploration companies across Canada can claim a 15% credit for exploratory work. Expanding this credit to 25% in remote and northern areas in Canada could be a tool to create a more equitable investment climate. In addition, an investment tax credit that industry can claim for the development of eligible infrastructure in the North could be explored, as a means of encouraging industry development of publically beneficial infrastructure.

Recommendation 5

It is recommended that the Government of Canada consider adopting tax structures that take into account the added cost of operating in the North and would act to level the playing field for industry choosing to operate in the North. It is further recommended that the government consider an investment tax credit for eligible infrastructure in the North that would then act to increase the infrastructure endowment across the North and strengthen the climate for investment.

[29]Grant Thornton LLP., 2015 http://www.taxplanningguide.ca/tax-planning-guide/section-2-individuals/northern-residents-deduction/

[30] 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

[31] The Mining Association of Canada, 2015, *Levelling the Playing Field*: http://mining.ca/documents/levelling-playing-field.

C. Supporting Community Capacity

Capacity building is about ensuring that communities are ready to participate in discussions about economic and business opportunities, and leverage such opportunities as they unfold. Communities' access to information, proactive planning, and opportunities to build local economies are essential factors for building a strong, vibrant North that benefits all of Canada.

vi. Resource Centres to Share Best Practices

There are many examples of economic development success in the North and sharing these examples offers the potential to address the gap in information regarding how and why certain initiatives were successful, and to share potential opportunities.[32] A resource centre to support infrastructure and economic development in the North could provide a central repository for information on best practices, resources, and access to experts. This single window resource centre would support Indigenous communities by providing them with the information and expertise necessary to seize economic development opportunities, including major resource development which can be a complicated process to undertake for the first time. Through this resource centre, information on key issues and best practices could also be made available to Northern governments, Indigenous groups, and development corporations. In addition, it could contain research into and success stories of communities that have invested in infrastructure that generates revenue, and outline best practices on how to best structure such investments so that they are sound and profitable.

The Northern Projects Management Office (NPMO) assists businesses, governments, and communities in capacity building by helping them navigate the complicated regulatory requirements and environmental review process for proposed resource development and infrastructure projects. NPMO seeks to improve the timeliness, predictability, and transparency of northern regulatory processes to foster a more stable and attractive investment climate in the territories. Its function is to coordinate, provide advice, oversee consultation, and work with partners to advance community readiness.[1] This is an important aspect of ensuring that communities are equipped and supported to participate and should continue to be supported, however the resource centre being proposed would have a broader mandate to support economic development as a whole.

Canadian Northern Economic Development Agency

The centre would be a place to coordinate research into examples of successful business models and partnerships in order to develop best practices. Corporations seeking to begin working in the North would have one-stop-shop access to a wide variety of information on the multitude of contexts, requirements, regulations, and communities. Various regional initiatives have been developed for this purpose, such as a "Nunavut 101" crash course explaining land claims and business in the territory, and the Yukon is currently developing a guidebook for companies with best practices for relating to First Nations governments in the Yukon. However a coordinated

[32] NAEDB, 2014, *Study on Addressing the Infrastructure Needs of Northern Aboriginal Communities*: http://www.naedb-cndea.com/reports/northern-infrastructure-report.pdf

approach to sharing best practices from across the whole North, in a way that takes into account the vast array of contexts, would provide a valuable source of information for multinational companies seeking to operate in Northern Canada. The centre could also provide training and best practices on how to productively engage with Indigenous communities, as some companies are well aware of how to approach northern communities and the legal processes that must be followed while others are not.

Recommendation 6

It is recommended that, in order to address information gaps, accessibility challenges, and deficits in capacity and expertise, the Government of Canada fund a publicly accessible, independent Resource Center to coordinate research into, and share information on, best practices in economic development in the North. This would help industry proponents, Indigenous and territorial governments, and Indigenous economic development corporations achieve economic development success.

vii. Support for Comprehensive Economic Development Planning

The sustainable development of the North requires long-term investment in region-wide transportation, energy, and telecommunications infrastructure, however, it also relies on community-level infrastructure such as education infrastructure; health care infrastructure; water, waste water and solid waste disposal; and housing infrastructure. These factors support a diversified economy, enhance the quality of life in communities, and increase the potential of a community to attract and retain business and community members.

