



Glossary & Appendices

GLOSSARY

Access agreement

Contractual agreement that outlines terms and conditions, including financial arrangements, for access on or through land with aboriginal interest; required for accessing aboriginal-owned lands in settled land-claim and self-government regions in the Mackenzie Valley.

Adaptive management

A management system that defines environments as unpredictable; management is continually monitored, and if initial mitigation measures are ineffective, additional or alternative mitigation is applied to keep the impact within acceptable levels.

Baseline conditions

Baseline conditions describe past and current conditions associated with the socio-economic environment of a proposed development. Baseline conditions provide a benchmark against which to measure change, and they can isolate trends occurring in the pre-development scenario. Good baseline analysis also identifies strengths and weaknesses in the socio-economic environment.

Benchmarks

Benchmarks are specific reference points, indicator “standards” that allow comparisons across time or space. The NWT Housing Cost Index compares housing prices across the NWT against the benchmark in Yellowknife; the Consumer Price Index can measure change over time and space in the cost of a specific “bundle” of basic goods.

Commitment

In an EA, a commitment is a statement of intent by any party (or parties) to alter its planned activities to meet an expressed need. The Review Board documents these commitments and includes them in its Report of Environmental Assessment. Commitments identified during EIA become part of the development description and therefore are required mitigation.

Community

A group of people who share an attachment with one another and ascribe to a common membership and shared rights and responsibilities; a community can be linked geographically, culturally, ethnically, racially, or through some other identifier or a combination thereof.

Community wellness

Community wellness is the status of the physical, emotional, social, cultural and economic well-being of community. The state of community wellness depends on the health and well-being of every aspect of a community, the individual, families, etc.

Consultation

The *Mackenzie Valley Resource Management Act* Section 3 states that,

“in relation to any matter, to a power or duty to consult, that power or duty shall be exercised

- (a) by providing, to the party to be consulted,*
 - (i) Notice of the matter in sufficient form and detail to allow the party to prepare its views on the matter,*
 - (ii) A reasonable period for the party to prepare those views, and*
 - (iii) An opportunity to present those views to the party having the power or duty to consult; and*
- (b) by considering, fully and impartially, any views so presented.”*

Cultural impact

Any impact on the set of values, norms and beliefs that guide the behavior of individuals who are associated communally. In the Mackenzie Valley, concerns among aboriginal groups about cultural impacts tend to revolve around ► their relationship with the land ► time spent on the land ► the ability to harvest wildlife and other resources; and the maintenance of ► traditional language ► inter-generational relationships ► laws and ► general way of life. Cultural impacts are included under the umbrella of SEIA.

Cumulative impacts

Accumulated impacts (biophysical, socio-economic or cultural) caused by repeated impacts on a valued component.

Directly affected community

A community that is predicted to be substantially impacted by a proposed development, adversely and/or beneficially.

Economic impacts

Economic impacts affect people's ability to make a living, their material well-being, the capacity to participate in economic activities, and the production, distribution and allocation of economic resources. Economic impacts also include the distribution of wealth and financial burdens created by the development (see Appendix G for more information).

Economic impact assessment

Examines how a proposed development might impact how people make a living, their material well-being and the economic structures of a society. This can include an examination of conflicts and transitions between non-market and market economic values and systems.

Environmental assessment (EA)

The second level of EIA in the Mackenzie Valley: an in-depth examination of a proposed development by the Review Board.

Environmental impact assessment (EIA)

The process of systematically considering the potential impacts of a proposed development during decision-making. In the Mackenzie Valley, preliminary screening, EA and EIR are the three levels of EIA.

Environmental impact review (EIR)

The third and final level of EIA in the Mackenzie Valley: a comprehensive examination of a proposed development by a review panel.

Externalities

Benefits or costs that are not included in the market price of goods or services.

Harvesting

Harvesting as defined in the MVRMA (Section 2), in addition to the gathering of berries, plants and other subsistence materials from the land.

Heritage Resources

Archaeological or historic sites, burial sites, artifacts and other objects of historical, cultural or religious significance, and historical or cultural records.

Impact equity

A principle that states adverse socio-economic impacts should not fall disproportionately on certain groups of the population, if they do not also have access to beneficial impacts from the development.

Impact benefit agreement (IBA)

IBAs are private contractual arrangements between a developer and a specific group of aboriginal people; intended as a means of providing benefits to communities in the course of development.

Indicator

A measurable activity, experience or dynamic that helps illustrate quantitative socio-economic baseline conditions (prior to the development) or impacts (after the development begins). The unemployment rate of a community is one indicator of economic well-being.

Monitoring

A consistent method of measuring or watching something to detect changes, using scientific or traditional knowledge; a continuing assessment of indicators in a repetitive and systematic way. Monitoring may occur at numerous levels (e.g. development-specific, local/community, regional, territorial, national and international).

Potentially-affected parties, groups, and, or communities

A party, group or community is considered potentially affected if it is an identifiable group or populated location, identified in the course of an EIA as meriting further study due to the potential for being impacted adversely by the proposed development.

Preliminary screening

An initial environmental examination of a proposed development for potential significant adverse environmental, social and cultural impacts, and public concern, conducted pursuant to section 124 of the MVRMA.

Primary Research

The process through which new studies generate required information for analysis and consideration.

Review Board measure

In its Report of Environmental Assessment, the Review Board proposes measures to mitigate a specific impact on the environment below the level of significance. A First Nation, local government, regulatory authority, department or agency of the federal or territorial government affected by the measure shall act in conformity with it to the extent of their respective authorities (MVRMA section 130(5)).

Scoping

The identification and prioritization of relevant issues to focus on during an EIA; the decision of what physical works to included as a part of the proposed development (scope of development), and the timeline and geographical limits of issues being assessed (scope of assessment).

Secondary Research

The review of existing information sources to use for analysis and in reference to a specific topic area.

Significance

An informed judgement of what is important based on the available evidence. Significance is further defined in the Review Board's "Reference Bulletin: Operational Interpretation of Key Terminology in Part Five of the *Mackenzie Valley Resource Management Act*", available at mveirb.nt.ca.

Social infrastructure

Those community agencies, services, and facilities and other social support measures necessary for adequate functioning of a community, and that contribute to the well-being of its residents.

Socio-economic environment

A.K.A the "human environment" – the components of an individual's, family's or community's day-to-day lived experience-includes economic activity, social relations, well-being and culture.

Socio-economic Impact Assessment (SEIA)

SEIA is the systematic analysis used to identify and evaluate the potential socio-economic and cultural impacts of a proposed development on the day-to-day lives of individuals, families, and communities. Where those impacts are significant and adverse, SEIA also attempts to reduce, remove or prevent them from occurring.

Suggestion

A non-binding idea for mitigation of an identified impact on the environment or public concern, as written in the Review Board's Report of Environmental Assessment.

Sustainable development

Also known as sustainability or intergenerational equity, this term refers to the goal of satisfying current needs without compromising the ability of future generations to meet their needs.

Thresholds

Thresholds provide limits of manageable (or acceptable) change against which impacts of developments can be measured and monitored. An example would be the requirement for additional social service providers if population growth exceeds five percent in a community in the course of a year.

Traditional knowledge

In considering the broad definition of “impact on the environment” in the MVRMA, the following three elements of traditional knowledge that contribute to the EIA process as set out in the MVRMA are particularly important:

1. Knowledge about the environment
2. Knowledge about using and managing the environment
3. Environmental values

With respect to SEIA, traditional knowledge may include knowledge about the historical and current social, cultural and economic environs that people have worked and lived in, and provide understanding of the critical requirements of-and potential threats to-valued components.

Triggers (also called causal factors)

A trigger is any activity that initiates another activity. In SEIA, the concept of trigger is used to express the relationship between a cause and an effect, an important consideration when looking at whether a development contributes solely or in part to an identifiable impact.

Valued components

Valued components are aspects of the economic, social, biophysical or cultural fabric of a community or region that are important to the party who defines them. They are important because they provide economic value, reflect connections that are vital to a way of life, or are vital to maintaining quality of life in the community. Valued components provide a focus for the collection and reporting of appropriate information, thus narrowing of the scope of EIA.

APPENDIX A

SEIA Guidelines Quick Reference Sheet

Looking for something specific? Here is a list of frequently asked questions about SEIA in the Mackenzie Valley, and where in the *SEIA Guidelines* answers can be found.

