Research Connections: Cumulative Effects

Sustainability assessment of Indigenous communities affected by mining - holistic model to impact assessment under the Canadian Impact Assessment Act (2019)

Note 16

Lead Researcher: Effah Antwi **Project Type:** Cumulative Effects **Project Status:** Active (2021–2022)

Addressing Cumulative Effects of Natural Resource Development
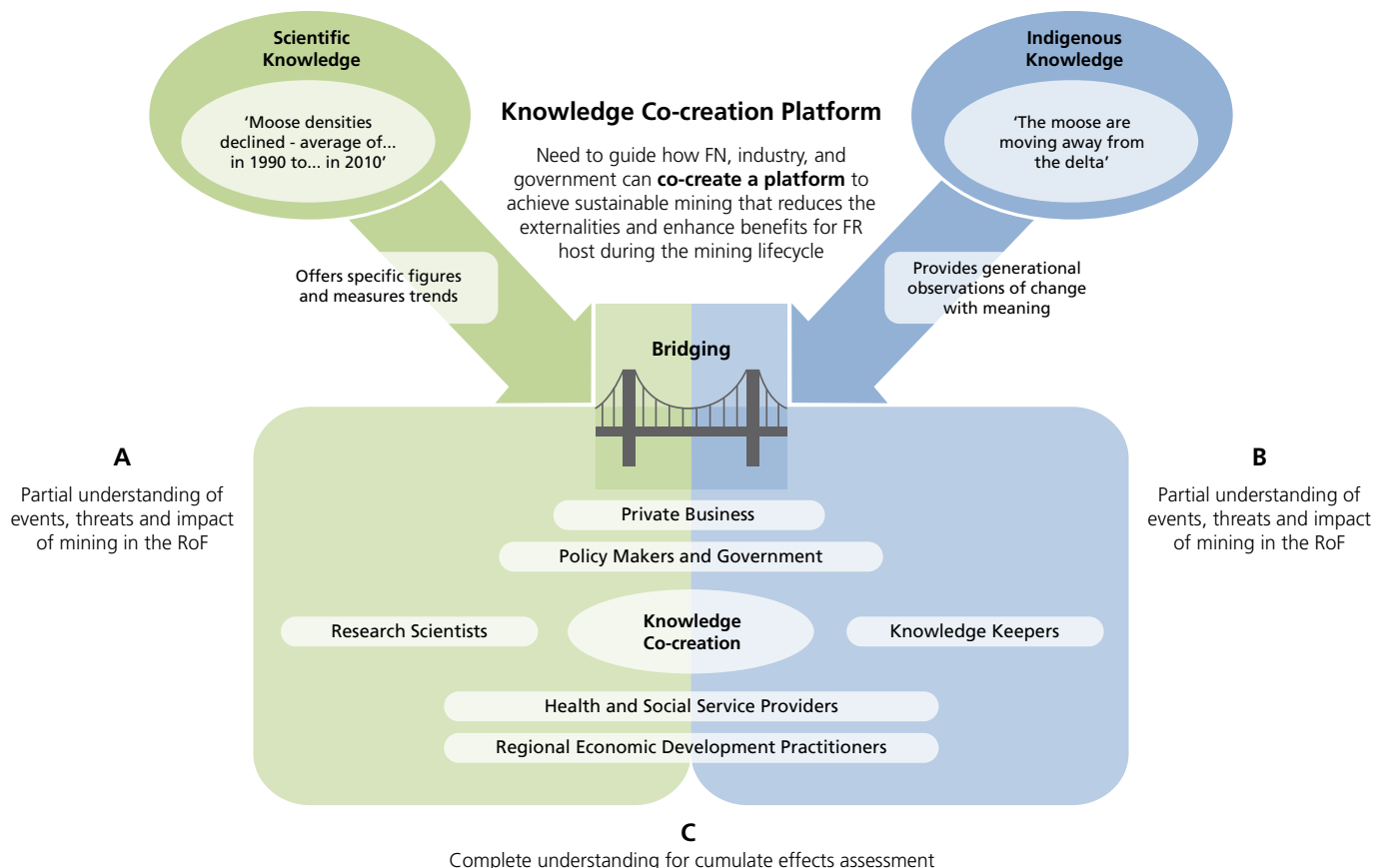
Need/Drivers