Having an economic or land use plan in place allows Indigenous communities to approach companies to pursue economic development on their own terms. Comprehensive plans allow communities to identify and set long-term priorities for infrastructure development, as well as allow communities to be proactive in examining what natural resources are found in different regions and whether they have potential for development. If this is done, rather than reacting to multinational corporations as they explore a region for a particular resource, the communities and regions can be the ones to determine whether there are opportunities for economic or infrastructure growth and develop opinions and policies before exploration even begins to take place. Communities could use geotechnical resources and asset mapping to find out where resource developments might take place and proactively seek out engaged private sector partners that are prepared to undertake a project in a manner that is beneficial to the community.

The Mackenzie Valley Highway is an all-weather road being developed in the Northwest Territories to permanently connect the territory to the rest of the continent. In concert with the construction of the road is the development of a broader **Mackenzie Valley Highway corridor:** coordinating infrastructure investments along the highway route, to support complementary infrastructure projects and encourage development within the common corridor. According to a report prepared for the Government of the Northwest Territories, the highway should increase gross domestic product in the region by roughly $330,000, and reduce annual costs of living by $1.5 million (NAEDB, 2014). Strategic investments along the corridor include the laying of a fibre-optic backbone network to improve telecommunications in the region and installing permanent structures at water crossings.[1] This case demonstrates the benefits that can be achieved by bundling complementary infrastructure projects and systems. Local level governments should also have access to such comprehensive and forward looking planning for community level projects and to participate in large development nearby.

When investment planning for Northern infrastructure is not integrated into long-term comprehensive planning, it can delay and hinder opportunities. For example, a lack of transportation options in a region can delay other infrastructure development projects that could have occurred in the area. There can be no development of energy, mining, or tourism projects if the necessary transportation system has not been developed. Similarly, if a community does not have appropriate employment training available, they will be unable to take full advantage of opportunities that arise.

However developing comprehensive plans is difficult in the Northern context because many communities do not have sufficient capacity for land use and infrastructure asset planning. At the community level, more training is required to ensure communities have access to community planners capable of developing and managing comprehensive plans. Stronger mechanisms must also exist to pool community resources and share planning, or to provide funding to access quality advice for planning and management.

Recommendation 7

It is recommended that the Government of Canada provide dedicated funding and support to Indigenous governments and Northern communities in order to support comprehensive community planning and provide access to tools that allow proactive engagement in natural resource development.

ANNEX A: List of Recommendations

Recommendation 1

It is recommended that the Government of Canada fund a system to facilitate coordination in infrastructure development: including identifying the priorities of communities, conducting research and development regarding needs assessments and feasibility studies, coordinating investments for the highest rates of return, and generating a pool of investment-ready projects. This system should use a co-management governance mechanism.

Recommendation 2a

It is recommended that the Government of Canada work with the First Nations Fiscal Management Act institutions to ensure access to the First Nations Finance Authority borrowing mechanisms for self-governing Indigenous Peoples, to allow them access to financing to support infrastructure investment.

Recommendation 2b

It is recommended that the Government commission a feasibility study on establishing a Northern Indigenous investment entity, examining the potential benefits of a pooled approach to create a pan-Northern development fund.

Recommendation 3

It is recommended that the Government of Canada designate additional funding to establish a new North-specific infrastructure investment fund, in order to invest in infrastructure to support economic development in the North. The fund would focus on key investments in transportation, energy, and connectivity to strengthen Northern communities, and create the conditions whereby they may be able to support community and business development.

Recommendation 4

It is recommended that further work be undertaken by governments and key Northern leaders to examine alternate private investment models that apply to the North. The Government of Canada should take immediate steps to explore ways of generating a model that can support private financing, construction, and management in small and remote communities.

Recommendation 5

It is recommended that the Government of Canada consider adopting tax structures that take into account the added cost of operating in the North and would act to level the playing field for industry choosing to operate in the North. It is further recommended that the government consider an investment tax credit for eligible infrastructure in the North that would then act to increase the infrastructure endowment across the North and strengthen the climate for investment.