Frequently Asked Questions	information located in...
What is SEIA?	Section 2.1
Is SEIA required in the Mackenzie Valley?	Section 2.3
What are the steps of SEIA?	Section 2.6
What are acceptable data sources for SEIA?	Section 3.3, Appendix C and D
What are the considerations in determining the scope of assessment and the scope of development for an SEIA?	Section 3.2
How is the level of SEIA effort determined?	Section 3.2.2
How can the socio-economic impacts of a development be predicted?	Section 3.4, Appendix F
What are common mitigation strategies for socio-economic impacts?	Section 3.5
How is SEIA conducted during the three levels of Mackenzie Valley EIA?	
1. Preliminary screening	Section 4
2. Environmental assessment	Section 5
3. Environmental impact review	Section 6
What are valued components, who determines them, and how are they used?	Sections 2.1 and 3.2.3
Who makes a determination of significance in SEIA, when, and how?	Section 3.6, 4.4, 5.6
How can I learn more about SEIA?	Appendix C, References and Suggested Further Readings
How are specific elements of SEIA conducted?	
• Health Impact Assessment	Appendix G1
• Heritage Resources	Appendix G2
• Traditional Economy	Appendix G3, Sec. 3.4.3
• Impacts on the Wage Economy	Appendix G4, Sec. 3.4.4
• Social Impact Assessment	Appendix G5, Sec. 3.4.2
• Cumulative Socio-Economic Impact Assessment	Appendix G6

APPENDIX B Considerations for Conducting SEIA

The following are important considerations for good SEIA. They are derived from an understanding of SEIA methods, interpretation of guiding legislation, previous EIA experience in – and the socio-economic context of – the Mackenzie Valley, and emerging concepts of good practice in the SEIA field. They provide broad guidance to serve as the goalposts for the conduct of SEIA. While specific methods used by assessors can vary, good SEIA should attempt to adhere to these considerations.

1. *Match the scale and focus of a SEIA with the characteristics of the proposed development, and the concerns of responsible authorities, and potentially affected people and communities*
 - The developer should attempt to determine the required level of SEIA before filing a preliminary screening application
 - Consideration of a proposed development's size, complexity, socio-economic context, and level of public concern can help the developer determine the required level of SEIA
 - Potentially affected communities and responsible authorities should be included, whenever possible, in determining the level of SEIA required for a proposed development
 - When confused about the required level and direction of SEIA, the developer should consult the preliminary screener or the Review Board for clarification before proceeding
 - Address issues and public concerns that matter to potentially affected residents and communities instead of general issues and public concerns that are easy to quantify
 - Focus the SEIA on valued components identified during initial scoping discussions
 - Search for relationships/triggers/pathways between an impact's cause and its effect; focus on mitigating these causal factors
2. *Minimize adverse impacts while enhancing beneficial impacts*
 - Make avoiding or reducing adverse impacts a priority
 - Tailor potential beneficial impacts to communities' plans, priorities and desires; determine whether potential adverse impacts impede a communities' plans, priorities and desires
 - EIA is a planning tool: sustainable development is the end goal
3. *Use the "Precautionary Principle" and other international SEIA principles*
 - Parties to an EIA should become familiar with internationally-recognized SEIA principles¹²
 - In absence of acceptable certainty, use a precautionary approach when collecting data (err on the side of additional primary data collection), and when determining impact significance ("likelihood" rather than "full certainty" that impacts will occur is the test for whether mitigation measures are required)
4. *Focus on impacts that are at least partially attributable to the proposed development*
 - SEIA *should* attempt to separate natural changes from the changes the proposed development may cause
 - SEIA *should* consider natural change and the existing baseline conditions that make communities vulnerable; this information indicates a community's ability to absorb and manage additional changes

¹² For more information on these principles, consult the International Association of Impact Assessment's International Principles for Social Impact Assessment <http://www.iaia.org>

- The fact that personal choices contribute to socio-economic impacts does not exempt these impacts from consideration; altered social or economic structures affect a person's options
 - Consider the cumulative impacts of past, current and reasonably foreseeable future developments
 - A proposed development may not be fully responsible for predicted adverse impacts – governments and communities have a role negotiating mitigation for accelerated adverse impacts: the key question is: “Will the development make the problem worse?”
5. *Involve various potentially affected groups early and extensively*
- Articulating the values and vision of those who may be most affected by a proposed development is an essential part of SEIA
 - The developer should attempt to engage communities and groups that may be affected by the proposed development, earlier rather than later
 - When possible, involve potentially affected communities in identifying and defining valued components and appropriate indicators; also involve potentially affected communities in reviewing the early findings of SEIA
 - Use information gathering and dissemination methods and media that are culturally appropriate and manageable
 - Ensure people and communities are studied ethically and according to recognized social-science methods; prior informed consent is a social research principle
6. *Conduct long-range, forward-looking studies that rely on the insight of past experiences*
- Study the full lifecycle of the proposed development including the pre-construction and post-closure stages
 - When possible, incorporate assessments of outcomes and “lessons learned” from case studies of previous similar developments, or from community experiences
7. *Impact equity*
- No group of people, particularly those that might be considered more sensitive or vulnerable as a result of age, gender, ethnicity, race, occupation or other factors, should have to bear the brunt of adverse social impacts
 - SEIA recognizes that some people will benefit more from development than others, but attempts to avoid passing adverse impacts on to groups without allowing these groups access to beneficial impacts
 - Socio-economic benefits should flow most readily to those facing significant adverse impacts
 - Focus on studying and mitigating the potential adverse impacts of a proposed development on the communities the proposed development is most likely to impact
 - Consider fully any identifiable vulnerable groups within communities
8. *Use experts from the government, communities and social sciences*
- When practical and reasonable, employ expert SEIA practitioners who use sound and replicable social-science research concepts and methods; this is especially important when conducting primary research
 - Use established economic methods for measuring costs and benefits including the cost to different levels of government; include and justify the assumptions of the economic models
 - Identify experts in communities who can provide local and traditional knowledge
 - Recognize that communities have valuable expertise, and, wherever possible, engage communities in determining how past and current developments impact their socio-economic and cultural environment, and how future developments may impact this environment

- Attempt to incorporate community goals (e.g., community development plans, wellness strategies, needs assessments, visioning statements, community-based indicators) into issues scoping and the determination of valued components
 - Governmental “social-envelope” departments have invaluable expertise that is necessary for providing baseline information and analysing potential impacts¹³
9. *Use reliable, appropriate and relevant information from primary and secondary sources*
- Use secondary data sources first to determine whether additional primary research is necessary
 - Lack of currently available information does not imply potential impacts do not exist
 - Data must be accompanied by a rationale for its use and a description of how the data was collected and analyzed
 - Primary research methods and analysis should be as objective and reasoned as possible while remaining flexible enough to recognize the value of reported personal and community experience
10. *Use appropriate indicators for the Mackenzie Valley*
- Collect information in the form of indicators that are relevant to the involved communities and jurisdictions. The developer must understand and incorporate the socio-economic context and values of communities and jurisdictions when determining indicators for baseline conditions
 - Statistics and analysis should be broken down enough to determine whether different communities and demographic groups are vulnerable to change¹⁴
 - Study each involved community independently, as well as doing regional and territorial impact assessments as necessary; each level of community has different needs and priorities
11. *Balance traditional knowledge and scientific knowledge*
- Incorporate traditional knowledge into SEIA as described by the Review Board’s *Guidelines for Incorporating Traditional Knowledge*, while respecting specific local rules and customs
 - Focus on collecting and analyzing qualitative and quantitative data
12. *Follow-up and monitor socio-economic and cultural mitigation measures*
- Ongoing monitoring and public reporting are fundamental to any effective mitigation plan
 - When possible, identify the limits of manageable change for the assessed indicators, and through adaptive management identify mitigation requirements necessary if these limits are exceeded
 - The participation of potentially affected communities, regulators, developers and government in monitoring is essential

13. Appendix C has a list of government departments with socio-economic mandates and/or expertise. Many of these organizations, especially the “social envelope” departments of the GNWT, are responsible for the ongoing well-being of the people of the Northwest Territories.

14. For example, statistics on local and regional income may artificially mask extreme differences between aboriginal and non-aboriginal populations, or between men and women.

APPENDIX C

Organizations with SEIA Expertise

GNWT Departments

The role of the GNWT in SEIA is based on the government's legal responsibility for delivering programs and services related to health, social services, education, training, cultural well-being and economic development in the NWT.