Mining and industrial development in Canada are crucial contributors to national economic growth and are catalysts for regional and rural development. For many Indigenous communities, mining has the potential to drive local economic development and job creation. However, mining also directly and indirectly affects these communities' socioeconomic and ecological well-being. This, combined with other forms of human disturbances, cumulatively affects ecosystems and people. Thus, from a broader regional context, there is a need to build a better understanding of cumulative effects of multiple disturbances, happening on the same land base, on communities and ecosystems. Furthermore, it is desirable, especially to improve mining benefits in Canada's northern communities, to develop approaches and tools that facilitate collaboration and partnerships among all stakeholders. This will ensure that multiple values and perspectives are integrated into decisions. In this research project, we develop indicators and a framework to guide regional cumulative effects assessment of the impacts of multiple disturbances on Indigenous communities in the James Bay Lowlands in Northern Ontario. The project will guide how Indigenous communities, industry and government can co-create a knowledge platform to achieve responsible and sustainable industrial activities.

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The goal of this project is to identify and define the risks and impacts of mining and other forms of disturbances on the socioeconomic and ecological well being of Indigenous communities in the Ring of Fire (RoF) area, an emerging mining district. By conducting a literature review and collaborating with experts and Indigenous communities, we will identify and co-define the risks and impacts of mining and other forms of disturbances on livelihood and ecosystems. Using the outcomes from the literature review and engagement, we will develop an assessment framework and a detailed list of socioeconomic and ecological indicators to assess cumulative effects at a regional scale. The framework and associated indicators will be tested at the regional level in the RoF region in Northern Ontario. Using *A Landscape Cumulative Effects Simulator* (ALCES) – an online simulation and modelling tool, we will simulate the impacts of multiple disturbances on ecological components in the RoF area. By using ALCES, we can assess and compare a range of scenarios to understand the benefits and liabilities of management options.

Anticipated Impacts

The project will improve knowledge on the cumulative effects of mining and other disturbances on Indigenous communities and encourage all stakeholders, particularly government, industry and researchers, to take a holistic view on setting and implementing sustainable mine restoration for Indigenous community wellbeing. Industry, First Nations and government will have access to risk maps of multiple disturbances on livelihoods, ecosystems, and mitigation strategies for management consideration. The assessment framework can serve as a guide to examine the effectiveness of policy and program options that seek to advance the participation of Indigenous peoples in the mining industry. In addition, the project will facilitate communication and relationship building with Indigenous peoples and all stakeholders. It will also enable companies to learn the values, concerns and interests of Indigenous communities relative to resource development.

Scientific Knowledge

'Moose densities declined - average of... in 1990 to... in 2010'

Indigenous Knowledge

'The moose are moving away from the delta'

Knowledge Co-creation Platform

Need to guide how FN, industry, and government can **co-create a platform** to achieve sustainable mining that reduces the externalities and enhance benefits for FR host during the mining lifecycle

Offers specific figures and measures trends

Provides generational observations of change with meaning

Bridging

A
Partial understanding of events, threats and impact of mining in the RoF

B
Partial understanding of events, threats and impact of mining in the RoF

Private Business

Policy Makers and Government

Research Scientists

Knowledge Co-creation

Knowledge Keepers

Health and Social Service Providers

Regional Economic Development Practitioners

C
Complete understanding for cumulate effects assessment

Guide to how First Nations, industry and government can co-create a platform to achieve sustainable mining that reduces the externalities and enhances benefits for First Nations.

Project Location

Indigenous communities in the Ring of Fire, James Bay Lowlands, Ontario. Additionally, we will conduct a proof of concept study in the Garden River First Nation (FN) community. This will involve testing our methodology and the socioeconomic risk indicators as a prototype for the RoF area.

CFS Team Members

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Indigenous Collaborators

Garden River First Nation

Collaborators

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