Recommendation 6

It is recommended that, in order to address information gaps, accessibility challenges, and deficits in capacity and expertise, the Government of Canada fund a publicly accessible, independent Resource Center to coordinate research into, and share information on, best practices in economic development in the North. This would help industry proponents, Indigenous and territorial governments, and Indigenous economic development corporations achieve economic development success.

Recommendation 7

It is recommended that the Government of Canada provide dedicated funding and support to Indigenous governments and Northern communities in order to support comprehensive community planning and provide access to tools that allow proactive engagement in natural resource development.

ANNEX B: Snapshot of Infrastructure in the North (from *Addressing the Infrastructure Needs of Northern Aboriginal Communities*[33])

Table 1: Distribution of Aboriginal populations and households for five Northern regions

Geodemographic information on the five regions of interest				
		Regional profiles		
		Regional Aboriginal population (NHS 2011)	Number of Aboriginal households (NHS 2011)	Square area of region (km^2)
Region	Nunatsiavut	2,360	730	72,520
	Nunavik	10,880	2,535	443,685
	Eeyou Istchee	15,725	3,485	450,000
	Nunavut	27,365	6,820	1,877,787
	Northwest Territories	21,155	7,525	1,143,793
	Yukon	7,705	3,575	483,450
Total		56,225	24,670	4,474,235

Source: GeoSuite, 2011 Census, Statistics Canada Catalogue no. 92-150-XBB

Table 2: Road infrastructure

Community access to road systems (local and regional)					
		Number of communities per category			**Total**
		Local roads only	Seasonal regional road access	All-season regional road access	
Region	Nunatsiavut	5	0	0	5
	Nunavik and Eeyou Istchee	15	0	8	23
	Nunavut	25	0	0	25
	Northwest Territories	4	11	12	27
	Yukon	1	0	14	15
Total		50	12	38	100

Source: Aboriginal Affairs and Northern Development Canada 2014; Conference Board of Canada 2011

Table 3: Air transportation infrastructure

Community access to air transport systems							
		Number of communities per category					**Total**
		No airport	Local airport[34]	Indirect flights to regional air transit hub[35]	Direct flights to regional air transit hub[36]	Regional air transit hub[37]	
Region	Nunatsiavut	0	0	4	1	0	5
	Nunavik and Eeyou Istchee	2	1	13	5	2	23
	Nunavut	0	0	10	13	2	25
	Northwest Territories	2	9	5	12	3	32
	Yukon	2	11	0	2	1	15
Total		6	21	32	33	8	100

Source: Aboriginal Affairs and Northern Development Canada 2014; Conference Board of Canada 2014

[33] NAEDB, 2014, *Study on Addressing the Infrastructure Needs of Northern Aboriginal Communities*: http://www.naedb-cndea.com/reports/northern-infrastructure-report.pdf
[34] No scheduled airline service available.
[35] Scheduled airline service takes an indirect route to closest interregional air transit hub.
[36] Schedule airline service takes a direct route to closest interregional air transit hub.
[37] Community is within 10 km driving distance of an interregional air transit hub.

Table 4: Water transport infrastructure

Community access to water transport facilities								
		Number of communities per category						Total
		No resupply service (small boating facilities present)	Irregular resupply (barge)	Seasonal resupply (barge)	Seasonal resupply (sealift)	DFO-recognized small craft harbour	DFO-recognized small craft harbour (supports core fishing and resupply)[38]	
Region	Nunatsiavut	0	0	0	0	3	2	5
	Nunavik and Eeyou Istchee	5	1	2	15	0	0	23
	Nunavut	0	0	0	24	0	1	25
	Northwest Territories	18	1	7	4	1	1	32
	Yukon	13	2	0	0	0	0	15
Total		36	4	9	43	4	4	100

Source: Aboriginal Affairs and Northern Development Canada 2014; Conference Board of Canada 2014; Fisheries and Oceans Canada, http://www.dfo-mpo.gc.ca/sch-ppb/list-liste-eng.htm