GNWT departments are accessible online at gov.nt.ca, including the following:

Department	Socio-economic mandate	Contact information
Municipal and Community Affairs	<ul style="list-style-type: none">• Manages the impact of development on municipal infrastructure and governance, and the local capacity to manage impacts	(867) 395-7205 maca.gov.nt.ca
Health and Social Services	<ul style="list-style-type: none">• Develops strategies to improve community and individual wellness• Delivers health and social services and programs• Department responsible for the health of NWT residents	(867) 920-3070 hss.gov.nt.ca
Industry, Tourism and Investment	<ul style="list-style-type: none">• Implements economic-development plans, encourages economic diversification, supports traditional economic activities• Encourages benefits to the NWT from industrial activity• Facilitates energy planning	iti.gov.nt.ca
Education, Culture and Employment	<ul style="list-style-type: none">• Supports education, training and learning programs• Preservation and protection of heritage resources in the NWT	ece.gov.nt.ca
Justice	<ul style="list-style-type: none">• Delivers justice services, and ensures the fair treatment and protection of NWT residents	justice.gov.nt.ca Resource Development Impacts Advisor (867) 873-7080
NWT Housing Corporation	<ul style="list-style-type: none">• Provides information on the affordability and adequacy of NWT housing	nwthc.gov.nt.ca Policy, Programs & Informatics (867) 873-7858

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Department	Socio-economic mandate	Contact information
Bureau of Statistics	<ul style="list-style-type: none"> Develops, interprets and distributes accurate statistical information on the economy, society and demography of the NWT 	stats.gov.nt.ca (867) 873-7147
Department of Public Works and Services	<ul style="list-style-type: none"> Maintains community infrastructure and systems, including water and sewage systems 	pws.gov.nt.ca Senior Planning Advisor (867) 873-3178
Department of Transportation	<ul style="list-style-type: none"> Maintains and develops NWT transportation systems 	dot.gov.nt.ca
Environment and Natural Resources	<ul style="list-style-type: none"> One window portal for GNWT input to EA processes Provides information and policy on traditional harvesting, Protected Areas Strategy, energy conservation and forest management 	enr.gov.nt.ca Environmental Assessment Manager (867) 873-7244

Federal Departments

Department	Socio-economic mandate	Contact information
Indian and Northern Affairs	<ul style="list-style-type: none"> Responsibilities are delivered primarily by the Northern Affairs Program in two areas: supporting Northern political and economic development through the management of federal interest; and promoting sustainable development of the North's natural resources and northern communities Also plays a lead role in identifying and mitigating cumulative impacts 	nwt-tno.inac-ainc.gc.ca (867) 669-2500
Health Canada	<ul style="list-style-type: none"> Ensures that human health is a component in impact assessment Conducting and promoting health impact assessments Providing information on human health impacts 	hc-sc.gc.ca/ehas
Social Development Canada	<ul style="list-style-type: none"> Supports and encourages families with children, the elderly, and the disabled through citizen focused programs and services: responsible for delivering income security programs 	sdsc.gc.ca
Human Resources and Skills Development Canada	<ul style="list-style-type: none"> Encourages participation in the workforce through human capital development and labour market development. 	hrdsc.gc.ca
Royal Canadian Mounted Police	<ul style="list-style-type: none"> Produces a yearly environmental scan on existing and potential crime rates 	rcmp-grc.gc.ca

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Department	Socio-economic mandate	Contact information
Industry Canada	<ul style="list-style-type: none"> • Develops economic opportunities for Canadians while ensuring a sustainable economic, social and environmental future • Encourages sustainability and provides corporate social responsibility tools and information 	ic.gc.ca
Statistics Canada	<ul style="list-style-type: none"> • Delivers and interprets statistical information • Collects, interprets and publishes social and economic statistics on Northern communities, inter-jurisdictional comparative demographic and other data 	statcan.ca

Other federal departments, such as Environment Canada, and Fisheries and Oceans have indirect linkages with SEIA, depending on the economic importance of different renewable resources to potentially affected communities.

Other Organizations

Organization	Socio-economic Mandate	Contact Information
National Energy Board	<ul style="list-style-type: none"> • As an independent regulatory agency of the federal government, the Board is mostly concerned with oil and gas developments in frontier lands and with pipeline developments • They provide advice on energy and energy sustainability to the government 	neb-one.gc.ca
MVRMA boards (land and water boards, the Review Board, renewable resource boards, land use planning boards)	<ul style="list-style-type: none"> • Each region with a settled land claim has its own system of boards, including renewable resource boards (which have information on local harvesting activity and success rates) and land use planning boards (which issues draft and final land use plans) • There may be local renewable resource councils or hunters and trappers associations which may merit consultation regarding harvesting 	For more information, contact the boards directly or through INAC's Board Relations Secretariat 6th floor -Bellanca Building 4914 - 50th Street, Box 1500, Yellowknife, NT X1A 2R3

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Organization	Socio-economic Mandate	Contact Information
Independent Environmental Monitoring Agency (Mandated to monitor BHP Billiton Ekati Diamond Mine)	<ul style="list-style-type: none"> • Reviewing and commenting on the design of monitoring and management plans and the results of these activities • Monitoring and encouraging the integration of traditional knowledge of the nearby Aboriginal Peoples into the mine's environmental plans • Acting as an intervener in regulatory processes directly related to environmental matters involving the Ekati Diamond mine and its cumulative effects • Bringing concerns of the aboriginal peoples and the general public to BHP Billiton and government 	PO Box 1192 Yellowknife, NT X1A 2N8 Tel: (867) 669-9141 Fax: (867) 669-9145 monitor@yk.com
Diavik Community Advisory Board (DCAB)	<ul style="list-style-type: none"> • Established pursuant to the Diavik Diamond Mines Inc. Socio-economic Monitoring Agreement, DCAB provides advice on the socio-economic impacts of the Diavik diamond mine and the implementation and effectiveness of mitigation measures 	(867) 669-3651
Cumulative Impacts Monitoring Program	<ul style="list-style-type: none"> • Examines how land and water use, and waste deposits affect the environment of the NWT now and in the future • The program is based in land claims legislation, and follows a community-based approach to monitoring the human and biophysical aspects of the environment 	nwtcimp.ca cimp@inac-ainc.gc.ca
Dene Cultural Institute	<ul style="list-style-type: none"> • Preserving, protecting and promoting Dene culture 	deneculture.org
Dene Nation	<ul style="list-style-type: none"> • Advises on Dene cultural, social and historical knowledge 	denenation.com
Gwich'in Social and Cultural Institute	<ul style="list-style-type: none"> • Promotes Gwich'in culture and society • Has an approved policy regarding the use of traditional knowledge 	gwichin.ca
Aurora Research Institute	<ul style="list-style-type: none"> • Administers licensing of research on human and biophysical subjects in the NWT and Nunavut • Also mandated with "supporting or conducting research which contributes to the social, cultural and economic prosperity of the people of the NWT" 	nwtresearch.com (867) 777-3298

Land-claim organizations and regional aboriginal groups

Each region has a land-claim organization that usually includes land-administration groups, health and social services boards, and development/land corporations. For more information, consult the GNWT's Aboriginal Directory at gov.nt.ca/MAA/index.html.

Cultural and or social aboriginal organizations

Elder or youth councils may have traditional knowledge, oral histories, and a variety of materials on socio-economic and cultural change in their regions.

Local aboriginal groups and local governments

- Band councils
- Métis local corporations
- Town, hamlet or city councils
- Resource-development planning committees
- Interagency committees
- NWT Association of Municipalities

Economic development

- Chambers of commerce
- Canadian Association of Petroleum Producers (CAPP)
- NWT and Nunavut Chamber of Mines
- Community economic development officers
- Local entrepreneurs

Social services and advocacy

- NWT Status of Women
- Native Women's Association of the NWT
- NWT Seniors Association
- Friendship centres
- NWT Literacy Council
- Churches
- YWCA

Boards in other jurisdictions

Given the broad similarities in development types and demographic, environmental and economic structures throughout Canada's North, records of EIA from the following jurisdictions can be of use as case studies:

- Nunavut Impact Review Board (NIRB)
- Yukon Environmental and Socio-economic Assessment Board (YESAB)
- Inuvialuit Settlement Region-Environmental Impact Review Board and Environmental Impact Screening Committee

Non-governmental organizations

- Alternatives North
- Canadian Parks and Wilderness Society (CPAWS)
- Public Service Alliance of Canada North (PSAC)
- Northern Territories Federation of Labour
- Canadian Arctic Resources Committee (CARC)
- Ecology North
- World Wildlife Fund (WWF)

APPENDIX D

Valued Components and Indicators for SEIA

Ideally, SEIA should engage potentially affected communities in collecting/collating baseline information, and determining the valued components, criteria and indicators. (In some cases, a community may have a list of indicators that have it has identified as relevant and appropriate.) In addition, existing baseline information may be available from communities and/or government.

Table D provides general examples of valued components, criteria and indicators that can be used for the SEIA of development proposals.

The Terms of Reference for the EA or EIR of proposed development may require development-specific indicators.

TABLE D Common Valued Components, Criteria and Indicators for SEIA

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Economic Well-Being	<i>Cost of living</i>	<ul style="list-style-type: none"> Consumer price index 	Based on the cost of goods and services <i>Useful in baseline assessment to estimate cost of living</i>	Statistics Canada
	<i>Value of goods and services</i>	<ul style="list-style-type: none"> GDP Gross local and regional income 	Regional and territorial gross figures of income <i>Can be too general to apply usefully to small communities</i>	Statistics Canada
	<i>Income levels</i>	<ul style="list-style-type: none"> Median employment income 	Average income of NWT residents	Statistics Canada Bureau of Statistics
		<ul style="list-style-type: none"> Income by source – especially social assistance rates 	May indicated the level of dependence on income assistance	Statistics Canada
	<i>Employment rates and types</i>	<ul style="list-style-type: none"> Employment rate 	Percentage of employed people	Bureau of Statistics
		<ul style="list-style-type: none"> Employment participation rate 	Percentage of available workers, employed and unemployed, participating in the workforce	Bureau of Statistics
		<ul style="list-style-type: none"> Rates of seasonal and full-time employment 	Indicates economic stability May indicate the ability of communities and residents to participate in the traditional economy	Bureau of Statistics
		<ul style="list-style-type: none"> Percentage of individuals and families living below the poverty level 	Number of marginalized and vulnerable populations	Statistics Canada

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TABLE D Common Valued Components, Criteria and Indicators for SEIA *Continued*

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Economic Well-Being	<i>Economic activities</i>	<ul style="list-style-type: none"> • Comparison of census data and occupational profiles of regional residents with employment opportunities with the proposed development 	Degree to which the proposed development may alter the occupational profile of potentially affected community	Statistics Canada Bureau of Statistics
		<ul style="list-style-type: none"> • Percentage of workforce-aged people engaged in traditional activities 	Strength of traditional economy	Bureau of Statistics GNWT
		<ul style="list-style-type: none"> • Number of local businesses, bankruptcies and start ups 	Changes in economic health in the region – a measure of capacity to take advantage of changing business opportunities and susceptibility to downturns	Local and territorial chambers of commerce Development corporations
		<ul style="list-style-type: none"> • Changing property values 	Project-specific demands on real estate can create boom-and-bust cycles	Canadian Housing and Mortgage Corporation NWT Housing Corporation
	<i>Traditional economy activities</i>	<ul style="list-style-type: none"> • Changes in harvester travel patterns or loss of harvest areas 	Potential for disruption of harvester work	GNWT First Nations and aboriginal organizations Bureau of Statistics
		<ul style="list-style-type: none"> • Percentage of population engaged in traditional economy 	Strength of traditional economy	Bureau of Statistics GNWT
		<ul style="list-style-type: none"> • Local, regional and territorial harvesting levels 	Strength of harvesting activities	Bureau of Statistics GNWT

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TABLE D Common Valued Components, Criteria and Indicators for SEIA *Continued*

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Economic Well-Being	<i>Traditional economy activities</i>	<ul style="list-style-type: none"> Percentage of income derived from traditional economic activities 	Ratio of traditional economic activities to wage labour market – the importance of the traditional market may not be apparent because this information is underreported	Bureau of Statistics GNWT
		<ul style="list-style-type: none"> Market value of traditional economy 	Market demand for products of the traditional economy	Bureau of Statistics GNWT
	<i>Level of economic equity</i>	<ul style="list-style-type: none"> Gender wage gaps 	Potential for the proposed development to affect existing or potential gender disparity	Statistics Canada Bureau of Statistics
		<ul style="list-style-type: none"> Family income disparities 	Distribution of wealth	Bureau of Statistics
Stable and healthy communities	<i>Existing social networks</i>	<ul style="list-style-type: none"> Population dependency ratios 	Higher dependency ratios usually indicate more stable families.	Statistics Canada
		<ul style="list-style-type: none"> Existing social welfare agencies and organizations 	Number of charitable and non-profit agencies, and public agencies Strength of existing community and social networks	Canadian Customs and Revenue Agency GNWT Municipal and Community Affairs GNWT Health and Social Services Regional and territorial health and social service authorities
		<ul style="list-style-type: none"> Relationships with Elders 	New employment opportunities may reduce familial interaction with Elders Increased value of wage economy may alter attitudes about obligations to care for Elders	GNWT Health and Social Services Regional and territorial health and social service authorities Interviews
		<ul style="list-style-type: none"> Changing family structures 	Changing familial values and patterns, e.g., married, never married, single-parent households, etc.	Statistics Canada Bureau of Statistics

Continued...

TABLE D Common Valued Components, Criteria and Indicators for SEIA *Continued*

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Stable and healthy communities	<i>Existing social networks</i>	• Altered social networks	New employment opportunities and other impacts of the proposed development may affect social networks (e.g. extended work rotation schedules may disrupt existing social networks)	Interviews
		• Levels of volunteerism and participation in community events	May indicate community attitudes about civic engagement (e.g., decreased attendance at community gatherings may indicate low community morale) Community cohesion	Surveys Interviews
		• Past and current attitudes about development	Positive or negative feelings, beliefs or opinions expressed by community residents about the proposed project.	Public meetings Surveys
	<i>Attitudes toward development</i>	• Disrupted patterns of daily life	Disruptions in daily living and work activities	Surveys
		• Changing perceptions about quality of life and/or the value of the environment	Changes in perceived quality of life for people dependent on the land and/or the relationship to sacred areas	Public meetings Interviews Focus groups
		• Changing aesthetic qualities	Related to quality of life – may be area used for harvesting, traditional gathering places and/or tourism activities	First Nations and aboriginal organizations Local and territorial chambers of commerce Tourism associations Environmental NGOs

Continued..

TABLE D Common Valued Components, Criteria and Indicators for SEIA *Continued*

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Stable and healthy communities	<i>Attitudes toward development</i>	<ul style="list-style-type: none"> Community infrastructure and services – including education, childcare, medical care and social and community support services, recreation, water, sewerage and waste disposal and transportation 	Potential for increased or decreased quality of basic infrastructure services and facilities in communities	GNWT Municipal and Community Affairs GNWT Department of Transportation GNWT Health and Social Services Regional and territorial health and social service authorities Bureau of Statistics
	<i>Use and maintenance of Infrastructure</i>	<ul style="list-style-type: none"> Public involvement in decisions affecting community, land and resource base 	Degree of civic involvement Community cohesion	Local, territorial and federal government First Nations and aboriginal organizations
	<i>Political structures</i>	<ul style="list-style-type: none"> Voter turnout in municipal, First Nations and territorial elections 	Degree of civic involvement Community cohesion	Elections Canada
		<ul style="list-style-type: none"> Relevance to policy objectives of local and regional development 	Key to understanding the potential relevance of the proposed project to communities and residents	Regional business and government plans
		<ul style="list-style-type: none"> Trust in political and social institutions Integrity of government agencies 	Measures of citizen faith in institutions may indicate citizen belief in ability of government to manage and monitor the proposed development	Statistics Canada Bureau of Statistics First Nations and aboriginal organizations Interviews Surveys
		<ul style="list-style-type: none"> Ability to exercise Treaty rights or rights of self government 	Faith in the protection of aboriginal rights through Treaties or modern agreements may indicate potential for conflict or disagreement	First Nations and aboriginal organizations Interviews

Continued...