Table 5: Energy infrastructure

Primary sources of community energy						
		Number of communities per category				Total
		Diesel generator	Natural gas pipeline and diesel	Regional hydro grid and diesel	Regional hydro grid connected to North American power grid	
Region	Nunatsiavut	5	0	0	0	5
	Nunavik and Eeyou Istchee	15	0	0	8	23
	Nunavut	25	0	0	0	25
	Northwest Territories	23	2	7	0	32
	Yukon	4	0	11	0	15
Total		72	2	18	8	100

Source: Aboriginal Affairs and Northern Development Canada 2014; Conference Board of Canada 2011

Table 6: Telecommunications infrastructure

Community access to telecommunications backbone facilities				
		Number of communities per category		Total
		Access to terrestrial backbone (microwave or fibre)	Access dependent on satellite backbone	
Region	Nunatsiavut	5	0	5
	Nunavik and Eeyou Istchee	8	15	23
	Nunavut	0	25	25
	Northwest Territories	22	10	32
	Yukon	14	1	15
Total		49	51	100

Source: Aboriginal Affairs and Northern Development Canada 2014; Conference Board of Canada 2014

[38] Core fishing designation is based on Fisheries and Oceans Canada, Small Craft Harbours program. See http://www.dfo-mpo.gc.ca/sch-ppb/home-accueil-eng.htm

ANNEX C: Methodology

A. *Study on Addressing the Infrastructure Needs of Northern Aboriginal Communities*

In December 2014, the Conference Board of Canada's Centre for the North conducted a study for the National Aboriginal Economic Development Board to provide a comparative analysis of summary information on the state of critical infrastructure in the five Northern regions and 100 focal communities. The study regions included were: Yukon, the Northwest Territories, and Nunavut, as well as Nunavik and Eeyou Istchee in Northern Québec (taken as a whole), and the coastal region of Nunatsiavut, in Newfoundland and Labrador. Aboriginal Affairs and Northern Development Canada (now renamed Indigenous and Northern Affairs Canada) provided an initial database of available departmental information and data from secondary research. The database was then updated and revised and fact checked with regional stakeholders operating in the five regions.

B. *The Business Case for a Northern Economic Infrastructure System*

In June 2015, Fiscal Realities Economists conducted a study of eight proposed major resource projects in the North, tabulating the costs and potential benefits of each project, where average cost estimates are compared with average anticipated economic and fiscal benefit estimates in order to provide an estimate for a typical major resource project in the North. Averages are utilized to address possible estimation anomalies. The information, reports, and studies informing this analysis were produced by project proponents or developed by professionals contracted by project proponents. The eight proposed major resource projects analysed are:

1. Casino Mine Project – Gold mine; Yukon (Casino Mining Corp)
2. Back River Project – Gold mine; Nunavut (Sabina Gold & Silver Corp)
3. Jay Project – extension of Ekati Diamond Mine; NWT (Dominion Diamond Corp)
4. Thor Lake (Nechalacho) Project – Rare metals mine; NWT (Avalon Rare Metals Inc.)
5. Gahcho Kué Project – Diamond mine; NWT (De Beers Canada Inc and Mountain Province Diamonds Inc.)
6. NICO Project – Gold, cobalt, bismuth, copper mine; NWT (Fortune Minerals Ltd)
7. Mary River Project – Iron mine; Nunavut (Baffinland Iron Mines Corp)
8. Kiggavik Project – Uranium mine; Nunavut (AREVA Resources Canada)

C. *Roundtable on Northern Infrastructure and Economic Development*

In June 2015, the NAEDB hosted a roundtable in Whitehorse to engage key knowledge holders from Indigenous governments, industry, federal and territorial governments, and experts from across the North on the topic of Northern infrastructure and its connection to Indigenous economic development. The purpose was to generate ideas and strategies to leverage investment in Northern infrastructure. Participants provided input on mechanisms for infrastructure investment through: developing partnership strategies, discussing innovative financing mechanisms, and examining the role of governance in infrastructure investment.

ANNEX D: Bibliography

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The National Aboriginal Economic Development Board
10 Wellington St., 17th floor
Gatineau, (Quebec) K1A 0H4
819-953-2994
www.naedb-cndea.com