TABLE D Common Valued Components, Criteria and Indicators for SEIA *Continued*

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Stable and healthy communities	<i>Political structures</i>	<ul style="list-style-type: none"> Ability to protect and use intellectual property 	Control and ownership of data that emerges from First Nations	First Nations and aboriginal organizations
	<i>Justice and safety</i>	<ul style="list-style-type: none"> Violent crime rates Juvenile crime rates Number of property crimes Policing capacity Public perceptions of health and safety Number of emergency shelter users, include number of repeat users Number of domestic violence complaints Number of child protection investigations Number of children in care 	Indicates existing social problems, and the capacity of communities and the justice system to protect and promote public and personal safety	Statistics Canada Bureau of Statistics RCMP Municipal enforcement agencies
	<i>Housing affordability and availability</i>	<ul style="list-style-type: none"> Percentage of individuals and families with inadequate housing or access to affordable housing Percentage of households with six or more inhabitants Housing affordability Housing ownership 	Indicates crowding, housing functionality and maintenance, and housing availability	Statistics Canada Bureau of Statistics Canadian Housing and Mortgage Corporation NWT Housing Corporation

Continued...

TABLE D Common Valued Components, Criteria and Indicators for SEIA *Continued*

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Population sustainability	<i>Population growth</i>	<ul style="list-style-type: none"> • Yearly population estimates • Population mobility (intra- territorial and inter- provincial) • NWT population growth by age • Number of transient workers 	Population characteristics	Statistics Canada Bureau of Statistics
Health and well-being	<i>Health behaviours</i>	<ul style="list-style-type: none"> • Incidence of heavy alcohol use • Alcohol consumption per capita • Number of children born to women younger than 18 • Gambling rates • Smoking rates 	Indicators of stress, change, social dysfunction, and possibly, inadequate health and social services	Statistics Canada Bureau of Statistics
	<i>Health conditions</i>	<ul style="list-style-type: none"> • Birth and death rates • Sexually transmitted infection rates • Numbers of reported injuries • Diabetes levels • Cancer/asthma rates • Mental health status 	Indicators of health and well-being	Health Canada GNWT Health and Social Services Regional and territorial health and social service authorities

Continued...

TABLE D Common Valued Components, Criteria and Indicators for SEIA *Continued*

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Health and well-being	<i>Community and health system characteristics</i>	<ul style="list-style-type: none"> • Health care providers per capita • Health services and programs • Self-reported workloads 	Uptake and use of services in the region-may illustrate projected need	Health Canada GNWT Health and Social Services Regional and territorial health and social service authorities
Education and training	<i>Training</i>	<ul style="list-style-type: none"> • Availability and change in training programs 	Potential for existing programs to meet needs of the proposed development	GNWT Education, Culture and Employment Aurora College
	<i>High school</i>	<ul style="list-style-type: none"> • Percentage of population >15 years and older with high school diploma • High school graduation rate • Percentage of population >15 years with grade 9 • Percentage of secondary school graduates requiring upgrading for post-secondary education 	Indicates potential employable population for semi-skilled and unskilled positions	Bureau of Statistics GNWT Education, Culture and Employment
	<i>Post Secondary</i>	<ul style="list-style-type: none"> • Percentage of population with some post-secondary training or education 	Indicative of potential employable population for skilled positions	GNWT Education, Culture and Employment Bureau of Statistics
	<i>Literacy levels</i>	<ul style="list-style-type: none"> • Functional literacy rates 	Whether a person is able to understand and employ printed information in daily life, at home, at work and in the community	GNWT Education, Culture and Employment Bureau of Statistics NWT Literacy Council

Continued...

TABLE D Common Valued Components, Criteria and Indicators for SEIA *Continued*

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Education and training	<i>Cultural education</i>	<ul style="list-style-type: none"> • Number of people with knowledge about traditional harvesting methods • Number of people who know how to live in a traditional economy • Opportunities for knowledge sharing 	The level of traditional knowledge that exists and is being shared in the communities	NWT Literacy Council Interviews First Nations and aboriginal organizations
	<i>Language use</i>	<ul style="list-style-type: none"> • Percentage of aboriginal people who speak an aboriginal language at home • Percentage of aboriginal people ≥ 15 years who are fluent in an aboriginal language • Level and accessibility of aboriginal first language instruction 	Use and development of aboriginal language skills in the community	First Nations and aboriginal organizations Bureau of Statistics GNWT Education, Culture and Employment NWT Literacy Council
Maintenance of Traditional Culture	<i>Diet</i>	<ul style="list-style-type: none"> • Use of harvested meat • Percentage of diet provided by country food • Use of harvested plants for food/ medicine 	Use of traditional foods in the community Potential indicator of increased incidence of diabetes and/or other diet-related health problems	First Nations and aboriginal organizations Bureau of Statistics

Continued...

TABLE D Common Valued Components, Criteria and Indicators for SEIA *Continued*

Valued Socio-economic Component	Criteria	Indicator	Meaning and Potential Value	Source
Maintenance of Traditional Culture	<i>Hunting, fishing and trapping</i>	<ul style="list-style-type: none"> • Percentage of population that hunts, fishes, traps for sustenance • Percent of population hunts, fishes traps for leisure/sport • Production of traditional clothing 	Related to diet, but also to culture and physical well-being	First Nations and aboriginal organizations Bureau of Statistics GNWT
	<i>Cultural values and religion</i>	<ul style="list-style-type: none"> • Changes in cultural practices • Religious practice by denomination • Changes in cultural values, such as beliefs, norms, and expectations of personal behaviour • Experience of marginalization-the structured exclusion of groups because of cultural characteristics 	Indicates changes caused by increased involvement in wage economy or the dominant society <i>It is difficult to identify specific influences, but cumulative effects must also be considered</i>	Statistics Canada Bureau of Statistics First Nations and aboriginal organizations Interviews
	<i>Cultural spaces</i>	<ul style="list-style-type: none"> • Effects on known cultural, historical and archaeological resources • Decline in use of place names 	Project-specific effects that can damage sacred or historic areas, and loss of use of place names	Interviews Surveys

APPENDIX E Sample Terms of Reference Requirements

Table E below illustrates some socio-economic information that may be required by the Terms of Reference for an EA or EIR. This is not a required or exhaustive list; the issues that must be addressed, topic areas and level of detail required by the development-specific TOR are based on

the size and nature of the proposed development, its socio-economic context, and the level of types of impacts that might reasonably be expected to occur. Consult Terms of Reference from similar EAs for more information, with an emphasis on more recent ones.

TABLE E Socio-economic Information Typically Required by the Terms of Reference

TOR Subsection	Topic Area	Information which may be required in a Developer’s Assessment Report
Description of Existing Environment	<i>Socio-economic baseline conditions</i>	<p>Include current and historic baseline data and trends (use data and trends that identify specific populations and sub-populations if available). Identify the communities and other affected groups that are included in the scope of assessment - provide a rationale for not including any “borderline” communities. For each community, provide the following baseline data- distinguish between ethnic groups and gender if feasible and appropriate:</p> <p>General</p> <ul style="list-style-type: none"> • Population demographics • Cost of living and income levels • Housing statistics • Status of social, recreational and physical infrastructure • Valued components <p>Economic</p> <ul style="list-style-type: none"> • Employment statistics • Labour-force characteristics • Levels of training/education (status and opportunity levels) • Level of existing industrial development • Levels and types of business activity • Stated community priorities, economic or social development plans • Participation rate in the traditional economy • Valued components <p>Health and well-being</p> <ul style="list-style-type: none"> • Level of general community wellness • Health rates • Crime rates • Addiction rates • Valued components

Continued...

TABLE E Socio-economic Information Typically Required by the Terms of Reference *Continued*

TOR Subsection	Topic Area	Information which may be required in a Developer's Assessment Report
Description of Existing Environment	<i>Historic/current land use</i>	<ul style="list-style-type: none"> • Describe harvesting activities such as hunting, trapping and berry picking and their importance to the potentially affected communities • Identify harvest species, harvest levels, and the level of importance of the traditional economy to communities being studied • Traditional land users and period of occupancy • Recreational land use (identify user groups) • Other economic uses of the land • Final and draft community and regional land use plans
	<i>Cultural and heritage resources</i>	<ul style="list-style-type: none"> • Identify any known or suspected heritage resources and their affiliation • Significant heritage sites such as harvesting areas, spiritual places, trails, special landscape features, etc. and their affiliation
Development Description	<i>Human resource requirements</i>	<ul style="list-style-type: none"> • List number of employees required for each stage of the proposed development • Identify skill levels required for each stage of the proposed development • Proposed work schedules and work-rotation schedules
	<i>Workforce housing</i>	<ul style="list-style-type: none"> • Identify the type(s) and location(s) of employee housing (e.g. onsite camps, temporary dwellings in nearby communities, existing dwellings in a regional centre, etc.) • Describe policy options for managing employee housing, employee conduct and safety, and travel to and from the proposed development site
	<i>Business inputs required</i>	<ul style="list-style-type: none"> • Required contractors and goods and services
	<i>Economic inputs and outputs</i>	<ul style="list-style-type: none"> • Predicted gross expenditures for each stage of the proposed development • Describe any proposed investments in human or physical capital other than direct development-related investments (e.g., training, community education, new or improved training facilities, etc.)
Alternatives	<i>Work scheduling</i>	<ul style="list-style-type: none"> • Alternatives to proposed work schedules
	<i>Development location</i>	<ul style="list-style-type: none"> • Where applicable, identify any alternatives to locations of physical works, transportation corridors and ancillary developments; describe the socio-economic context and valuation, and rationale for location choices

Continued...

TABLE E Socio-economic Information Typically Required by the Terms of Reference *Continued*

TOR Subsection	Topic Area	Information which may be required in a Developer's Assessment Report
Alternatives	<i>Development timing/ phases</i>	<ul style="list-style-type: none"> Alternative timelines for the proposed development (focus on maximizing long-term employment)
	<i>Need for camps</i>	<ul style="list-style-type: none"> State whether camps will be used for housing workers
	<i>Land usage</i>	<ul style="list-style-type: none"> Compare the development utility with the economic and social utility of alternative land uses for the area (e.g. tourism); include any information on parks, Protected Area status or proposals, and recreational features
	<i>"No-go" option</i>	<ul style="list-style-type: none"> Explain the relative merit of the development proceeding as opposed to no development happening (the "no-go" option)
	<i>Energy</i>	<ul style="list-style-type: none"> Identify alternative energy sources and/or alternatives for conserving energy
Public Consultation	<i>Requirements for early community engagement</i>	<ul style="list-style-type: none"> Developers required to include specific information in DAR as per the instructions in Section 3.2.1 on early community engagement
Boundaries	<i>Spatial boundaries</i>	<ul style="list-style-type: none"> Each valued component must have an identified spatial boundary There must be a stated rationale for each spatial boundary Identify any public concerns about native title and/or other land issues
	<i>Temporal boundaries</i>	<ul style="list-style-type: none"> Same requirements as spatial boundaries
Assessment of Impacts on the Socio-economic Environment	<i>Direct Employment</i>	<ul style="list-style-type: none"> Compare the human resources required with the available human resources in each potentially affected community- include an inventory of required skills Percentage of human resources that could be employed locally and regionally in relation to the total amount of available employment Any barriers to employing, retaining and advancing Northern and/or aboriginal residents Developer and other parties' plans, strategies or commitments to maximize Northern/aboriginal employment, and promote and retain Northern/aboriginal employees Additional training proposed to make local and regional human resources more competitive Estimated increases or decreases in local and/or regional populations caused by the proposed development

Continued...

TABLE E Socio-economic Information Typically Required by the Terms of Reference *Continued*

TOR Subsection	Topic Area	Information which may be required in a Developer's Assessment Report
Socio-economic Environment	<i>Business activity, and costs and benefits to government</i>	<ul style="list-style-type: none"> • Percentage of local, regional and territorial businesses that could be contracted for goods and services in relation to the total amount of possible business • Strategies for maximizing local business opportunities • Economic multipliers of development, including income, employment and local goods and services multipliers • Increased training requirements for business development • Estimated amount of external competition for business • Indicate how development will contribute to economic diversification in each spatial boundary • Estimated cost to government associated with the proposed development • Describe any plans to promote local post-development economic stability, emphasizing transition programs for workers, and overall protection from boom-and bust-cycles
	<i>Distribution of adverse and beneficial impacts</i>	<ul style="list-style-type: none"> • Predicted distribution of royalties and taxes from immediate development and indirect benefits (e.g. income tax) • Predicted employment, income and business activity multipliers of the proposed development (by community) • Predicted local economic impacts on inflation, costs of living, housing availability, access to goods and services, physical and social infrastructure • Identify any groups within the community that are more likely to be adversely impacted • Identify impacts on the traditional economy, and the role of conserving natural resources in development planning • Estimate which communities will be most impacted, adversely and beneficially • Estimated level of, and impacts associated with, population changes caused by in- and out-migration • Identify economic “lessons learned” from other similar developments inside or outside the NWT Identify any plans, strategies or commitments to mitigate impacts, and any agreements for distribution of benefits
	<i>Social Impacts</i>	<ul style="list-style-type: none"> • Identify and assess impacts on valued socio-economic components • Potential impacts on social structures and way of life • Potential impacts of increased disposable income on social issues in communities, including alcohol and drug usage, gambling, domestic violence, housing pressures, and educational access, quality and levels of completion • Potential impacts on employee health • Potential impacts and pathways related to individual and population health • Identify how changing population and settlement patterns may affect social service providers

Continued...

TABLE E Socio-economic Information Typically Required by the Terms of Reference *Continued*

TOR Subsection	Topic Area	Information which may be required in a Developer's Assessment Report
Socio-economic Environment	<i>Social Impacts</i>	<ul style="list-style-type: none"> • Identify social “lessons learned” from other similar developments • Identify any programs, policies, commitments to protect and promote individual, family and community wellness
	<i>Heritage Resources</i>	<ul style="list-style-type: none"> • Potential impacts of the proposed development, and associated development activities (e.g. increased access to harvesting areas) on heritage resources (see Appendix G2 for more details)
	<i>Traditional land use and resource harvesting</i>	<ul style="list-style-type: none"> • Potential direct and/or indirect impacts on hunting, fishing, trapping or berry picking, including access to land, reduced or improved hunting success, quality of country foods, etc. • Potential impacts on the ability of traditional users and non-traditional users to access traditional lands • Describe any potential or proposed compensation plan or strategy for to mitigate any impacts on traditional harvesting activities
	<i>Protected Areas</i>	<ul style="list-style-type: none"> • Identify any areas proposed for withdrawal under the NWT Protected Areas Strategy • Identify any areas of special significance not included in the Protected Areas Strategy
	<i>Aesthetic qualities and resources</i>	<ul style="list-style-type: none"> • Identify any particular landforms, locations of special interest, or other unique environments that merit special attention • Discuss potential aesthetic impacts of the proposed development, in combination with other cumulative developments • Identify users who will be adversely affected by lost or altered aesthetic qualities
	<i>Socio-economic environmental monitoring</i>	<ul style="list-style-type: none"> • Describe any commitments, plans or strategies to monitor and adaptively manage <ul style="list-style-type: none"> ▶ local and regional business opportunities ▶ employment ▶ continued education and training ▶ social impacts ▶ impacts on traditional harvesting, and ▶ employee and community health and wellness
	<i>Closure and Reclamation</i>	<ul style="list-style-type: none"> • Identify strategies for communities to adapt to post-closure economic environment • Compare closure alternatives: 1) removal or 2) maintenance of development infrastructure post-closure; include assessment of costs of care and maintenance • Identify whether technology transfer will happen
	<i>Cumulative Impacts</i>	<ul style="list-style-type: none"> • Potential cumulative impacts on cultural values, tradition, language, spirituality, etc. • Potential cumulative impacts on social cohesion, quality of life and ability to adapt positively to economic change • Potential cumulative impacts on land usability for traditional economy and/or other alternative economic activities

APPENDIX F Identifying Potential Impacts

Developers can use the following worksheet to assist in identifying potential impacts on socio-economic valued components. This completed worksheet can be useful when developing submissions for EIA authorities or as an “in-house” SEIA exercise.

Instructions for Using Worksheet

1. List development-related components in the first row.
2. List valued socio-economic components in the first column. Examples of development-related components and valued socio-economic components are listed in Table F2.
3. Determine if any development-related component may interact with any of the socio-economic valued components by asking, “Does this element of the proposed development enhance or adversely impact this valued component?” Estimate whether the interaction will be beneficial, adverse, or both, as seen in the worksheet
4. If no interaction is expected, leave the cell blank. Identify any relationships between development components and potential changes in the socio-economic environment where not enough information is available to make an estimation of the impact.
5. Include completed worksheet in EIA documentation.

TABLE F1 Worksheet to Determine Potential Impacts on Valued Components

Valued Socio-Economic Component	Development-related Component			
	New access	Increased traffic	Employment multipliers	Required skill levels
Protect heritage resources	? <i>(unknown, requires additional data)</i>			
Adequate physical infrastructure		- <i>(adverse impact)</i>		
Develop local capacity to get and maintain jobs				+/- <i>(adverse & beneficial impacts)</i>
Enhance employment levels			+ <i>(beneficial impact)</i>	

TABLE F2 Examples of Potential Development-related Components and Valued Socio-economic Components

Development-related Component	
<ul style="list-style-type: none"> • New or improved transportation access routes • Increased traffic • Increased noise levels in community and in surrounding area • Increased pollution • Restriction of movement in certain areas • Changes in land management status in certain areas • Location in proximity to communities • Location in proximity to other significant areas • Increased capital investment • Increased employment and income multipliers • Timing of activities (e.g., all at once or staggered) • Direct employment and subcontracting labour needs • Associated material requirements • Direct and indirect wages • Associated service requirements • Required skill levels of workers • Provision of training/career development opportunities • Requirement for long-distance commuting • Proposed work scheduling • Need for specialized business goods and services 	<ul style="list-style-type: none"> • Government revenues (fees, taxes, royalties, etc.) • Agreements between developer and government and/or developer and community for impacts • Provision of educational opportunities • Increased physical infrastructure in community • Physical destruction of habitat • Increased air traffic • Increased social infrastructure in community • Increased indirect economic activity including new industry • Time length of development components and associated labour requirements • Workplace physical environment • Workplace social atmosphere • Workplace hiring and firing policies • Creation of relationships between developer and community • Development of camps to house workers • Cumulative impacts of project success or failure • Energy requirements
Valued socio-economic components	
<ul style="list-style-type: none"> • Sustainable employment • Equitable distribution of wealth • Low rates of poverty • Acceptable standards of living • Reasonable access to goods and services • Low debt-to-income ratios • Acceptable level of health and social services • Acceptable physical infrastructure 	<ul style="list-style-type: none"> • Manageable population growth • Strong sense of community cohesion and wellness • Support for community values • Maintain cultural traditions and laws through healthy inter-generational relationships • Maintain traditional language • Promote healthy quality of life in the community

APPENDIX G Digging Deeper

(G1) Health Impact Assessment

The goal of health impact assessment (HIA) is similar to the goal of SEIA: to minimize negative effects, maximize positive effects and reduce inequalities. A population health approach establishes indicators related to mental and social well-being, quality of life, income, employment and working conditions, education and other factors known to influence health. HIA predicts, either qualitatively or quantitatively, how the proposed project will influence these health indicators, and develops mitigation measures to avoid or manage impacts.

“Population Health” is an approach that recognizes health is a capacity or resource rather than a state – it is a tool we use to cope with change, and it is either bolstered or eroded by that change. This broader notion of health recognizes the range of socio-economic and cultural environmental factors that contribute to health.

The determinants of the population health framework include the following:

- Income and social status
- Social support networks
- Education
- Employment and working conditions
- Physical environments
- Social environments
- Biology and genetic endowment
- Personal health practices
- Coping skills
- Healthy child development
- Health services
- Culture
- Gender

(G2) Consideration of Heritage Resources

Impacts on heritage resources are defined as changes to, loss of, or pressures on the following:

- Historic property
- Archaeological resources, including burial sites
- An aesthetically important site
- Culturally significant sites

Indirect impacts may include the devaluation of the land as a social artifact, a cultural symbol, an educational tool, and/or a spiritual reservoir. The degree of disturbance does not have to be severe to cause impacts.

Unlike many elements of SEIA, there are strong controls available to regulators to protect heritage resources in the *Mackenzie Valley Land Use Regulations*. The Prince of Wales Northern Heritage Centre is the main contact organization for archaeology; it is responsible for protecting archaeological sites in the NWT.

There are also a variety of local and regional aboriginal organizations and historic societies that can provide

information about local and regional heritage resources. Consult the Review Board’s *Guidelines for Incorporating Traditional Knowledge* and regional or local guidelines before attempting to gather traditional knowledge for use in SEIA.

Archaeological expertise, traditional knowledge holders and local knowledge holders must be included in the baseline data collection when examining heritage resources. Developers should note that the PWNHC estimates less than one per cent of heritage resources in the NWT are identified. The existence of traditional trails, important hunting or other harvesting grounds, place names, among other clues, are indicators of key areas with high heritage resource potential.

Example mitigation might include the use of community environmental monitors who have the authority to halt work on a development when there are concerns about heritage resources. This allows the developer an opportunity to identify additional mitigation to address the concerns.

(G3) Consideration of the Traditional Economy

The traditional economy is inherently socio-economic and biophysical; therefore it requires a different analysis than is used for analysing the wage economy. Each element of the traditional economy is important – berry picking and access to medicinal plants must be considered in addition to hunting, fishing and trapping. Conserving the natural resources for the aboriginal people of the Mackenzie Valley is a guiding principle of Part 5 of the MVRMA. Key contacts include the GNWT ENR Wildlife Division, the regional Renewable Resources Boards and community Renewable Resources Councils, all of which undertake harvest surveys. Questions to consider when assessing impacts on traditional economy include:

Baseline

1. What is the baseline information about the nature of the traditional economy for the region?
2. What are the existing and/or traditional land use patterns for each community?
3. How many local people are involved in the traditional economy for ► monetary gain and/or ► country food?
4. What are the background trends and predictions if this development goes ahead?
5. What animals and plants are considered to be of particular importance to the traditional economy of the communities in question? How are these species impacted?

Value of traditional economy

6. What is the value of the traditional economy in both dollars and subsistence valuation?
7. What is the value of the traditional economy in non-financial terms, such as individual well-being, community cohesion and cultural maintenance?
8. What is the potential valuation of harvest opportunity lost to the harvesters in the event of an impact on the traditional use area? Can a replacement cost for loss of country food be estimated?

9. How do local people feel about the trade offs incumbent between new jobs with greater monetary income and potential losses to the traditional economy? Which groups are most impacted, and are they among those likely to benefit from the beneficial wage economy boosts?
10. What plans does the developer, community and/or government have in place to mitigate the loss of animals, reduced harvesting success, increased costs of harvesting success, increased costs of food, change in diet, etc?

Impact on traditional land users

11. Does the development have the potential to disrupt traditional land uses? Describe in detail the mechanisms by which the development would disrupt the movement or health of wildlife, quality of wildlife resources, location access changes (for locals and outsiders), among other issues.
12. What is the effect of the development's footprint on traditional use areas and activities? Here assessors should include the direct and indirect effects (e.g., competition from other hunters) of the development and define the area under consideration in the SEIA.

Impact of employment rotation

13. Does the development have the potential to affect the stability of the non-traditional economy? How? Be sure to consider timing and flexibility of employment rotations and of development activities, and their potential pressures on specific species at different times of year.
14. How much time will be available (especially during key harvesting seasons) for local inhabitants newly engaged in the wage economy as a result of the development to get out on the land? Are there increased pressures on key species attendant with these policies?

Cumulative impacts

15. Does the development or associated cumulative developments create conflicts with existing or proposed community or regional conservation plans or community-proposed protected areas?

(G4) Consideration of Impacts on the Wage Economy

SEIA holds that both the *contribution to and costs on* the prevailing economic system of new developments should be assessed, and that factors previously externalized by developers (e.g. environmental, infrastructure, and social service costs of development) need to be examined alongside beneficial economic impacts. Key contacts for information on the non-traditional (wage) economy include all of the economic organizations listed in Appendix C. Several methods are available to estimate beneficial and adverse economic impacts, as described in Section 3.4.4.

Key economic issues in the Mackenzie Valley that may come up during EIA, depending on the size and nature of the development, include the following:

- Economies in transition – The two types of economies, traditional and non-traditional, are not always complementary in their skill sets. The transition to the wage economy has not been an easy one for practitioners of the traditional economy.
- Maximizing beneficial impacts – Small population, large developments; how do benefits stay in the North?
- Impact equity.
- Unintended consequences of increased employment and income - how to handle (crossover to social impacts).
- Boom and bust economic cycles and sustainable development.

Key Questions:

1. How will this development make a difference to the local and regional economy in the short and long term?
2. What current economic activities will be adversely/beneficially impacted?
3. How many new jobs will the development create and

what will be the extent of the income, population and employment multipliers?

4. How prepared are the potentially affected communities to take advantage of employment? What skills will be required to allow them to take full advantage of the situation?
5. Will there be adverse social and cultural impacts result from beneficial impacts such as new jobs? Exercises such as issue identification and running of multi-stakeholder scenarios can examine this sort of question.
6. What level of commitment did the developer make toward economic diversification?
7. What are probable impacts of population growth and other factors on existing or planned community physical and social services infrastructure?
8. What additional costs will there be to municipal government programs from the proposed development?
9. How will commitments made in relation to socio-economic activity be enforced and reported on?
10. Can the developer do anything to encourage the development of a sustainable economic base following the development closure?

Consideration of Alternative Land Uses

Recreational value, aesthetic value, alternative economic activity value such as tourism or outfitting, are examples of valued components that may be impacted by a proposed development. The developer should consider alternative land use when conducting its SEIA. This can involve discussions with local business and recreation groups, GNWT Tourism and NWT Arctic Tourism, pre-development community surveys about land usage and perceptions of the values of the land after the development is in place.

(G5) Consideration of Social Impacts

Generally, social impacts are those which affect the day-to-day quality of life, social cohesion, sense of belonging, family structures, etc. of individuals and communities. These are all aspects of **community wellness**. Economic wealth and financial opportunity are not the only arbiters of sustainable development. Community members can provide valuable information on social impacts, as well, government and non-governmental service provider agencies can provide key input about how development has, is, and will continue to impact communities and regions. Health Canada and GNWT Health and Social Services are important sources of information on population health modeling.

The following questions may assist a developer when considering potential social impacts:

- Which of the communities included in the SEIA are more sensitive (i.e. vulnerable) to externally imposed development? Why?
 - What groups within potentially affected communities are most vulnerable? Why? Are there currently adequate social services available to the most vulnerable (e.g., health services, counselling, community justice, shelters)?
 - Are there traditional or local knowledge sources for information about historic and current social impacts?
 - Is the community prepared for the proposed development? Is it in favour of it? Why or why not?
 - What components of the social context are valued most highly in each community, and merit special protection? What other aspects of the social environment are not prioritized and may be sacrificed in exchange for beneficial impacts of development?
- Which indicators are most appropriate for monitoring changes in social wellness for this community?
 - What are the levels of background change that is occurring to socio-economic valued components?
 - What are the trends and root causes behind these shifts? (This assists in determining the level of causation attributed to a specific development.)

When examining social impacts, developers should attempt to identify how specific development components may interact with society. Does the proposed development have the potential to:

- Disrupt the lives of individuals and families?
- Impact human mental and physical health and social stability due to changes in behavioural patterns (e.g. drug, alcohol, and/or gambling abuse and associated negative outcomes like high violent crime rates and family dysfunction)?
- Affect the availability and affordability of housing?
- Erode cultural well-being?
- Impact community infrastructure?
- Affect gender relations?
- Adversely affect quality of life? How? How is quality of life defined by community members? What is the importance of lifestyle, access to land, communal activities, aesthetic or recreational values of place?

(G6) Cumulative Impacts and SEIA

Unlike socio-economic or wildlife harvesting impact assessment, cumulative SEIA is not topic specific. It involves adding the specific and combined impacts of a proposed development on the socio-economic valued components to those of other past, present and future developments. Cumulative socio-economic impact assessment is a relatively under-developed field, and there are several challenges to its incorporation into SEIA. For one thing, the identification of cumulative impacts is difficult. Not only do changes occur over long periods, with many socio-economic and cultural factors in play, but it is difficult to determine with certainty how much any single development contributes to these cumulative impacts.

However, cumulative impact assessment is valuable in that it requires a historic long-term perspective, allowing assessors to see outside the box that confines the current development. Important to this idea is the concept of “thresholds.” Just like natural ecosystems, social systems can be damaged or destroyed if the health of valued components is undermined or removed.

The Review Board must consider cumulative impacts of past, present and reasonably foreseeable future developments and have regard for social, cultural and economic well-being of residents and communities in the Mackenzie Valley. This requires an understanding the socio-economic context of the proposed development. Research can help identify thresholds of manageable change, what consequences of crossing them might be. In cases where the impacts are as uncertain or unknown, the precautionary principle should apply.

Four key steps to conducting cumulative SEIA include the following:

- 1) Identifying valued components (done largely during scoping for SEIA)
- 2) Determining what other human activities substantially affect the same valued components
- 3) Predicting the combined effect of the proposed development in combination with these other activities
- 4) Identifying ways to mitigate and manage the combined impacts

Potential cumulative socio-economic impacts of particular importance in the Mackenzie Valley are:

- **Cumulative impacts on cultural integrity of aboriginal people**

This is a multi-faceted concern, given that both the biophysical and socio-economic environments face added pressures. For example, pressures on available time to access the land and places of special significance, or quality time to spend for cultural practices, inter-generational relations, language development, and wildlife harvesting, may threaten culture.

- **Cumulative ability to retain employment, business and income in the North**

Localized developments may affect community social structures particularly if skilled labourers are required to move to other locations for employment.

- **Cumulative impacts on regional, community, family cohesion**

Changing culture and economy also lead to changes in family structures, for better or for worse.

- **Additional pressures on infrastructure (both physical and social)**

With change comes opportunity and opportunity seekers. As the North's economy develops, the ability of government to meet the needs of a growing populace becomes more important than ever.

Given these key considerations, an adaptive approach to monitoring may be warranted, one that can rely on solid data, make reasoned analytic judgments, and respond to newly emerging concerns.

There are currently very few defined thresholds for cumulative socio-economic impacts. Through the Northwest Territories Cumulative Impact Monitoring Program (NWT CIMP) a working group is examining ways to develop community wellness thresholds for cumulative impact assessment. In the meanwhile, the guidebooks and case study materials, as well as community inputs in the forms of statements of goals, needs, and concerns about cumulative threats to the socio-economic environment, can assist in identifying thresholds of manageable change at the community or regional level.

The consideration of appropriate boundaries for data collection is important for any cumulative effects assessment. Each boundary has limits and benefits.

- **Community level** – makes most sense to the people in the region and tends to be the data that people most want to observe. However, it can be falsely misleading in that identified trends may not be statistically significant, the population is not sufficient to make general observations on, and data be confidential to maintain anonymity.
- **Regional level** – At this level, the issues of data suppression and statistical significance are dealt with, however the particularity of data is lost-and cultural groupings for data may be masked.
- **Territorial level** – This level is perhaps the best for observing large trends. For example, territorial analysis of diabetes, cancer, and other health issues are best observed with a large population database. The relevance of local breakdowns can be lost when large scale analysis is undertaken. Local variations and subtleties will be hidden. In addition, at this meta-scale of analysis, correlations with industrial activity are very difficult to establish. On the other hand, it is often simpler to collect data at the territorial level when determining major impact groups.

Key for cumulative impact assessment is to find the “canaries in the coal mine”; those indicators that can predict future change for several other related indicators.

It is best to collect data for indicators that have well-established goals, analytic capacity, and agreed upon action thresholds, rather than try to capture everything. Example socio-economic indicators to assist in cumulative impact assessment include:

1. Percentage of population 15 years and older with Grade 12 education
2. Functional literacy
3. Health and social service personnel per 1,000 population (regional and local values more important than territorial here)
4. Spousal abuse indicators (reported rates, number of women and children in shelters)
5. Divorce and separation rates and percentage of single-parent families
6. Percentage of children living in single-parent, low income families
7. Percentage of families using country food for more than 50 percent of nutritional value
8. Binge drinking rates
9. Levels of violent crime
10. Employment rates (keeping in mind local participation rates will vary and can mask)
11. Participation in traditional activities
12. Language use rates
13. Addictions and recovery rates



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The sources noted here deal with ways of creating a productive relationship between developers and communities, as well as highlighting the type of traditional knowledge inputs available that go beyond Traditional Ecological Knowledge. Those developments which will be attempting to utilize communities' traditional knowledge in their SEIA should consult the Review Board's *Guidelines for Incorporating Traditional Knowledge in Environmental Impact Assessment*.

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SEIA Case or Sectoral Studies

The cases below include developments or studies of industrial sectors that have relevant characteristics for consideration by Developers in the Mackenzie Valley (i.e., they involved a significant aboriginal presence in the affected region, non-renewable resource development, and/or the Northern climate). In addition, parties interested in how SEIA has been treated in the Mackenzie Valley should examine *Terms of Reference* and *Reports of Environmental Assessment* from previous EAs in the Mackenzie Valley.

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More information on Population Health can be obtained on Health Canada's website at www.hc.sc.gc.ca and indicator data is available from Statistics Canada and the GNWT. Health Canada and GNWT Health and Social Services have experts that should be contacted if there are questions about potential impacts of a development on individual or population health, health service availability, or policy.

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